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Operating Leverage, Firm Size and Return on Assets of Quoted Financial Firms in Nigeria

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Abstract

The introduction of company income tax necessitated the use of debt capital (leverage) to optimize financial performance, given the tax savings. Thus, the study critically investigated the extent and nature of the association between operating leverage, firm size, and profitability of listed financial firms in Nigeria. The study period was 15 years (i.e., 2006-2020). The study adopted an ex-post facto research design using the already existing data. Diagnostic tests carried out indicated the absence of unit roots and multi-collinearity. However, heteroskedasticity (i.e., the presence of non-constant variance) is detected. Panel least squares, specifically, feasible generalized least square (FGLS) regressions, were employed in analyzing data collated from the audited financial statements of the sampled firms. While the natural logarithm of total assets negatively exerted a very strong and significant impact on return on assets, both operating leverage and asset tangibility exhibited an insignificant positive connection with return on assets. It suggested that the management of firms should steadily increase the size of their near-liquid resources (negative net working capital), given that interests due on debentures and loans must be paid as at when due. Redeemable debentures must be cleared as soon as they become period costs.

Keywords: Total assets, debts, profitability, size

1. Introduction

Managers strive to maximize shareholders' wealth by making rational financing decisions regarding optimal capital structure, which would minimize the firm's cost of capital. Less than optimal capital structure decisions can lead to an increased cost of capital and result in the reduction of shareholders' wealth, investment, and profitability. Jiang, Elizabeth, and Ernest (2019) opined that the value of a firm is maximized when its cost of capital is minimized. The capital structure puzzle involves a firm's decision that managers make a choice of an ideal proportion of debt and equity that will minimize the firm's cost of capital. Leverage is the use of debt in a company's financial structure to magnify earnings (Kenn, Juliet, and Nweke, 2019). Firms apply leverage with the aim of maximizing the potential return of shareholders' wealth. If a firm uses debts, it has to pay some interest in exchange for the use of these resources. As debt ratios rise, financial risks increase, debt costs increase accordingly, and the latter reduces profitability resulting from debt financing (Mukaria, Mugenda, and Akenga, 2015; Milos & Milos, 2015). A financial performance measure provides a valuable tool for stakeholders to evaluate the past financial performance and the current position of a firm.

Financing and investment decisions are two major pertinent issues in the fundamental functions of corporate decision-making of every firm. It is ranked much more in preference to other functions that help financial managers decide where, how, and when to obtain finances to meet the investment needs of the firm (Amit, 2016). Hasan (2014) submits that there is much debate about the best combination of funds to improve a firm's financial performance by reducing the combined risk associated with funding sources. Financial leverage and profitability are basic issues in corporate finance. As the pecking order theory rightly put it, an optimal structure is derived through a tough balancing of the costs that are related to debt financing and tax benefits from the use of debt finance (Zhao & Wijewardana, 2012; Ismail, 2016). Finance is a primary tool for the existence, survival, and growth of any category of business organization in any given economy, be it developing or developed.

It is proposed that the funds produced internally may not be adequate to finance business operations to make adequate returns. Xin (2014) posited that many firms become insolvent due to the fact that they have sub-optimal capital combinations. Therefore, it is important for firms to have the right combination of capital, which reduces their insolvency risk and, at the same time, maximizes the value of the firm. The fund requirement is not the same for all industries and firms as they are driven by different asset structures, technologies, cash flows, etc. Therefore, the type of industry is also

considered one of the important determinants of leverage (Gweji & Karanja, 2014). So, it is easier for quoted financial firms to raise debt as cash flows which are swift and predictable through customers' deposits, demand deposits, and placement or fixed time deposits. In an attempt to magnify the return to shareholders, managers employ the use of debt (Osagie, 2017). When excessive debt financing is employed by a firm, it increases the cost of financing and the financial risk of the firm leading to decreasing returns for equity shareholders.

