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EFFECT OF FINANCIAL LEVERAGE ON FINANCIAL PERFROMANCE OF LISTED COMPANIES IN NIGERIA

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Abstract

The study investigated the effect of financial leverage on performance of listed companies in Nigeria for the period 2009-2018. Debt-equity ratio (DER), debt ratio (DR) and interest cover (IC) were adopted as proxies for financial leverage while return on assets, return on equity and return on investment were adopted as proxies of performance. Data for the study were sourced from annual reports of selected companies. To analyze the data collected, the study employed Panel Least Square regression technique. Findings revealed that debt-equity ratio had negative and significant effect on return on assets and an insignificant effect on return on equity and interest cover. A negative and insignificant relationship was also established between return on equity, return on investment and debt-equity ratio and interest cover. However, a positive and significant relationship was established between debt ratio and return on asset and return on investment but was insignificant for return on equity. The study recommended that financial managers can introduce debt in the financing of their operations to enjoy the benefits that debt financing offers with it potentials of improving firm financial performance. However, finance managers should be mindful of excessive debt when raising capital for their business as a high debt-equity ratio undermines the financial performance of listed companies in Nigeria.

Keywords: Leverage, Interest Cover, Debt-Equity Ratio, Financial Leverage, Financial Performance.

Introduction

The dilemma of the most appropriate finance mix to adopt in order to achieve optimal performance in corporate organizations has been the crux of the challenge faced by financial managers. Financial managers have adopted various capital structures as a means of resolving this dilemma. Two major sources of finance are available to corporate organizations namely debt and equity. However, the practicality of how best to mix these sources of finance in order to enhance firms' performance has remained unresolved. Debt-equity mix of a company can take any of the following forms. First, it could be 100% equity and 0% debt. Secondly, it could be 100% debt and 0% equity and thirdly, it could be X% equity and Y% debt (Olokoyo, 2013). Where a firm adopts the first option, such a firm is described as been unleveraged and prefers to rely solely on equity funding. Hence is not likely to enjoy any advantage associated with debt financing such as tax shield. The second option describes a firm that is highly leveraged. The third option posits a combination of the two available sources of finance at varying proportion.

In the third option, every advantage inherent in both equity financing and debt financing will be enjoyed by such companies (Mustafa & Osama, 2007). Abubakar (2017) asserts that financial leverage represents the major claims to company's assets. This is against the backdrop that financial leverage decisions have the tendency of pushing a company to loss in the value derived from its assets especially in the event that the company is unable to service the debt at the appropriate time. On the other hand, financial leverage decisions could lead to a gain in the value derived from a company's assets if the company is able to service its debt at the appropriate time. Therefore, financial managers who are able to identify the optimal financial leverage to be adopted in company's capital structure are rewarded through the maximization of their companies' revenue (Pandey, 2015). Hence, the objective of finance al management in structuring firm's capital components is to maximize the shareholders‟ wealth, as a measure of performance. Based on the above the problem of this study is to ascertain the effect of financial leverage on performance of firms in Nigeria. Specifically, the objectives are to:

1. Ascertain the effect of debt equity ratio, debt ratio and interest cover on return on assets of listed companies in Nigeria.
2. Determine the effect of debt equity ratio, debt ratio and interest cover on return on equity of listed companies in Nigeria
3. Examine the effect of debt equity ratio, debt ratio and interest coverage ratio on return on investment of listed companies in Nigeria.

The following hypotheses are also drawn up in line with the above objectives

1. Debt-equity ratio, debt ratio and interest cover does not have significant effect on return on assets of listed companies in Nigeria.
2. Debt-equity ratio, debt ratio and interest cover does not have significant effect on return on equity of listed companies in Nigeria.
3. Debt- equity ratio, debt ratio and Interest coverage ratio does not have significant effect on return on investment of listed companies in Nigeria.

Literature Review

Theoretical Literature Review

The Pecking Order Theory

Myers (1984) in postulating the pecking order theory **e**xplains that when firms carry out investments, they settle for that with the least cost to its operation. The major assumption of this theory is that a firm tends to utilize its internal financing sources (as retained earnings or excess liquid assets) over external finance. If internal funds are not enough to finance investment opportunities, firms may or may not acquire external financing, and if they do, they will choose among the different external finance sources in such a way as to minimize additional costs of asymmetric information (Gweyi and Karanga, 2014). The Myers and Majluf model predict that managers will follow a pecking order, using up internal funds first, then using up risky debt, and finally resorting to equity. In the absence of investment opportunities, firms retain profits and build up financial slack to avoid having to raise external finance in the future. This theory recognizes the role of managers in taking the decision on which financing option should be adopted by the firm.

