

## **Impact of Financial Leverage on the Financial Performance of Quoted Agriculture Firms in Nigeria**

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### **Abstract**

*This study analyzed the impact of financial leverage on the financial performance of three quoted firms in the agricultural sector in Nigeria, between 2005 and 2017. The study adopted ex-post factor and longitudinal research designs. Descriptive statistics and Pooled Ordinary Least Squares were adopted as methods of estimation. The major findings revealed that short-term debt ratio has significant negative impact on the financial performance, while long-term debt ratio has no significant impact on the financial performance. The study also discovered that total-debt equity ratio has a significant positive impact on the financial performance proxy by return on equity. The study, therefore, concluded that debt financing is not the best financing option for quoted firms in the agriculture sector in Nigeria. The paper recommended that quoted firms in the agriculture sector should further increase equity financing and reduce debt financing, particularly short-term debt. Equity can be enhanced through increase in the amount of ploughed back profit/retained earnings and bonus issue.*

**Keywords:** Financial leverage, financial performance, Nigeria, Agricultural sector, Return on Equity

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## **Introduction**

The theory of financial leverage and its impact on the financial performance has been an issue of serious debate in corporate finance and accounting literature since the seminal work of Modigliani and Miller in 1958 (Taani, 2013). Based on unrealistic assumptions such as existence of perfect markets, which no taxes, absence of transaction and bankruptcy costs. Modigliani and Miller (1958) asserted that financial leverage has no impact on the value of a firm (Abubakar, 2017a). In another study, Modigliani and Miller (1963) relaxed a no-tax assumption, and developed another theory as a correction to Modigliani and Miller (1958). The new theory was meant to consider the tax benefit of financial leverage, and how the benefit impacts the value of a firm. That theory also generated a lot of debates and discussions in the academic circles (Abubakar, 2017b; Iavorskyi, 2013).

The capital structure of a firm is made up of debt, equity or both. The proportion of debt in a firm capital structure is referred to as financial leverage. Financial leverage is a significant managerial decision since it influences the shareholders' return and risk (Pandey, 2015). Excessive use of debt in the capital structure exposes the firm to the risk of financial distress and bankruptcy, which may occur due to inability of the firm to service the debt at the appropriate time. High debt profile in the capital structure of a company suggests that the company must be committed to both principal and fixed interest payments on debt. However, interest on debt is non-taxable, implying that firms can employ debt in the capital structure in order to take advantage of the tax shields benefit provided by debt. The use of debt in the capital structure can be used to discipline managers because of the agency problem created by the separation of ownership from control. A good financial manager should

trade-off the financial distress costs of debt against the tax shield benefits in order to improve financial performance (Abubakar, 2017b).

Review of empirical studies on the sectors around the world reveals that a lot of prior studies focused on sectors other than the agricultural sector. For example, Abubakar (2016), Abubakar (2017b), Abubakar and Garba (2017), Abubakar, Maishanu, Abubakar and Aliero (2018), Ahmed, Sani, Ezienyi and Lukman (2017), Ashraf, Ahmad and Mehmood (2017), David and Olorunfemi (2010), Enakirerhi and Chijuka (2016), Gweyi and Karanja (2014), Hossain and Nguyen (2016), Hsu (2013), Innocent, Ikechukwu and Nnagbogu (2014), Javed, Rao, Akram and Nazir (2015), Kakanda, Bello and Abba (2016), Khan (2012), Kuria and Omboi (2015), Ningsih and Djueriaiah (2013), Nirajini and Priya (2013), Ogbonnaya and Chimara (2016), Prempeh, Sekyere and Asare (2016), Thaddeus and Chigbu (2012), Umar, Tanveer, Aslam and Sajid (2012), Velnampy and Niresh (2012), and Yahaya and Andow (2015) among several others. In addition, these empirical studies with the exception of Abubakar (2017b) did not carry out stationary test before running the regression. The neglect of stationary test may produce results that are spurious especially if the variables of interest are not stationary. These are gaps filled by this study. This study therefore, analyzed the impact of financial leverage (short-term debt ratio, long-term debt ratio and total-debt equity ratio) on the financial performance (return on equity) of quoted Agriculture firms in Nigeria, between 2005 and 2017.