Sharon and Celani (2019) examined the proper combination of the firm's financial liability in checking the corporate performance of firms in a given period. Capital structure is directly connected with corporate performance. This is measured by different variables to assess the performance of business operations. Its measurements include:

- Productivity,
- Profitability,
- Growth, and
- Customers' satisfaction

Scholars such as Che, Jana, and Mohd (2017), Mohammed and Mohammed (2017), Siros, Shohreh, and Saied (2015) uphold that due to ownership and wealth incentives, it is important for investors and stakeholders to understand the effect of their investment on firm's profitability. It is often argued that increasing leverage by regulating margin requirements on loans can result in a drastic effect on the total debts and would equally have negative implications on the value of total assets and would impact negatively on the working capital. This situation, of course, would jeopardize operational efficiency and hit the returns and profitability measures, such as return on assets, return on investment, and profit margin, among others. In the long run, the firms are unable to service their debt obligations. It becomes imperative to liquidate and face bankruptcy challenges.

We should recognize the fact that the implications on the cost of capital are that all borrowed funds come with underlying interest rates, and the weighted average cost of capital (WACC) becomes critical in considering the associated risk, which can precipitate financial collapse. It would equally affect loans and advances, customers' time and demand deposit accounts, cash reserves, and above all, the total debts of these financial firms. It will rise because they do not hold enough cash to meet the creditors' and other investors' financial needs because they want to see the outcome of their investment. The study examined the effect of operating leverage and firm size on the return on assets of quoted financial firms in Nigeria. It adopted the following proxies for the explanatory variables: operating leverage to total assets and the natural logarithm of total assets. Profitability is proxied by return on assets.

2. Review of Related Literature

2.1. Conceptual Review

2.1.1. Leverage

It is associated with the financing activities of corporate firms. It is used to measure a firm's combination of operating costs showing how a change in output affects profit (Philip, 2018). The two basic types of operating costs are fixed and variable costs that depend on the firm and its combination strategy of capital structures (Ibrahim, 2017). Since the use of debt is more common in practice than the use of preferred stock, leverage usually refers to the use of debt in the capital structure of firms. A firm with debt on its statement of financial position is called leveraged. A company that finances its activity only through equity or internal finance is said to be unlevered (Mohammed & Ibrahim, 2017; Graham & Smart, 2011). The financial leverage is used to augment the results of a company by using fixed-cost financing to show that the common practice of a company to deduct interest payments from the taxable income gives a good incentive for that company to substitute debt for equity (Kenn-Ndubuisi, Juliet and Nweke, 2017; Kapil, 2011; Abdul & Badmus, 2017).

Al-Sakran (2001) and Jacinta, Mahfuzur, and Selvam (2017) opined that a firm's financial decisions are affected by its profitability and that issuing debt means that firms have an investment opportunity that exceeds their internal funds. He added that debt usage may be a signal to the public about a firm's current situation and that the firm expects future earnings from the new investment. However, using debt in a firm's capital structure might also be a sign of impending financial problems that could lead to poor financial performance and potential bankruptcy. Avgouleas (2015) argued that the public (equity resources) usually will not invest in an unprofitable firm. Recent studies by John-Akamelu, Iyidiobi, and Ezejiofor (2017) and Charalambakis and Garrett (2010) affirmed that firms with high average tax rates would want to issue debt in lieu of equity. In contrast, firms with a high probability of financial distress are less likely to issue debt. John-Akamelu, Iyidiobi, and Ezejiofor (2017) and Charalambakis and Garrett (2010) focused on debt-equity choices instead of debt ratios.

2.1.2. Operating Leverage

It is defined as the firm's ability to use fixed operating costs to expand changes in sales on its earnings before interest and taxes. Alternatively, it is the quotient of fixed cost and total cost of the firm. Operating leverage, as one of the types of leverage, occurs when a firm has fixed operating costs that must be met regardless of the volume of sales or trading conditions. Pandey (2011) found that operating leverage is the ratio of the percentage change in EBIT to the percentage change in sales. Oye (2019) concurred that it is the degree to which fixed costs are put into use in the operation of a business because it emphasizes variation in profits. He, further, asserted that total operating costs consist of fixed costs and variable costs. The formula for calculating operating leverage is: $OPL = EBIT / \text{Turnover}$
Where:

- OPL = operating leverage
- EBIT = Earnings before interest and tax

Degree of Operating Leverage: Operating leverage occurs when a company has fixed costs that must be met regardless of sales volume. When the firm has fixed costs, the percentage change in profits due to changes in sales volume is greater than the percentage change in sales. It is computed thus: $DOPL = \% \text{ change in EBIT} / \% \text{ change in Turnover}$