Thus, within the pecking order theory the managerial ability of managers in taking key decisions on financing is recognized. The right decision made by managers will see to increased performance of the company while a wrong decision undermines the performance of the company.

Pecking order theory argued that firms having high profits tend to attain low debt profile because when firms are more profitable their first priority is to generate financing through retained earnings because they maximize the value of the existing shareholders. If retained earnings are not sufficient, the firms can then go for debt and if further financing is required, they issue new equity. Retained earnings is preferred because it almost has no cost, but if the external resources are used for financing like issuance of new shares it may take very high costs. The pecking order theory is as a result of information asymmetries existing between insiders of the firm and outsiders (Rahman & Arifuzzaman, 2014). The theory makes managers to adopt their financing policy to minimize associated costs. Thus, preferring internal financing to external financing and very risky debt to equity.

The Static Trade-off Theory

The static trade-off theory is a financial theory based on the work of economists Modigliani and Miller in the 1950s. They proposed that in perfect markets, the capital structure a company uses doesn't matter because the market value of a firm is determined by its earning power and the risk of its underlying assets. According to Modigliani and Miller, value is independent of the method of financing used and a company's investments. This proposition says that the capital structure is irrelevant to the value of a firm. The value of two identical firms would remain the same, and value would not be affected by the choice of finance adopted to finance the assets. The value of a firm is dependent on the expected future earnings. With a static trade-off theory, since a company's debt payments are tax-deductible and there is less risk involved in taking out debt over equity, debt financing is initially cheaper than equity financing. This means a company can lower its weighted average cost of capital through a capital structure with debt over equity. However, increasing the amount of debt also increases the risk to a company, somewhat offsetting the decrease in the WACC. Therefore, static trade-off theory identifies a mix of debt and equity where the decreasing WACC offsets the increasing financial risk to a company.

Empirical Literature Review

Umer and Muhammad (2018) carried out an investigation into the impact of financial leverage on firm performance in Pakistan. The study covered the period 2011 to 2015. Return on assets and return on equity were used as proxies for performance and they were adopted as the dependent variables while debt-equity ratio, solvency ratio and proprietary ratio were adopted as proxies for financial leverage and the independent variables. Descriptive statistic, correlation analysis and regression analysis were used in analyzing the data collected in the study. Findings showed that debt-equity ratio had positive and significant impact on firm performance (proxied by return on assets) while proprietary ratio had negative and insignificant impact on firm performance (using return on assets as proxy for performance). In the case of return on equity, the study showed that debt-equity ratio also had positive and significant impact on firm performance. In addition, the study showed that proprietary ratio had positive and significant impact on firm performance.

Ahmed, Awais and Kashif (2018) examined the relationship between financial leverage and firms performance in Pakistan. Return on assets, return on equity and Tobin's Q were adopted as proxies for firms performance and the dependent variables while debt-to-capital ratio, debt-to-equity ratio, interest cover and sales growth were adopted as proxies for financial leverage and independent variables. Panel data analysis was employed in analyzing the data collected in the study. Evidences from the return on assets model showed that debt-to-capital ratio and debt-equity ratio had negative and significant effect

on firm's performance while interest cover and sales growth had significant positive and insignificantly positive effects on firms performance, respectively. From the return on equity model, the study showed that debt-to-capital and sales growth had positive and insignificant effect on firms performance in Pakistan while debt-equity ratio had negative and significant effect on firms performance; and interest cover had positive and significant effect on firms performance in Pakistan. Finally, in the Tobin's Q model, the study showed that debt-to-capital ratio and sales growth had negative and significant effect on firms performance while debt-equity ratio had negative and insignificant effect on firms performance; and interest cover had positive and insignificant effect on firms performance in Pakistan.

