

# Financial Structure and Financial Performance of Listed Firms in Nigeria

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## ABSTRACT

*The instability and fluctuations in the financial performance of firms listed on the floor of the Nigerian Stock Exchange has continued to trigger researchers mind on the factors influencing it. In view of this, the study examined the impact of financial structure on financial performance of listed firms in Nigeria Stock Exchange. Data for the study were obtained from the audited annual report of the seventy-one sampled firms for a period of 10 years covering 2009 to 2018. Return on asset (ROA) was used as a measure of financial performance while long term debt to equity, long term debt and short term debt to total asset were used as financial structure variables. The study employed dynamic system generalized method moment (GMM) as technique of analysis and testing of hypotheses. The result shows that long term debt to equity ratio has positive and insignificant impact on ROA while short term debt to total assets ratio have negative and significant impact on return on assets. The study concludes that higher long term and short term debt in the financial structure influences the financial performance of listed firms in Nigeria Stock Exchange. The study recommends among others, managers of firms listed in the Nigeria Stock Exchanges in determination of optimal financial structure should seek for debt with less cost to the firms.*

*Keywords: financial structure, financial performance, long term debt, short term debt, Nigeria Stock Exchange.*

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## 1. Introduction

Effective financial decision making requires an understanding of the goals and objectives of an organization. These goals become the focal point for managers in any business dealing. This is because it is the basis for improvement in financial performance. Improving financial performance has become essential for firms actualization of the profit maximization goal. Maximizing return on assets and shareholders' funds is built on the firm's efficiency. Erasmus (2008) noted that financial performance measures like profitability and liquidity among others provides a valuable tool to stakeholders to evaluate the past financial performance and the current position of a firm. Financial performance measures how well a firm can use its assets from its primary mode of business and generate revenues. Financial Performance is also used as a general measure of a firm's overall financial health over a given period. Analysts and investors use financial performance to compare similar firms across the same industry or to compare industries or sectors in aggregate.

The financial structure of a firm is the mixture of debt (long and short term) and equity that a firm uses to finance its business. Firms financing decision involve deciding the best financial structure mix for the firm. Ong and Teh, (2011), see financial structure as a mixture of a company's debts (long-term and short-term), common equity and preferred equity. Most of the effort of the financial decision making process is centered on the determination of a well-balanced financial structure; where the cost of capital is minimized and firms' value is maximized. A well-balanced financial structure maximizes the market value per share or minimizes the average cost of capital which aid to generate sound earnings for the equity shareholders which in turn, reveal the performance of a firm.

Excessive use of debt in the financial structure exposes the firm to the risk of financial distress, insolvency and bankruptcy, which may occur due to inability of the firm to service the debt at the appropriate time. High debt profile in the financial structure of a company especially the long term debt will result to the company committing both the principal and fixed interest payments on debt. Financial structure theory suggests that firms determine what is often referred to as a target debt ratio; which is based on various trade-off between the costs and benefits of debt versus equity (Niu, 2008). The Nigerian Stock Exchange is undisputedly seen as one of the contributors to economic development and as such the NSE act as a barometer of the economy. There are eleven sectors companies can be listed on the Nigerian Stock Exchange (NSE), they include oil and gas, healthcare, agriculture, real estate, financial services, information communication technology (ICT), industrial goods, consumer goods, services, conglomerates, and natural resources.

Different sectors in Nigeria have encountered challenges that have affected their revenue and profit after tax. Over the years the financial performances of companies in Nigeria have not been stable. A quick look into the financial report of firms from the different sub sectors in 2016 revealed a decline in revenue and profit after tax. This is not surprising as the NSE industrial index recorded a steepest drop 26.37 as a result of the difficulties faced by firms in accessing capital for investment and operational purpose. Further in 2017 the performances of firms listed in Nigeria improved as the gross profit after tax of the companies hit 1.8 trillion naira. (PwC, 2018). Furthermore, over the years there have been instability and fluctuations in the financial performance of firms listed on the Nigeria Stock Exchange. Which is an indication that firms in Nigeria, have not achieved an optimum capital structure that maximizes the firm's value and minimizes the firm's risk or cost of capital (Adenugba, Ige & Kesinro, 2016). Financial managers find it difficult to exactly determine the optimal capital structure (Noreen, 2013).