2.1.3. Profitability

Theories of trade-off theory and pecking order theory predict the different directions of the relationship between leverage and profitability. In the view of classical trade-off theory, profitability should be positively related to leverage since the firms with higher profits should borrow more to shelter their income (Yusuf, Nwifo, and Chima, 2019). Besides, Jensen (1986) maintained that debt is a mechanism that prevents wasteful investment. In this regard, the higher the profitability or free cash flow that a firm generates, the higher the leverage ratio it attains. Profitability is regarded as a measure or an indicator of managerial efficiency in planning and controlling the available resources of the firm. Profitability is one of the core mandates of any business enterprise. Without being profitable, it is not possible for a business to survive, grow and expand. Even the payment of dividends to stockholders as a return on investment would be impossible, and the payment to debt holders would be uncertain (Kobika, 2018).

2.1.4. Firm Size

The effect of size on leverage is ambiguous. Omuemu and Olowe (2020), Zakaria, Purhanudin, Chong, and William (2016), and Ezeoha and Ferdi (2011) asserted that bankruptcy costs are relatively higher for smaller firms. In the same vein, Wahab and Ramli (2014) and Songul (2016) maintained that larger firms tend to be more diversified and fail less often. Accordingly, the trade-off theory predicts an inverse relationship between size and the probability of bankruptcy: a positive relationship between size and leverage. If diversification goes along with more stable cash flows, this prediction is also consistent with the free cash flow theory by Jensen (1986) and, Brahmadev (2017), and Hampus and Martin (2017). This notion implies that size has a positive impact on the supply of debt. On the other hand, size can be regarded as a proxy for information asymmetry between firm insiders and the capital markets. Larger firms are more closely observed by analysts and the public. However, the pecking order theory of capital structure predicts a negative relationship between leverage and size, with larger firms exhibiting an increasing preference for equity relative to debt. Following Wahab and Ramli (2014), their measure of size is the natural logarithm of net sales.

2.1.5. Return on Assets

Carlos and Rodrigo (2010) affirmed that return on assets (ROA) is one model of the classical financial indicators or accounting ratios used by firms to measure performance. This concept has been perceived and applied differently. ROA is a pointer of how profitable a firm is, compared to its total assets. It shows the picture of how efficient management is at using its assets to generate earnings to increase return on investment. Businesses (at least the ones that survive) are ultimately about efficiency: squeezing the most out of limited resources (Claire, 2020).

2.2. Theoretical Framework

2.2.1. Trade-Off Theory

Trade-off theory was propounded by Myers and Majluf (1984) in respect of the financial approach to theory. Regarding this theory, researchers are keen on the relationship between leverage, profitability, and the value of the firm and also how leverage optimized the right combination of equity and debt of the firm in the long run to sustain the firm's reputation. Samuel (2018) argued that Trade-off theory is a stem from the Modigliani and Miller (MM) theory of leverage or capital structure, which has the point of view that the choice of a firm's decision on how much of debt or how much of equity should be used in financing assets must consider the balancing between cost and benefits. According to the theory, there are benefits of leverage within a capital structure until the optimal capital structure is attained (Myers, 1984). The leverage aspect of the theory states that there is a performance benefit in financing a firm with debt. The theory accepts the tax benefits from interest payment if a firm is financed with debt. However, under this theory, optimal leverage is attained when a firm sets a target of debt-to-equity ratio and steadily moves towards the target (Myers, 1984).

The theory, however, allows adjustment of the target leverage/capital structure to achieve the set target. The assumptions of trade-off theory have witnessed numerous reviews by different scholars on the best way to modify and close the identified gap of the theory. Thus, Grahnan (2013) identified a gap in the trade-off theory based on the tax effect. He opined that tax effects are more complex than the assumption of the theory itself. However, the nature of bankruptcy cost was not discussed in the assumption of the theory. Similarly, Frank, Murray, and Goyal (2011) and Vidhan (2015) advanced pertinent questions about bankruptcy costs that affect optimal leverage. Are the bankruptcy costs fixed costs that will affect leverage? Does it increase with the size of the bankruptcy? Leary and Roberts (2005) asserted that the implication of the adjustment of the tax shield and bankruptcy cost has led to alternative adjustment cost assumptions or norms of the theory.