Krishna and Kumar (2018) examined the nexus between financial leverage and firm performance in India. Return on assets and return on equity was used as proxies for firm performance and dependent variable while short term debt ratio, long term debt ratio and total debt ratio were adopted as proxies for financial leverage and independent variables. Correlation matrix was employed as analytical tool. Findings showed that short term debt ratio and long-term debt ratio had positive and insignificant relationship with return on assets of firms while total debt ratio had positive and significant relationship with return on assets of firms in India. In the return on equity model, the study showed that total debt ratio and long-term debt ratio had positive and significant relationship with return on equity while short term debt ratio had positive and insignificant relationship with return on equity of firms in India.

Jeleel and Olayiwola (2017) analyzed the effect of leverage on firm performance in Nigeria. The study covered the period 2000-2009 and data were collected from three (3) chemical and paints firms operating in Nigeria. Return on assets was used as proxy for firm performance and the dependent variable while debt ratio, equity ratio and assets tangibility were used as proxies for leverage and they served as independent variables. Regression analysis was carried out on data collected from the three firms. Findings showed that equity ratio had positive and significant effect on firm performance in Nigeria while tangibility had negative and insignificant effect on firm performance. The study further showed that debt ratio had negative and insignificant effect on firm performance in Nigeria.

Nwanna and Ivie (2017) assessed the effect of financial leverage on firms performance in Nigeria between the period 2006 to 2015 relying on data collected from Nigerian banking sector. Debt ratio, debt-equity ratio and interest cover were adopted as proxies for financial leverage and independent variables while size of the banks and efficiency of banks were adopted as proxies for financial performance and dependent variable. Regression analysis was employed as analytical tools. Findings showed that debt ratio, debt-equity ratio and interest cover had negative and insignificant effect on size of banks in Nigeria while debt-equity ratio had positive and significant effect on efficiency of the banks in Nigeria. It was further revealed that debt ratio had negative and insignificant effect on efficiency of the banks in Nigeria while interest cover had positive and insignificant effect on efficiency of the banks in Nigeria.

Ashraf, Ahmad and Mehmood (2017) investigated the impact of financial leverage on firm performance in fuel and energy sector in Pakistan. The study made use of 10 public listed fuel and energy companies on the Karachi Stock Exchange. Return on assets, return on equity, earnings per share, net profit margin and return on capital employed were used as proxies for firm performance the dependent variables while debt ratio, debt-equity ratio,

equity ratio were used as proxies for financial leverage and the independent variables. Regression analysis was employed in the analysis of the data collected for the study. Findings showed that debt ratio and equity ratio had positive and insignificant impact on return on assets while debt-equity ratio had negative and significant impact on return on assets. On the other hand, the study showed that debt ratio had positive and insignificant impact on return on equity while debt-equity ratio had negative and significant impact on return on equity. However, the study showed that equity ratio had negative and insignificant impact on return on equity. For net profit margin as a proxy for financial performance, the study showed that debt ratio, debt-equity ratio and equity ratio had positive and insignificant impact on firm performance. In the earnings per share model, the study showed that both debt ratio and equity ratio had negative and insignificant impact on firm performance while debt-equity ratio had positive and significant impact on firm performance. Finally, the study showed that debt-equity ratio and equity ratio had positive and insignificant impact on return on capital employed while debt ratio had negative and significant impact on return on capital employed in fuel and energy companies in Pakistan.

Conceptual Framework

Dependent and Independent variables

Having discussed the theoretical framework on which our study is based, we now look at the dependent and independent variables of the study. The dependent variable which is used in this study is the financial performance of listed companies in Nigeria. The financial performance is measured using three indicators namely Return on Assets (%), Return on Equity (%), Return on Investment (%). Financial leverage is the independent variable which is measured by using Debt-Equity ratio, Debt Ratio and Interest cover, the relationship between the dependent and independent variable is explained by the following equation:

Financial performance = a + b (financial leverage) + μ

Conceptualization

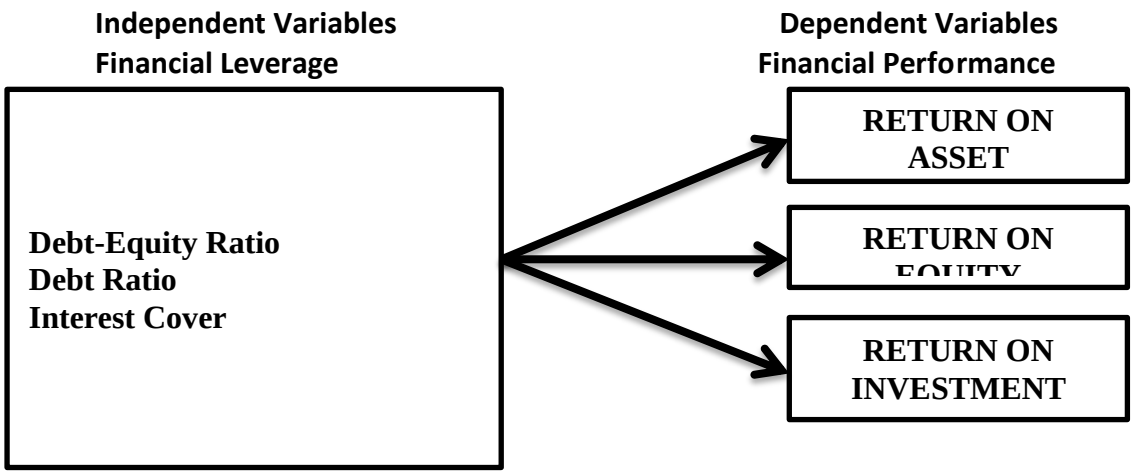

Fig. 1 Author's Conceptualization of relationship between variables

Description of variables

Financial Leverage:

This refers to the extent to which a company makes use of debt in its capital structure.

Financial Performance:

This refers to the expansion of a firm in terms of increased return on assets or return on equity. It measures the efficiency with which the firm is able to use its resources to generate revenue. For this study the return on asset (ROA), return on equity (ROE) and return on investment (ROI) are proxies for this variable.

Debt-Equity Ratio:

This refers to the ratio of total debt to total equity of selected quoted companies on annual basis.

Debt Ratio:

This refers to the ratio of total debt to total assets of selected quoted companies on annual basis.

Interest Cover:

This measure the number of times a firm is able to cover its current interest payment with its available earnings measured as EBIT/Int. Exp

Methodology

Research Design

Two basic approaches that were used include descriptive and analytical design. The descriptive design uses ratios to highlight the effect of financial leverage on financial performance; while the analytical design used a mathematical OLS (Regression analysis) model in determining the nature and significance of the effect of financial leverage on financial performance of listed firms in Nigeria.

Target Population

The target population for the study is the 186 listed firms on the Nigerian Stock Exchange as at 2018 subdivided into 11subsectors.

Sample size

Based on the researchers judgement a purposive sample of five firms was selected from oil and gas and manufacturing subsectors which represents two important subsectors of the Nigerian economy. The period covered by the study spanned 2009-2018.

Model Specification

$ROA_{it} = \beta_0 + \beta_1 DER_{it} + \beta_2 DR_{it} + \beta_3 IC_{it} + \mu_{it}$ …….(1)

$ROE_{it} = \beta_0 + \beta_1 DER_{it} + \beta_2 DR_{it} + \beta_3 IC_{it} + \mu_{it}$……. (2)

$ROI_{it} = \beta_0 + \beta_1 DER_{it} + \beta_2 DR_{it} + \beta_3 IC_{it} + \mu_{it}$ ……. (3)

Where;

β_0 = constant term

β_1, β_2 and β_3 = coefficient parameters of the explanatory variables

μ = stochastic error term

By a priori $\beta_0 > 0$, $\beta_1 < 0$, $\beta_2 < 0$ and $\beta_3 < 0$

Data Analysis and Discussion

This section presents the results from the data analysis. Secondary data from published financial reports of five listed firms on the Nigerian Stock Exchange were gathered. This data was then converted to the desired form and analysis carried out in E-

view 10 version. The sections following show the output from the analysis and the interpretations.