In Nigeria several firms in the different sectors have experienced good financial performance while some firms are experiencing downward performance. This continued decrease in financial performance has of listed firms in recent year has led to winding up and voluntary withdrawal from the stock market. Within the period of five years (2013 to 2018), firms have been delisted from the Nigeria stock exchange. Checks conducted by leadership newspaper as reported by Bello (2019) disclosed that some companies delisted voluntarily from the capital had mentioned harsh economic climate, continuous decline in performance and parent buy-out as a reason for withdrawal.

Hike in Inflation, interest rates, foreign currency exchange rates have made both the cost of finance and the cost of doing business in Nigeria is very high. Many Sectors in Nigeria such as financial service sectors, conglomerate and so forth have largely incorporated debt as part of their financial structure in order to develop their business, and further as working capital management. Nigeria presently do not have specific rules governing financing arrangement and issues bordering on interest deductions on loan. This situation has led to loss of investors' wealth and confidence in the stock market. Yahaya, Mgbemena and Ono (2017).

Many studies have been conducted on the effect of financial structure on financial performance. Some of these studies include Olaniyi, Elelu and Abdulsalam (2018) and Nuradzanni (2016) which were conducted in US and Europe respectively. Studies such as Foyeke, Olusola and Aderemi (2016), Nwaolisa and Chijindu (2016) and Duru, Okpe and Ugwu (2017) were conducted in Nigeria. The studies that were conducted in the developed countries did not cover companies in the developing countries like Nigeria. However most of the studies which were conducted in developing countries including Nigeria did not capture the recession and post-recession period knowing that this event may affect the manner at which firms determine their capital structure mix. This study therefore assesses the effect of financial structure on financial performance of firms listed on the Nigeria Stock Exchange. In order to achieve the objective of the study, the following hypotheses are formulated and tested.

**H<sub>01</sub>:** Long term debt to equity ratio has no significant impact on financial performance of listed firms on the Nigerian Stock Exchange.

**H<sub>02</sub>:** Short term debt to total asset has no significant effect on financial performance of listed firms on the Nigerian Stock Exchange.

## 2. Literature Review

### Conceptual Issues

#### Financial Structure

Financial structure reveals all the sources of finance a firm utilized in financing its operation which is usually made up of ordinary share capital, preference share capital and debt capital (Akinsulire, 2011). In the view Velnampy and Niresh (2012) defined financial structure as the way with which company makes its financing decisions, by selecting among the different source of financing such as securities, equity and debt. According to Brigham (2004) financial structure is the way in which a firm finances their operations with either debt or equity capital or combination of both. Naveed, Zulfqar and Ishfad (2010) recognized financial structure as the relationship between the various forms of finance thus long term and short term making mention of debentures, bonds, bank and trade credits, commercial papers, preference share capital and equity capital. They added that, the term then signifies the relationship between equity and debt capital that are ascertain in a target proportion to attain the objectives of the firm. Also Moyer, McGuigan and Kretlow (1999) viewed financial structure as the way in which a company finances its assets with all its existing resources which includes long term finance, short term finance and equity fund.

### **Long Term Debts to Equity Ratio**

Firms' long term debt to equity ratio is the proportion of the firm's debt in relation to the total equity finance in the firm's financial structure (Michael, 1992). It is referred as the ratio of total debt to total equity. The ratio is obtained by dividing the total debt of a firm by owner equity or shareholders fund. According to Kretlow, McGuigan, Moyer and Rao (2013), the amount of a firm's debt financing is connected to the amount of equity financing. It measures how firms leverage its debt against the capital employed by its owners Amani (2013). When liabilities exceed the net worth then the creditors have more interest than shareholders. Enekwe (2012) opined that debt to equity ratio is a financial ratio showing the relative fraction of equity and debt used to finance a firm's assets which is a pointer of the financial leverage. The ratio shows how much naira was raised as debt per naira of equity. Debt equity ratio has effects on the shareholders' dividends and risk, this affect the cost of capital and the market value of the firm (Pandey, 2010). In the context of this work the study adopt Amani (2013) definition of long term debt to equity ratio.