2.3. Empirical Reviews

Maziar and Nazrul (2016) explored the impact of operating leverage on the liquidity of firms: Evidence from Malaysia. This study investigated the effect of operating leverage on a firm's liquidity cum capital structure of 300 listed companies in Malaysia Stock Exchange from 2005 to 2013. It adopted a descriptive research design. Pooled OLS was used

to examine the influence of liquidity ratios on different debt ratios. Liquidity as the dependent variable is proxied by quick and current ratios, while the independent variables are debt/equity and debt/asset ratios. The results depicted that the quick ratio and current ratio have significant impacts on all the proxies of leverage. Sunday, Adeniyi, Wasiu, and Olalekan (2020) investigated the effect of operating leverage on the financial performance of Nigerian firms. The population of the study was 70 manufacturing firms listed on the Nigerian Stock Exchange for the period of six years (2012 to 2017). The study adopted an *ex-post facto* research design, and data were collated from the audited annual reports and accounts of these firms. It made use of multiple regressions, particularly pooled ordinary least squares, to analyze the data and test the formulated hypotheses. The results found that leverage proxies- degree of operating leverage and degree of combined leverage have a significant positive effect on profitability.

Abdul and Badmus (2017) examined the relationship between operating leverage and return on assets of chemicals and paints firms quoted on the floor of Nigeria Stock Exchange. The study sampled three firms randomly chosen from a total of nine firms listed in the sector for a period of ten years (2000 – 2009). It employed a descriptive research method with the help of ordinary least square (OLS) and collected secondary data from the exchange website and the firm's audited annual reports and accounts. Return on assets (ROA) was used as a proxy for performance, while equity and debt ratios acted as proxies for capital structure in models. The results showed that equity has a significant positive impact on ROA, but debt ratio has a negative and insignificant relationship with financial performance.

Yusuf, Nwufu, and Chima (2019) investigated the optimal synergy between operating leverage, liquidity, and profitability management of quoted banks in Nigeria. Data were collected from secondary sources. The population of the study consisted of all quoted banks in Nigeria as of 31 December 2013. The sample size of the study was determined using the purposive sampling technique. Profitability and liquidity variables were used, and a multiple regression model, correlation analysis, and F-tests were employed to test the hypothesis at 5% significance level. The result indicated a significant optimal synergy between liquidity and profitability management of the sampled banks. Also, optimal liquidity and profitability management is achieved when stability is struck between the two performance indicators in such a way that the pursuit of one of them does not lead to a detrimental effect on the other.

Olaiya, Yakubu, and Dangana (2020) empirically examined the effect of operating leverage on capital structure and profitability. Particularly, it investigated the relationship between short-term debt and profitability of quoted healthcare firms in Nigeria for a period of 10 years (2003-2012). It employed a panel least square regression model to test the hypothesis. It was discovered that operating leverage has a significant effect on the profitability of these healthcare firms. It concurs that leverage impact positively on return on asset and return on investment but negatively on earnings per share. Samuel (2018) explored the relationship between operating leverage, other moderating variables, and bank performance. Data were collected from audited financial statements of fifteen listed universal banks in Ghana for the period of eleven years (2006 to 2016). It made use of a cross-sectional time series research design with a quantitative research approach. Fixed effect panel regression was used to analyze the hypothetical statements. The results revealed that listed banks in Ghana are highly leveraged with more short-term debt to equity. Further, the level of gearing for listed banks has a positive relationship with the bank performance indicators.

Nwanna and Ivie (2017) conducted a study on the sensitivity of profitability to financial leverage in Nigeria. The explanatory variables of the study were: debt ratio, debt-equity ratio, and interest coverage ratio. The proxy for profitability includes firm size, liquidity, managerial efficiency, and market capitalization value of thirteen (13) quoted banks listed in the Nigeria Stock Exchange for a period of ten years from 2006 to 2015. Data were collected from the annual reports and accounts of these banks. It adopted multiple regression models to test hypotheses. The result revealed that financial leverage has a positive and significant effect on both profitability and managerial efficiency. Contrastingly, financial leverage has no significant effect on liquidity, size, and market capitalization value. Haslindar and Teik (2019) studied the determinants of financial leverage for surviving listed companies in Malaysia. A total of 151 listed companies in Bursa Malaysia were selected from the year 2000 to 2015 (16 years).