Descriptive Statistics

In table 1 descriptive analysis of financial leverage and financial performance indicators is shown. The maximum value of ROA is 0.261000 while minimum value is 0.0070 with standard deviation of 0.0611. The maximum value of ROE is 0.6100, with a minimum value which stood at 0.01200 and an average value of 0.2188. ROI showed a maximum value standing at 0.4000, minimum at 0.0065 with a standard deviation of 0.0963. Debt equity ratio maximum stood at 5.731 with a minimum value of 0.3320 while the average value stood at 1.647. The debt ratio and interest cover maximum stood at 0.9710 and 166.32 respectively while the minimum values obtained were 0.2400 and 0.1000 respectively. The Jarque-Bera statistics reveal a p-value less than 0.01 level of significant for all the variables with exception of debt ratio (DR). Therefore, it can be inferred that the data set are not normally distributed.

Table 1: Descriptive Statistics of the Variables

	DER	DR	IC	ROA	ROE	ROI
Mean	1.647360	0.550580	14.98536	0.083020	0.218800	0.100380
Median	1.271000	0.532000	6.337000	0.071000	0.160500	0.065000
Maximum	5.731000	0.971000	166.3200	0.261000	0.610000	0.400000
Minimum	0.332000	0.240000	0.100000	0.007000	0.012000	0.007000
Std. Dev.	1.237690	0.179606	27.49092	0.061067	0.160592	0.096334
Skewness	1.791685	0.465986	3.874175	1.397454	0.996513	1.653526
Kurtosis	5.644431	2.654442	20.21154	4.751812	3.108266	4.935349
Jarque-Bera	41.31992	2.058297	742.2377	22.66740	8.299743	30.58786
Probability	0.000000	0.357311	0.000000	0.000012	0.015766	0.000000
Sum	82.36800	27.52900	749.2680	4.151000	10.94000	5.019000
Sum Sq. Dev.	75.06189	1.580658	37031.78	0.182731	1.263706	0.454736
Observations	50	50	50	50	50	50

Source: Author's Computations

Regression Result

Table 2 Fixed and Random Effect Result for ROA model

Dependent Variable: ROA							
Fixed Effect				**Random Effect**			
Variable	Coefficient	t-Stat.	P-value	Variable	Coefficient	t-Stat.	P-value
C	0.0722	2.9596	0.0050	C	0.0689	2.438	0.0187
DER	-0.0334	-2.2786	0.0288	DER	-0.0273	-2.253	0.0290
DR	0.0889	1.2275	0.2265	DR	0.0766	1.164	0.2501
IC	0.0011	4.4252	0.0001	IC	0.0011	4.476	0.0000
R^2	0.58			R^2	0.37		
Adj R^2	0.52			Adj R^2	0.33		
F-stat	8.45			F-stat	8.976		
Prob(F-Stat)	0.0000			Prob(F-Stat)	0.00008		
DW	1.7			DW	1.61		

Source: Author's computation (2021)

The result in table 2 shows a summary of the regression of the panel data set for model 1 investigating the relationship between the dependent variable return on asset and explanatory variables of debt- equity ratio (DER), debt ratio (DR) and interest cover (IC). As a result of the panel nature of the dataset, the fixed effect and random effect regression were ran to determine the relationship between the variables and a hausman test was carried out to determine which regression estimation was more appropriate to use in prediction. Results from the hausman test showed that the random effect regression was a more appropriate regression judging by the probability of the chi-square (0.5304) which is greater than 0.05 level of significance. Table 3 shows the summary of the hausman test. The summary results from the random effect regression, DER showed an inverse but significant relationship with ROA and IC showed a positive and significant relationship with ROA. Debt ratio showed no significance.

This result conforms to economic a priori expectation because it is expected that a high debt-equity ratio exposes firms to high risks which could undermine the performance of firms. From the result in this study, one percent increase in debt-equity ratio led to 3.3 percent decrease in return on assets of listed companies in Nigeria. The computed t-statistic for debt-equity ratio (-2.27) in absolute terms was greater than the tabulated (critical) t-statistic (1.671) at five percent level of significance. We therefore conclude that debt-equity ratio (DER) had a significant effect on return on assets of listed companies in Nigeria. Furthermore, the interest cover revealed a positive and significant relationship with return on assets of listed companies in Nigeria. From the result in the ROA model, one percent increase in interest cover will lead to 0.11percent increase in return on assets of listed companies in Nigeria.