### **Short Term Debt to Total Assets**

A short-term debt ratio shows the probability that a firm will be able to deliver payments on its outstanding short-term liabilities. Short-term debts include liabilities with a repayment period of less than one year from initial issue (Sisson, 2017). Short-term debts are generally referred to be those items that will mature or paid off within one year (Guin, 2011). It measures how relative short-term debts to total asset of a firm are to be repaid within an accounting period. It tells what percentage of the assets is financed by short term debt. Short term debt is liability that due for settlement within or less than 12 months and is not included in the long term liabilities figure on the statement of financial position. It includes creditors and accruals (Akinyomi, 2013). It shows the percentage of company assets that are financed with loans and other financial obligations that last over a year. Short-term debt could be used as permanent source of financing if the debt is continually refinanced as it matures. One reason to use short-term debt as a permanent source financing is to take advantage of an upward sloping yield curve to reduce the firm's interest expense (Fosberg,2016). The short term debt ratio is calculated by dividing current liabilities by total assets.

### **Financial performance**

Financial performance has a wide definition in finance due to the various measure available (Prahalthan & Ranjany 2011). The performances of a company reveals how effectively the companies has been managing and utilizing its resources. It can be measured in terms of the value of the firm and the use of profitability and efficiency ratios. Financial performance (reflected in maximizing profits, maximizing ROA, maximizing ROE and maximizing ROI is based on company efficiency). According to Rao and Suryanarayana (2018) financial performance refers to a firm's ability to generate new resources from day to day operations over a given period of time. It involves enhancing shareholders' wealth and profit making which are among the major objectives of a firm (Pandey, 2005). Shareholder's wealth is mainly influenced by growth in sales, improvement in profit margin, capital investment decisions and capital structure decisions (Arnott and Asness, 2003).

### **Empirical Review**

Babalola (2012) investigated the effect of capital structure on financial performance of firms in Nigeria. The study used a sample of 10 firms from 2000 to 2009. The study found that the optimal capital structure influences the expected maximum value of financial performance, proxied by return on equity (ROE). The target ratio may change over time as the firm's financial performance and environments change. The study confirmed that firms adjust their capital structure; they tend to move toward an optimal debt ratio consistent with the historical financial behaviors of firms. Similarly, Amani (2013) in their work explored the impact of capital structure on financial performance of the firm, a case study of CRDB bank PLC Mwanza branch. The study used a period of fifteen years from 1998 to 2012. The findings revealed that capital structure proxied by total debt to equity of CRDB bank has insignificant impact on financial performance.

Furthermore, Koech (2013) investigated the effect of capital structure on financial performance of listed firms on Nairobi Stock Exchange reports. The study revealed that total debt to equity is inversely related to financial performance as revealed by the regression results of debt and return on equity. The result further revealed that the mean values of debt/equity ratio to be 591.52% which suggest that debt is 5.915 times higher than equity capital. The study was carried out in Kenya which is quite different from this study that focused on Nigeria environment. Salawu, (2009) investigated the influence of the capital structure on profitability of quoted companies in Nigeria. The study used a period of 1990 to 2004, for a sample size of 50 non-financial quoted firms. The study used Fixed Effect Model (FEM) in the analysis. The results suggested that short-term debt has positive and significant effect on financial performance. Also, Salim and Yadav (2012) investigated the effect of capital structure and firm's financial performance. The investigation was done using a sample of 237 Malaysian listed companies on the Bursa

Malaysia Stock exchange from 1995 to 2011. The investigation results indicated that short term debt has significant negative effect on the financial performance measured by return on assets (ROA), return on equity (ROE), and earning per share (EPS). The study focused on Malaysia firms which distinct from the current study that looked at listed firms in Nigeria.

Uwalomwa and Uadiale (2012) investigated the effect of financial structure on the financial performance of listed firms in Nigeria. The study utilized a sample of 31 listed firms on the floor of the Nigerian stock exchange for five (5) periods 2005 to 2009. The study analyzed their data using the Ordinary least squares (OLS) technique. The study confirmed that short-term debt has a significant positive impact on the financial performance of listed firms in Nigeria. Using a larger sample with a longer period like this present study may yield different finding.