The study adopted descriptive statistics in analyzing the data and employed four independent variables: asset tangibility, growth opportunities, profitability, and liquidity, with firm size as a control variable. The financial leverage was measured by short-term debt ratio, long-term debt ratio, and debt ratio. The findings depicted that asset tangibility and growth opportunities are significantly and positively related to long-term debt and debt ratio, showing that firms prefer to use long-term debt to finance their fixed assets investment in line with the trade-off theory. It was further discovered that profitability and liquidity were significantly and negatively related to short-term debt ratio and debt ratio.

Serhiy, Zabolotnyy, Mirosław, and Wasilewski (2018) estimated operating and financial leverage as risk measures in agricultural companies. The study involved companies from the database of the Institute of Agricultural and Food Economics – National Research Institute for the relevant range 2005-2013. The degree of financial leverage showed that the level of debt and interest paid influenced the risk of agricultural companies to a lesser extent. Agricultural companies with a high degree of total leverage had lower financial efficiency, arising from a low ability to generate an operating profit.

3. Methodology

The study employed an *ex-post facto* research design. It was carried out in Nigeria, and only quoted financial firms active for the 15-year study period (2006-2020) on the floor of the Nigerian Stock Exchange were used. The study population covered 22 deposit money banks, 19 insurance companies, and 10 investment companies in Nigeria as of 31 December 2020. The sample via purposive sampling is made up of only 11 banks, 5 insurance firms, and 4 investment companies. *Note that panel least squares regression analysis, specifically Feasible Generalized Least Squares (FGLS), was employed in analyzing the data and testing the hypothetical statements. It became necessary as it corrects heteroskedasticity, cross-correlation, and so on.* Considering the underlying objectives of the study, the model for this study is specified as:

$$ROA_{it} = \beta_0 + \beta_1 OPL_{it} + \beta_2 \ln TA_{it} + \beta_3 AT_{it} + C_{it} + \varepsilon_{it}$$

Where ROA = Return on Assets = Profit for the Year / Total Assets

OPL = Operating Leverage = Earnings before Interest and Tax / Sales Revenue = EBIT / TNR

LnTA = Natural logarithm of total assets

AT = Asset Tangibility = (Total Assets - Current Assets) / Total Assets. AT is employed as a control variable.

β_0 is the constant term or intercept for firm i in the year t . β_1 , β_2 , and β_3 are linear regression coefficients to be estimated. C_{it} is the non-observable individual effect, while ε_{it} is the disturbance or error term for firm i in the year t .

4. Results

Var.	Obs.	Mean	Std. Dev.	Std. Err	Prob (Skew)	Prob (Kurt)	Min	Max
roa	272	0.1556	0.6167	0.0374	.0000	.0000	-0.5497	7.259
opl	272	1.8905	19.9776	1.2113	.0000	.0000	-257.014	102.4912
lna	272	14.6219	1.7447	0.1058	0.6513	0.0003	10.3388	18.8195
at	272	-2.0308	11.6810	0.7083	.0000	.0000	-82.3167	0.999

Table 1: Descriptive Statistics
Source: Authors' STATA 14.2 Outputs

Table 1 above depicts that the mean is an approximate measure of the true population (all quoted financial firms in Nigeria). It became obvious as the standard errors of all entered variables are far smaller than their respective means. Particularly, the standard errors are quite small and aligned with the theory that it becomes smaller as a normal sample approaches the true population. However, the standard deviations of the same variables seemed to be larger than their respective means, excluding the natural logarithm of total assets. This confirmed its vulnerability to extreme values prevalent in diverse populations. Except for the natural logarithm of total assets, the probabilities of both moments for the remaining predictors are below 0.1%. The range (difference between maximum and minimum values) is undulating for the relevant period. That is, they are approximately normally distributed.