The coefficient of determination (R-squared) of 0.37 showed that 37 percent variations in return on assets of listed companies in Nigeria are due to changes in debt-equity ratio, debt ratio and interest coverage ratio. The remaining variations will be explained by other factors not included in this study. The computed F-value (8.976) was greater than the critical (tabulated) F-value (2.76) at five percent level of significance. As a confirmation, the probability (F-statistic) which was 0.0008 indicated that the model was statistically significant. The Durbin-Watson statistic (1.61) lies within the acceptance region being approximately 2 and less than 4 ($2 \leq DW < 4$), Indicating an absence of serial correlation in the result.

Table 3: Hausman test for Dependent variable ROA

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.207667	3	0.5304

Source: Authors Computation from E-views 10

Table 4: Fixed and Random Effect Result for ROE model

Dependent Variable: ROE							
Fixed Effect				**Random Effect**			
Variable	Coefficient	t-Stat.	P-value	Variable	Coefficient	t-Stat.	P-value

C	0.2738	4.0209	0.0002	C	0.2473	3.6415	0.0007
DER	-0.0077	-1.8843	0.0665	DER	0.0049	0.1796	0.8583
DR	0.0699	0.3459	0.7311	DR	-0.1271	-0.7644	0.4485
IC	0.0002	3.1539	0.0030	IC	0.0022	3.2309	0.0023
R^2	0.533			R^2	0.15		
Adj R^2	0.455			Adj R^2	0.096		
F-stat	6.849			F-stat	2.2727		
Prob(F-Stat)	0.000019			Prob(F-Stat)	0.055		
DW	1.34			DW	1.043		

Source: Author's computation from E-views 10

Table 5: Hausman test for Dependent variable ROE

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	15.964696	3	0.0012

Source: Author's computation from E-views 10

Table 4 provides empirical evidence to determine the relationship between the dependent variable of return on equity and the explanatory variables of DER, DR, and IC. Table 5 shows the hausman test result for this model with a chi-Sq statistic of 15.964696 at 0.0012 probability value less than 0.05 significant levels. This made the fixed effect regression more appropriate for this model. The fixed effect result shown in table 4 reveals a negative insignificant relationship between DER and return on equity. The debt ratio (DR) shows a direct but insignificant relationship with return on equity. However, the interest cover has a positive and significant relationship with return on equity. The R^2 of 0.533(53%) indicates that 53% of the variations in return on equity can be explained by the predictors DER, DR and IC. The F-stat of 6.849 and a p-value of 0.000019 shows that the model is well fitted.

Table 6: Hausman test for ROI model

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.392980	3	0.7072

Source: Author's computation from E-views 10

The result of the hausman test for the ROI model in table 6 reported a chi-sq statistic of 1.392980 and probability value of 0.7072. The implication of this is that since the probability value is greater than 0.05, then the null hypothesis which states that random effect model is appropriate is accepted as the preferred model for this regression.

Table 7: Fixed and Random Effect Result for ROI model

Dependent Variable: ROE

Fixed Effect				Random Effect			
Variable	Coefficient	t-Stat.	P-value	Variable	Coefficient	t-Stat.	P-value
C	0.0581	1.4841	0.1453	C	0.0500	1.2283	0.2256
DER	-0.0307	-1.3103	0.1972	DER	-0.0308	-1.8151	0.0760
DR	0.1177	1.0137	0.3165	DR	0.1306	1.3182	0.1940
IC	0.0019	4.6471	0.0000	IC	0.0019	4.8767	0.0000
R^2	0.572			R^2	0.415		
Adj R^2	0.500			Adj R^2	0.377		
F-stat	8.0017			F-stat	10.889		
Prob(F-Stat)	0.00004			Prob(F-Stat)	0.000016		
DW	1.28			DW	1.27		

Source: Author's computation from E-views 10

Table 7 provides empirical evidence for the relationship subsisting between the dependent variable of return on investment (ROI) and the explanatory variables of DER, DR, and IC. From the table using the random effect model as the preferred model, only the variable interest cover (IC) showed a significant effect on ROI of the firms under review. The p-value of DER and DR are both insignificant. The R^2 indicated that approximately 42% of the variations in the dependent variable ROI is explained by the explanatory variables captured in the study and the remaining by other factors not brought under review in this study. The F-statistic of 10.89 and significant at less than 1% indicates that the model was correctly fitted to explain the relationships among the variables.