Martis (2013) in their study examined the impact of financial structure on firm performance and is based on the constituents of the S&P 500. The study used two periods from 2003-2008 and 2003- 2011. The study draw it sample of 474 firms from the largest 500 firms in the United States. The short-term debt was found to have significant and negative impact on firm's financial performance measured by return on assets. The foreign orientation of this study called for more structure on financial structure. Sheikh and Wang (2013) also discovered that short term debt ratio is negatively impacted on financial performance measured by return on assets.

In another study, Abdulmalik, Yusuf and Muhammed (2014) found that short term debt has significant negative impact on the accounting measure of financial performance. Githire and Muturi (2015) studied the effects of capital structure on financial performance of listed firms in Nairobi Securities Exchange from year 2008-2013. They found that short-term debt has a negative and significant effect on financial performance. Adnan, Amir, Qasim, Naveed and Wasiq (2016) in their study examined the impact of the structure of capital and profitability of listed Cement & Automobile firms in Pakistan Stock Exchange. The study choose a sample of 28 companies comprising of 12 automobile companies and 16 cement companies for a period of 7 years from 2005-2011. The finding revealed that short term debt to assets has a positive effect on the financial performance improving the sample size could yield a different outcome. The study was carried out in Pakistan Securities Exchange which has a different Business economy with Nigeria Stock Exchange.

## **Theoretical Review**

### **Theoretical Framework**

After the work of Modigliani and Miller (1958) on capital structure, several theories of capital structure have emerged to explain the relationship between capital structure and firm financial performance. These include Modigliani and Miller theory, trade off theory, pecking order theory and agency theory. In this study, trade – off theory, agency theory and pecking order theory will be used to underpin the study.

### **Trade-off Theory**

The trade-off theory is one of the theories used to underpin this study. This theory describes an optimum financial structure as one in which the benefits of debt are offset by the cost of debt. According to Kraus and Litzenberger (1973) a trade-off exists between the benefits of tax shield and the cost of financial distress in selecting firm financial structure. When firms increase their borrowings, they can be beneficial by the reduction in the tax payables as the interest payables are left out before calculating the firm income tax. This reduction in tax payable there by improving the profit after tax.

The static trade off theory predicts a direct relationship between debt and profitability. Firms give preference to the use of debt financing in other to attract tax shield benefit available on borrowed fund (Nwanna & Ivie, 2017). Trade-off theory validates the existence of more moderate financial structure decisions (Apostol, 2017). As the name suggests, the theory rely on the simple idea of a firm obliging to a certain capital structure by evaluating the benefits and costs of increased leverage against each other. (Salami & Iddirisu, 2011). In practice, the evaluation of costs and benefits is carried out by equating the marginal benefit of a dollar of debt and the marginal cost of increased exposure to default (Abel, 2017).

The theory has been criticized that most profitable firms around the world commonly have increasing conservative capital structures. This contradicts the theory as the theory suggest that the use of high debt in order to utilize the corporate tax shield. (Salami & Iddirisu, 2011).

### **Agency Theory**

Agency theory is another theory that tries to relate capital structure to firm's financial performance. Jensen and Meckling (1976) argued that agency problem exists between the manager and the shareholders. Debt financing

can be used by shareholders as a method to control managerial behavior and reduce the conflict between them (Boodhoo, 2009). Managers are required to comply with the debt discipline when firms start borrowing from banks. This can increase the transparency and sustainability and also align the goals of shareholders with the managers. The agency theory states that debt can have two different effects on profitability, both negative and positive. Increase in leverage can reduce the agency cost and administrative inefficiency and improve firm's performance (Jensen, 1986). The positive effect occurs where there is an agency cost between principle and agent. Whereas, the negative correlation is born due to the existence of agency costs between creditors and stockholders

### Pecking Order Theory

Another theory underpinning this paper is the Pecking order theory. The pecking order theory began with the work of Fischer & Donaldson (1961), who observed that there is an order of preference in the sources of finance for companies in an interview conducted on survey study of twenty five (25) large United States (US) firm. He found that management of companies strongly prefers to use internal sources of finance over external source of fund, unless internal sources of funds are not within reach. According to Fischer & Donaldson (1961), internal finance is preferred over external finance. Further, he found that if companies were to raise new, external finance, they tended to plan the sources of financing so as to minimize the costs of additional asymmetric information. (Popescu & Visinescu, 2009.)