Var.	roa	opl	lna	at
roa	1.0000			
opl	0.0827 0.1739	1.0000		
lna	-0.2719* 0.0000	-0.0443 0.4669	1.0000	
at	-0.2089* 0.0005	-0.1755* 0.0037	0.4185* 0.0000	1.0000

Table 2: Correlation Matrix with P-values Involving 272 Observations
Source: Authors' STATA 14.2 Outputs

Table 2 showcased that two of the explanatory variables exerted very strong negative effects on the regressand (return on assets). However, operating leverage exhibited a statistically positive and insignificant connection to return on assets. Perfect relationships exist between asset tangibility, operating leverage, and the natural logarithm of total assets connoting the presence of collinearity. It is easily adjusted using collinearity diagnostics, given the non-existence of both lagged values and dummy variables.

Fisher-type unit-root test for all the Variables based on Augmented Dickey-Fuller tests

Ho: All panels contain unit roots. Number of panels (N) = 20

Ha: At least one panel is stationary. Average Number of periods (T) = 13.60

Asymptotics: $T \rightarrow \infty$

Var.	P	Z	L*	Pm	Lags
roa (Stat)	115.28	-5.63	-6.5	8.42	1
(Prob)	0.00	0.00	0.00	0.00	
opl (Stat)	118.39	-5.12	-6.2	8.76	1
(Prob)	0.00	0.00	0.00	0.00	
lna (Stat)	85.39	-1.83	-2.62	5.08	1
(Prob)	0.00	0.03	0.01	0.00	
(Stat)	69.3	-2.2	-2.31	3.28	1
(Prob)	0.00	0.01	0.01	0.00	

Table 3: Panel Data Stationarity Tests
Source: Authors' STATA 14.2 Outputs

Key diagnostic tests carried out were included in the appendices. These comprised of variance inflation factor (VIF proved the absence of multi-collinearity) test, heteroskedasticity (proved the existence of non-constant variance) test, and Fisher-type unit-root test for all the variables based on Augmented Dickey-Fuller tests depicting the absence of even a single unit root (see table 3 probability values above). In other words, both dependent and explanatory (including control) variables are stationary, signifying the stableness and normality of the distribution. Thus, the fixed effect model or its modification/derivative is best suited to panel least squares regression, specifically, *Feasible Generalized Least Squares (FGLS) Regression*.

roa.	Coefficients	Std. Err.	t	P> t	95% Confidence	Interval
opl	0.0007	0.0015	0.45	0.656	-0.0023	0.0036
lnta	-0.2696	0.0375	-7.18	0.000	-0.3432	-0.196
at	0.0035	0.0052	0.67	0.502	-0.0067	0.0138
_cons	4.5366	0.5779	7.85	0	3.404	5.6692
Number of observations = 272				Number of groups = 20		
R-Squared = Wald Chi2(3) = 57.82				Prob > chi2 = 0.0000		

Table 4: Feasible Generalized Least Squares (FGLS) Regression

Source: Authors' STATA 14.2 Outputs

The table above depicts that the overall influence of the predictors on the regressand is statistically very significant at P-value = 0.0000. As regards hypothetical statements, the relationship between operating leverage (opl) and return on assets (roa) is positive but insignificant at P-value = 0.656 > 0.05 level of significance and t-statistic = 0.45 < |2|. Similarly, the sensitivity of return on assets to the control variable asset tangibility (at) is statistically positive and insignificant at P-value = 0.502 and t-statistic = 0.67 < |2|. However, the natural logarithm of total assets exerted a very strong impact on return on assets, given the P-value = 0.0000 and t-statistic = -7.18 > |2|. That is, the size of the firm significantly impacts the profitability of these sampled firms. This is not surprising as the financial sector is heavily regulated and monitored by Central Bank of Nigeria (CBN) and Nigerian Deposit Insurance Corporation (NDIC). The coefficients of the independent variables are quite small for both operating leverage and asset tangibility. That is, 1% increase in both operating leverage and asset tangibility increases return on assets by 0.07% and 0.35%, respectively. Fortunately, the size of the finance firm matters, given that 1% increase in the natural logarithm of total assets decreases return on assets by 27%.