Conclusions

The main purpose of this study is to determine the effect of financial leverage on financial performance by employing a sample of listed firms in Nigeria for the period 2009-2018. The study employed debt-equity ratio (DER), debt ratio (DR) and Interest cover (IC) as measures of financial leverage. Financial performance measures used were return on assets (ROA), return on equity (ROE) and return on investment (ROI). To arrive at a conclusion, three models were formed and tested using regression analysis utilizing panel data. The fixed effect model and random effect models were used as appropriately determined by the Hausman test carried out. Descriptive statistics was used to describe the data and ascertain the normality.

Findings of the study showed that ROA is significantly but inversely related with debt equity ratio but positive but insignificantly related with debt ratio and interest cover. The implication is that firms must be guided as to how debt and equity is combined in the operations of the firm to ensure optimal performance. For the ROE model DER showed a negative insignificant coefficient, while DR was positive yet also insignificant. IC however had a positive and significant relationship with return on equity. With proper planning and efficient use of resources firms would be able to meet their interest obligations as they fall due. The return on investment (ROI) predicts a positive and significant relationship with IC but no significant relationship with DER and DR. The result confirms that firms that introduce a little amount of debt into their capital structure tend to perform better than firms that do not. However, finance managers should be mindful of excessive debt when raising capital for their business as a high debt-equity ratio undermines the performance of listed companies in Nigeria.

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Appendix

Dependent Variable: ROA
Method: Panel EGLS (Cross-section random effects)
Date: 05/13/21 Time: 00:58
Sample: 2009 2018
Periods included: 10
Cross-sections included: 5
Total panel (balanced) observations: 50
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	0.068989	0.028294	2.438299	0.0187
DER	-0.027304	0.012114	-2.253947	0.0290
DR	0.076645	0.065795	1.164908	0.2501
IC	0.001122	0.000251	4.476199	0.0000

Effects Specification

	S.D.	Rho
Cross-section random	0.033924	0.3891
Idiosyncratic random	0.042507	0.6109

Weighted Statistics

R-squared	0.369256	Mean dependent var	0.030582
Adjusted R-squared	0.328121	S.D. dependent var	0.051410
S.E. of regression	0.042140	Sum squared resid	0.081684
F-statistic	8.976583	Durbin-Watson stat	1.609818
Prob(F-statistic)	0.000086		

Dependent Variable: ROE
Method: Panel Least Squares
Date: 05/13/21 Time: 01:06
Sample: 2009 2018
Periods included: 10
Cross-sections included: 5
Total panel (balanced) observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DER	-0.076942	0.040834	-1.884254	0.0665
DR	0.069912	0.202070	0.345980	0.7311
IC	0.002221	0.000704	3.153878	0.0030
C	0.273783	0.068089	4.020940	0.0002

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.533047	Mean dependent var	0.218800
Adjusted R-squared	0.455221	S.D. dependent var	0.160592
S.E. of regression	0.118532	Akaike info criterion	-1.281623
Sum squared resid	0.590092	Schwarz criterion	-0.975699
Log likelihood	40.04058	Hannan-Quinn criter.	-1.165126
F-statistic	6.849248	Durbin-Watson stat	1.340356
Prob(F-statistic)	0.000019		

Dependent Variable: ROI

Method: Panel EGLS (Cross-section random effects)
Date: 05/13/21 Time: 01:11
Sample: 2009 2018
Periods included: 10
Cross-sections included: 5
Total panel (balanced) observations: 50
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DER	-0.030777	0.016956	-1.815057	0.0760
DR	0.130616	0.099085	1.318219	0.1940
IC	0.001946	0.000399	4.876780	0.0000
C	0.050012	0.040715	1.228341	0.2256

Effects Specification	S.D.	Rho
Cross-section random	0.035186	0.2107
Idiosyncratic random	0.068100	0.7893

Weighted Statistics			
R-squared	0.415253	Mean dependent var	0.052401
Adjusted R-squared	0.377117	S.D. dependent var	0.084766
S.E. of regression	0.066900	Sum squared resid	0.205877
F-statistic	10.88883	Durbin-Watson stat	1.266026
Prob(F-statistic)	0.000016		

Unweighted Statistics			
R-squared	0.484629	Mean dependent var	0.100380
Sum squared resid	0.234358	Durbin-Watson stat	1.112171