The pecking order theory of capital structure was first presented by Myers and Majluf (1984), and relies heavily on information cost to explain corporate behavior. They show in their pioneering work that, if investors are less well-informed than current firm insiders about the value of the firm's assets, then equity may be mispriced by the market. If firms are required to finance new projects by issuing equity, underpricing may be so severe that new investors capture more than the NPV of the new project, resulting in a net loss to existing shareholders

Myers (1984), challenges the notion of an optimal financial structure based purely on the tradeoff of debt-related benefits and costs in a world of information asymmetry between corporate managers and investors. He further observes that corporate financing practice does not conform to a simple trade off model and he suggests the existence of a pecking order among the financing sources used by firm. The pecking order theory suggests that finance can be obtained from three alternative sources which are: internal fund which is the least expensive, debt finance, which is more expensive and external equity sources which is the most expensive of all.

The pecking order theory is based on two assumptions about firm managers. The theory proposed that the amount of debt will reveal the firms' aggregate demand for external finance. The first it is assumed that firm's managers know more about the firms present earnings and future growth opportunities than investors and as such, they desire to keep such information privately. By using internal funds managers prevent the public from knowing the firm's investment opportunities and potential returns to be realized from investing in them.

In the second assumption, it is assumed that managers will act in the best interests of the firm's shareholders. The managers may even forgo a positive-NPV project if it would require the issue of new equity that will dilute the existing shareholders interest. (Fischer, Heinkel & Zechner 2009).

The pecking order theory has therefore been adopted for this paper, as it considers the internal source of raising fund which is the least expensive, before the debt financing, which is more expensive and finally the external equity sources which is the most expensive of all.

### 3. Methodology

The population of this study is one hundred and seventy (170) listed firms in Nigeria stock exchange as at the period of this study. The study adopted stratified sampling and simple random sampling technique because of the various sectors within the listed firms. This was done after the following filter: Such firm must be listed as at 2009; Firms with no work interruption from 2009 to 2018; The firms must have consistently filed its annual reports and account with the Nigerian Stock Exchange and Corporate Affair Commission within the period under review and the firm must provided an evidence of consistency in operation through their annual reports and accounts with the Nigeria Stock Exchange. Hence, based on the above filter, only seventy (70) firms were selected as sampled for this study. This sample is shown in appendix I.

The model specification for this study incorporates capital structure variables and financial performance variable. The models:

$$ROA = \beta_0 + \beta_1ROA_{t-1} + \beta_2LDE_{it} + \beta_3SDTA + \beta_4FSIZE + \beta_5FAG + \beta_6RECESS + \epsilon_i$$

Where:

ROA	=	return on assets
$\alpha$	=	Constant
$ROA_{t-1}$	=	Lag return on assets.
LDE	=	Long term debt to equity
SDTA	=	short term debt to total assets
FSIZE	=	firm size
FAG	=	Firm age
RECESS	=	Economic Recession
$\beta$	=	Coefficients of parameter estimate
$\epsilon$	=	Error term
t	=	Time
i	=	Firms

#### 4. Result and Discussion

The summary statistics of the explained and the explanatory variables are presented in Table 1 where minimum, maximum, mean and standard deviation of the data collected for the variables in the study are described.

Table 1  
*Descriptive Statistic*

Variables	Obs	Mean	Std Dev.	Min	Max
ROA	700	.04	.130	-1.20	.54
LDE	700	.64	1.31	-5.42	12.70
SDTA	700	.44	.33	.011	3.66
FSIZ(Mil)	700	327461.9	776730.9	412.896	5568316
FAG	700	24.22	14.04	1	60
RECESS	700	.20	.40	0	1

#### Source: Descriptive Statistics Result using STATA 13: Researcher (2019)

Table 1 shows summary description of the data relating to the variables of study and the control variables. Return on assets that represent the dependent variable of the study has a minimum value of -120% and a maximum value of 54%. This minimum value reveals that there is a firm during the period of studies which loss after tax grew 120% of the firm total asset. The maximum value shows the highest profit of 54% of total asset. The average value of the ROA is 3.8% with standard deviation of 13% demonstrating that there is a wide spread of the data from their mean.