5. Conclusion

The findings of the study accentuated the limitations posed on the management of these financial firms by bureaucratic bottlenecks of Central Bank of Nigeria and Nigerian Deposit Insurance Corporation. External influence dominates the actions/inactions of the management. While the natural logarithm of total assets negatively exerted a very strong and significant impact on return on assets, both operating leverage and asset tangibility exhibited an insignificant positive connection with return on assets. The study suggests a holistic investigation of the relationship between various types of leverage and measures of the financial performance of these firms.

6. References

- i. Abdul, J., & Badmus, O. (2017). Effect of leverage on firm performance in Nigeria: A case of listed chemicals and paints firms in Nigeria. *Global Journal of Management and Business Research*, 17 (2), 224–233.
- ii. Adenugba, A. A., Ige, A. A. & Kesinro, O. R. (2016). Financial leverage and firms' value: A study of selected firms in Nigeria. *European Journal of Research and Reflection in Management Sciences*, 4 (1), 37–45.
- iii. Al-Sakran, S. (2001). Leverage determinants in the absence of corporate tax system: the case of non-financial publicly traded corporations in Saudi Arabia. *Managerial Finance*, 27 (10/11), 58–86.
- iv. Amit, K. S. (2016). Impact of financial leverage on firm's performance and valuation: A panel data analysis. *Indian Journal of Accounting (IJA) ISSN: 0972-1479 (Print) 2395-6127 (Online) 48(2)*, 73–80.
- v. Avgouleas, E. (2015). Bank leverage ratios and financial stability: A micro- and macro-prudential perspective, *A Working Paper, 849*, Levy Economics Institute of Bard College, Annandale-on-Hudson, NY.
- vi. Celani, C. D. (2019). Does capital structure impact firm performance: An empirical study of three US sectors? *Journal of Accounting and Finance*, 15(6), 57–65.
- vii. Claire, S. (2020). Effect of operating leverage on the performance of economy: Evidence of India listed Stock Exchange. *International Institute of Academic Research and Development*, 23, 34–46.
- viii. Charalambakis, E. & Garrett, I. (2010). Debt ratios or debt-equity choice? Revisiting the association between firm-specific characteristics and capital structure. A paper presented at the European financial association annual meeting held on 25–28 August 2010, Accessed on 20 March 2012. http://www.efmaefm.org/0EFMAMEETINGS/EFMA%20ANNUAL%20MEETINGS/2010-Aarhus/EFMA2010_0354_fullpaper.pdf
- ix. Che, W. K., Nor, J. S. & Mohd, J. N. (2017). Determinants of financial leverage for panel data of industrial product sector in Malaysia.
- x. Ezeoha, A. E. & Ferdi, P. E. (2011). Firm size and corporate financial leverage choice in developing economy: Evidence from Nigeria. *The Journal of Risk Finance*, 9 (4), 351–364.

- xi. Gweji, M. O. & Karanja, J. (2014). Effect of financial leverage on the financial performance of deposit taking savings and credit co-operative in Kenya, *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 4 (2), 180-188.
- xii. Hasan, A. A. (2014). An investigation of the effect of financial leverage on firm financial performance in Saudi Arabian listed companies. *An Unpublished Ph.D. thesis*.
- xiii. Jiang, H., Elizabeth, S. A. & Ernest, K. B. (2019). The effect of liquidity and financial leverage on firm performance: Evidence from listed manufacturing firms on the Ghana Stock Exchange. *Research Journal of Finance and Accounting*, 10 (8), 91-102.
- xiv. John, A. R. C., Iyidiobi, F. C. & Ezejiolor, A. R. (2017). Leverage and financial performance: Evidence from Nigerian food production firms. *European Journal of Research and Reflection in Management Sciences*, 5 (4), 2056-2071.
- xv. Kenn-Ndubuisi, J. I. & Nweke, C. J. (2019). Financial leverage and firm financial performance in Nigeria: A panel data analysis approach. *Global Journal of Management and Business Research*, 19(4), 153-167.
- xvi. Kobika, R. (2018). Liquidity management and profitability: A case study analysis of listed manufacturing companies in Sri Lanka. *Global Scientific Journal*, 6 (9), 232-239.
- xvii. Leary, M. T. & Roberts, M. R. (2005). Do firms rebalance their capital structures? *Journal of Finance*, 60, 2575-2619.
- xviii. Miloş, L. R. & Miloş, M. C. ((2015). Does short-term debt affect profitability? Evidence from the Romanian listed companies. *Annals of the Constantin Brâncuşi' University of Târgu Jiu, Economy Series*.
- xix. Mohammed, A. A. & Mohammed, I. O. (2017). Towards more understanding of the financial leverage controversy: The evidence of the industrial firms at Amman Stock Exchange. *International Journal of Economics and Financial Issues*, 7 (4), 189-198.
- xx. Mukaria, K., Mugenda, N. G. & Akenga, G. M. (2015). Effect of leverage on the performance of non-financial firms listed at the Nairobi Securities Exchange. *Journal of Finance and Accounting*, 3 (5), 132-139.
- xxi. Myers, S. C. & Majluf, N. S. (1984). The capital structure puzzle. *The Journal of Finance*, 39 (3), 574-592.
- xxii. Nwanna, I. O. & Ivie, G. (2017). Effect of financial leverage on firm's performance: A study of Nigerian banks. *International Journal of Recent Scientific Research*, 8 (7), 554-564.
- xxiii. Olaifa, O. O., Yakubu, A. & Dangana, U. (2020). Leverage and profitability of quoted health care firms in Nigeria. *International Journal of Research and Scientific Innovation*, 5(2), 221-229.
- xxiv. Olowe, R. A. (2020). *Financial management: Concepts, financial system, and business finance*. (4th ed.). Brierly Jones Nigeria Limited.
- xxv. Osagie, O. (2017). Effect of debt-equity mix on the financial performance of downstream oil and gas firms in Nigeria: <https://www.researchgate.net/publication/328811211>
- xxvi. Oye, A. (2019). *Financial management*, (10th ed.). El-Toda Ventures, Lagos, Nigeria.
- xxvii. Pandey, I. M. (2011). *Financial management*. (9th ed.). Indian Institute of Management, Ahmedabad Alka-Publishing House Pvt. Ltd.
- xxviii. Samuel, G. G. & Samuel, K. A. (2018). Assessment of the relationship between leverage and performance: An empirical study of listed banks in Ghana. *Journal of Economics and International Finance*, 10 (10), 123-133.
- xxix. Serliy, Z. M. & Wasilewski. S. I. (2018). Effect of operating leverage and profitability of insurance firms in Ghana. *Canadian International Business and Management*, 7(2), 57-65.
- xxx. Siros, O., Shohreh, Y. & Saied, O. (2015). Effect of complex ownership structure and ownership control ratio on financial leverage in companies listed on Tehran Stock Exchange. *European Online Journal of Natural and Social Sciences*, 4 (1), 181-187.
- xxxi. Songul, K. A. (2015). The determinants of capital structure: Evidence from the Turkish manufacturing sector. *International Journal of Economics and Financial Issues*, 5 (1), 158-171.
- xxxii. Sunday, O., Adeniyi A., Wasiu, A. & Olalekan, J. O. (2020). Effect of liquidity and leverage on the financial performance of Nigerian listed consumer goods firms. *The Journal of Contemporary Economy* 4 (3), 438-451.
- xxxiii. Vidhan, B. (2015). Financial leverage and its determinants in companies producing electricity from wind resources in Latvia. *Institute of Physical Energetics, Economics, and Business*, 3(2), 169-183.
- xxxiv. Wahab, S. N. A. & Ramli, N. A. (2014). The determinants of capital structure: An empirical investigation of Malaysian listed government-linked companies, *International Journal of Economics and Financial Issues*, 4 (4), 930-945.
- xxxv. Xin, W. Z. (2014). The impact of ownership structure and capital structure on the financial performance of Vietnamese firms. *International Business Research*, 7 (2), 64-72.
- xxxvi. Yusuf, M. O., Nwufu, C. I., & Chima, E. I. (2019). Optimum synergy between liquidity and profitability management of quoted banks: The Nigerian perspective, *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 9 (2), 138-148.
- xxxvii. Zakaria, Z., Purhanudin, N., Chong, T. P. & William, C. K. S. (2016). Leverage and agency cost of Malaysian construction listed companies. *International Journal of Management Research and Reviews*, 6 (12), 165-173.