The table also discloses that long term debt to total equity ratio (LDE) has an average value of 0.64 and a standard deviation of 1.31 indicating that there is wide fluctuation in the data from their mean. The table also reveals the least value of TDE -5.42 and a value of 12.70. The range (18.14) corroborate with the wide dispersion revealed by the average value.

The table also shows that short term debt to total assets (SDTA) has minimum and maximum value of .011 and 3.66 respectively, with an average value of .44 and a standard deviation of .33. The mean value reveals that on average 44% of the firm's assets are short term in nature. The standard deviation showed that it is a common practice across the firms during the period of the study as the table display a low disparity from the mean with a standard deviation of .34

Further, firm size (FSIZ) one of the control variables which showed a mean value of N327 billion and a standard deviation of N776 billion the standard deviation shows a wide variation from the mean, signifying that the listed firms in Nigeria are not similar in size. The least value is N412million and the highest value is N5.57trillion.

In addition, the table reveals that the list age of the firms (FAG) is 1 and the oldest is 60 years in listing in Nigeria stock exchange. The mean value is 24 years and the standard deviation is 14. Also the table reveals that the last control variable recession measured by a dummy variable shows the average value of .20 indicates that recession has low occurrence during the period. The maximum and minimum value is 1 and 0.

### Diagnostic Checks

The conduct some pre diagnostic and post diagnostic test necessary for the study. The tests include omitted and model specification test, test on the assumption of OLS and Panel analysis post estimation test. To make a data ready for analysis, classical ordinary least square regression stipulates assumption necessary for the reliability of the result. The test includes normality of residual, low or no multicollinearity, no auto serial correlation, homodokedacity of the data and so on. Due to panel nature of data, the study also includes hausman specification test to determine the suitable model. Test for second order of auto correlation and the over identification restriction test of GMM technique.

**Table 2**

*Omitted Variable Test*

	<b>Ramsey Test</b>
chi2/hatsq	2.02
Prob > chi2	0.1103

Stata output, 2019

Ramsey regression specification test for omitted variable was conducted to check if there is omitted variable bias that can affect our model. The study used Ramsey Reset test which has a null hypothesis that there is no omitted variable at 5% level of significance. The table shows a p-value of 0.110 which is insignificant, indicating that the model does not have problem of omitted variable.

**Table 3**

*Model specification error test*

	<b>LINK TEST</b>
chi2/hatsq	0.15
Prob > chi2	0.881

Further the Linktest is used to test for model specification error test. According to Chen et al. (2009) if model is correctly specified, we may not find further predictors that is significant except by chance. The table reveals that the hatsq of the linktest shows a p-value of 0.881 which is insignificant indicating that model is well specified.

### Normality of Data

One the assumption of classical ordinary least square regression is the assumption of normality of data and residual. The normality individual data was test using Jacque Bera test for normality at 5% level of significance. The results in the 4.4 below shows a significant p-value which suggests that the residual is not normal distributed. To overcome this issue that may interfere with the significance tests, robust standard errors was used in place of the normal standard errors in accordance to Gujarati (2003)

Table 4

*Normality test of data*

<b>MODEL</b>	<b>Variables</b>	<b>Obs</b>	<b>Pr(Skewness)</b>	<b>Pr(Kurtosis)</b>	<b>adj chi2(2)</b>	<b>Prob&gt;chi2</b>
ROA	Residual	700	0.000	0.000	.	0.000

### Multicollinearity Test

The classical assumption of OLS regression model assumes the explanatory variables are not perfectly correlated (absence of multicollinearity). According to Gujarati (2004) Tolerance less than 0.1 and the VIF value 10 and above imply the presence of multicollinearity in the estimates. However, the results from Table 4.5 below proved that there is no existence of excessive correlation among the independent variables, because the smallest tolerance value (TV) is 0.788 while the highest variance inflation factor (VIF) is 1.27.

Table 5  
*Multicollinearity Test*

Variable	VIF	1/VIF
LDE	1.25	0.800
SDTA	1.20	0.835
FSIZ	1.15	0.870
FAG	1.04	0.963
RECESS	1.01	0.985
MEAN VIF	1.15	

. Source: VIF result using STATA 13 Appendix

**Auto correlation test:** Based on the assumption of OLS assumption of no serial/ auto correlation, the study used Wooldridge test for autocorrelation in panel data. The null hypothesis is that there is no first order autocorrelation at 5% level of significance. The test reveals a chi square of 33.24 and a p-value of 0.000 which is significance and less than 5% level of significance. Hence the study concluded that there is first order (AR1) auto correlation in the study.

**Heteroskedasticity Test:** Heteroscedasticity test was carried out to check the homoscedasticity assumption of a regression model. The assumption is that there is no constant variance. To test for the presence of heteroskedasticity, this study uses the Breusch- Pagan or cook – Weisberg to test and Cameron and Trivedi Imtest of decomposition of which the result in table 4.5 reveal presence of the effects of heteroskedasticity based on their individual p-value of 0.0000.

Table 6  
*heteroskedasticity*

Tests	Chi2	p-value
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	983.07	0.000
Cameron & Trivedi's decomposition of IM-test	271.51	0.000

Stata output, 2019

**Hausman specification test:** Due to panel nature of the data, panel analysis was conducted of which hausman specification test was carried out to make decision in relation to choosing fixed model or random effect model. The hausman specification reveals if there is element of endogeneity issue in the model. Endogeneity occurs when explanatory variables correlated with the error term. The null hypothesis of the hausman test is that there is no correlation between the unique error term and the explanatory variable (that is, random effect is suitable ) The result shows that at 5% level of significance, the chi2 is 23.03 and the prob>chi2 is 0.001 which is significance indicating that there is correlation. Thus, the Hausman specification test favors fixed effect model.

### Dynamic Endogeneity and Generalized method moment Analysis

Researchers have found out problem of Endogeneity may lead to inconsistent estimates and inappropriate inferences, that may offer deceptive conclusions and wrong theoretical interpretations Ullah, Akhtar and Zaefarian (2018). in the field of management science, prior studies have discover that financial performance study suffers from endogeneity issues especially relating to dynamic endogeneity( Ullah et al. 2018) Although the fixed effect chosen by hausman specification test is suitable in case of strict exogeneity, yet it does not capture the dynamic endogeneity. Studies have discovered that past financial performance of firm influence the current performance (Ullah, et al., 2018). In order to account for such dynamic endogeneity, the study used dynamic panel model called system GMM analysis to conduct the study. According to Roodman (2006), system GMM analysis is more robust in treating problem of endogeneity, heteroskedastic and auto correlation in a data.

### Generalized method moment Regression Results

In this section, the regression results of financial structure and financial performance presented and analyzed below:



Table 7  
*System GMM Regression Model*

Variable	Coefficient	Corrected Std Error	Z-Stat.	Prob.
L1. ROA	.434	.064	6.82	0.000***
LDE	.00	.004	0.04	0.969
SDTA	-.056	.018	-3.15	0.002***
FSIZ	.006	.007	0.87	0.385
FAG	-.033	.060	-0.55	0.581
RECESS	-.025	.006	-4.21	0.000***
Constant	.044	.032	1.38	0.173
F-Statistic	39.21			
Prob.(F-Stat)	0.000***			
AR2	-0.76	0.448		
Hansen statistic	5.03	0.755		
No of inst/Group	16/70			

\*, \*\*, \*\*\* 10, 5%, 1%, Source: GMM model result using STATA 13

### Interpretation

Table 8 above presents the result of the GMM estimation technique for the hypotheses regarding LDE, and SDTA on ROA. The study used two step systems GMM for its analysis. The table shows that the Wald chi square is 39.03 and the p-value is 0.0000 which is significant at 1% level of significance, thus showing that the capital structure variables and the control variables have joint effect on return on assets of firms listed in Nigeria Stock Exchange. This further reveals that the model is adequate. The table also showed that the lag dependent variables (L.ROA) significantly influence current ROA with p-value of 0.000 indicating that previous ROA does affect the current ROA.

Further the table reveals the test for assumption of GMM analysis. It shows that the AR(2) test has a p-value of 0.448 which is greater than the p-value of 0.05 indicating that there is no second order auto/ serial correlation in the model. Further on test for over identification restriction, the result of the Hansen test shows a p-value of 0.755 indicating that the instrument used are valid. The table also reveals that the number of instruments (16) is lower than the group (70) which is good for GMM analysis. Thus, the hypotheses of the study were tested below.

### Test of Hypotheses

**H<sub>01</sub>: Long term debt to equity has no significant impact on financial performance of listed firms in the Nigeria Stock Exchange.**

The table above reveals that LDE has a p-value of 0.969 which is insignificant at any level of significance. Hence the study fails to reject the null hypothesis (H<sub>01</sub>) of the study that states that long term debt to equity does not have significant impact on financial performance of firms in the Nigeria Stock Exchange. On the relationship between long term debt to total equity and return on asset, table 7 above shows a positive coefficient of .000 and a p-value of 0.969 which is not significant at any level of significance. It shows that LDE has positive relationship with ROA. The insignificant p-value shows that LDE has no significant influences on ROA. Thus increase or decrease in LDE will have no impact on ROA of listed firms in the Nigeria Stock Exchange. The findings are not in line with pecking order theory and also consistent with prior studies by Amani (2013), Nwaolisa and Chijindu (2016), Duru, et al. (2017), Nasimi and Nasimi (2018) who found that high level TDE will not influence the financial performance measured by ROA. It is also contrary to the findings of Abdulkarim; Ahmadu; Sulaiman (2019) and Kumah and Mensah (2018) who found that increase in debt will improve ROA of firms. Further contrary to Nwude and Anyalechi (2018) and Mathewos (2016) who found that higher debt to equity will reduce financial performance as a result of the interest cost involved.

**H<sub>02</sub>: Short term debt to total asset has no significant impact on financial performance of listed firms in the Nigeria Stock Exchange.**

The result of the regression analysis above, the p-value of the short term debt (SDTA) is 0.002 which is significant at 1% level of significance showing that short term debt has significant impact on ROA. Thus, the study rejects the null hypothesis (H<sub>03</sub>) of the study that states that short term debt to total asset has no significant impact on financial performance of listed firms in the Nigeria Stock Exchange. Also, the table 8 revealed that short term debt has a coefficient of -0.056 and the p-value of 0.002 which is significant at 1% level of significance. This indicates that short term debt to total assets is negatively and significantly influencing the financial performance of listed

firms in the Nigeria Stock Exchange. It implies that one percentage increase in short term debt will reduce return on assets by 5.6%. By implication, it suggest that short term debt ratio will cause deterioration return on assets. Also, the findings is in line with pecking order theory and the prior studies by Salim and Yadav (2012),Martis (2013),Abdulmalik, Yusuf and Muhammed (2014) Mahmud and Bukar (2016),Abdulkarim et al. (2019) who found short term debt to total assets to negative affect financial performance (ROA) but not consistent with the study by Uwalomwa and Uadiale (2012) Adnan, Amir, Qasim, Naveed and Wasiq (2016),Ajibola, Wisdom and Qudus (2018) who found short term debt to total assets to positively affect financial performance (ROA). Further the finding also contradicts the work of Duru, et al. (2017), Nwaolisa and Chijindu (2016), Joseph (2016) who found that short term debt do not influence financial performance.

## 5. Conclusion and Recommendations

This study examined the impact of financial structure on financial performance of listed firms in the Nigeria Stock Exchange for the period 2009 to 2018. After careful review of the results and discussion, as well as relevant literatures, the study concludes that Long term debt to equity does not influence the financial performance of listed firms in the Nigeria Stock Exchange. The study also confirm that short term debts negatively influence the return on assets. Thus, the study concludes that increase in the short term debt will lead to poorer financial performance of listed firms in the Nigeria Stock Exchange. In line with the findings and the conclusions of this study, the recommended that Managers of firms listed in the Nigeria stock exchanges in determination of optimal financial structure should seek for debt with less cost to the firms. They should seek for long term debts with better interest cost that would improve the firm financial performances while the management of listed firms in the Nigeria Stock Exchange should look out for short term debt in with reasonable terms that can enhance the financial performance of these listed firms.

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