## **Literature Review**

### **Conceptual Clarifications**

The concept of financial leverage is the one of the unresolved topics in finance literature (Abata, Migiro, Akande and

Layton, 2017; Abubakar, 2016; Abor and Biekpe, 2007; Brealey & Myers, 1991; Gill & Mathur, 2011; Musiega, Chitiavi, Alala, Douglas, & Reuben, 2013; Myers, 1984). Financial leverage is the extent or degree at which firms employ debt in their capital structure (Abubakar, 2016). Pandey (2010) described financial leverage as the proportion of fixed-charge sources of funds, such as debt and preference shares to owners' equity in the capital structure. Financial leverage is the ratio of the total market value of a company's debt capital to total market value of its equity (Lumby & Jones 2011). A firm which has element of debt in its capital structure is referred to as a levered firm, whereas an all-equity firm is called unlevered firm. Pandey (2010) pointed that "the financial leverage employed by a company is intended to earn more return on the fixed-charge funds than their costs. The surplus (or deficit) will increase (or decrease) the return on the owners' equity". Furthermore, he considered financial leverage as a double-edged sword because it provides the potentials of increasing the owners' earnings as well as creating the risks of loss to them. Additionally, a debt whose maturity is at most one year is referred to as short-term debt, whereas, a debt whose maturity is beyond one year is called long-term debt.

On the other hand, firm performance has been proposed as a multidimensional construct consisting of many varied areas such as operational effectiveness, corporate reputation and organizational survival (Richard, Devinney, Yip, & Johnson, 2009). Organizational researchers use either accounting-based measures of profitability such as return on assets (ROA), return on sales (ROS) and return on equity (ROE) or stock market-based measures such as Tobin's Q and market return to evaluate financial performance (Combs, Crook, & Shook,

2005; Hoskisson, Hitt, Wan, & Yiu, 1999; Hult *et al.*, 2008). Accounting-based measures are widely regarded as valid indicators of financial performance (Gentry & Shen, 2010) and also as reflections of past or short-term financial performance, while market performance measures are viewed as the reflections of future or long-term financial performance (Hoskisson, Johnson & Moesel, 1994).

### **Theoretical Framework**

This study is guided by the Pecking Order Theory. The theory can be traced to Donaldson (1961) when he conducted an interview survey of twenty five (25) large United States (US) firms, and found that management of firms strongly prefers to use internal financing sources over external sources, unless internal sources of funds are not within reach. Abubakar (2017b) asserted that Myers and Majluf (1984) were among the first to use the term 'Pecking Order' to refer to the kind of financing behaviour exhibited by firms sampled by Donaldson (1961). Myers (1984) and Myers and Majluf (1984) argued that information plays an integral role in financing decision of managers and investors. They maintained that managers will be reluctant to issue equity if they feel it is undervalued by the market. Also, investors too are aware that managers will be reluctant to issue new equity when it is underpriced. Thus, both managers and investors react according to the information available to them. Based on this argument, if managers tend to issue undervalued equity, the wealth will be transferred to the investors against the shareholders' benefits and wealth (Mohammed, 2010). In this situation, internal sources of funds and debt will be preferred to equity. Pecking Order Theory further states that firms prefer to finance new investment first with retained earnings, an internal source, second with debt, and

third by issuing new equity as last resort (Abubakar, 2017b).

The Pecking Order Theory predicts a negative relationship between financial leverage and financial performance since the theory considers internal financing more advantageous and superior to debt and external equity. Additionally, profitable firms prefer internal financing to debt because they have large cash flows and may not require external financing that has the potentials to expose the firms to financial risk, in the case of debt and dilution of ownership in the case of external equity (Abubakar, 2017b).

### **Review of Empirical Studies**

Abubakar *et al.* (2018) evaluated the effect of financial leverage on the financial performance of five (5) quoted conglomerate firms in Nigeria during the period of 2005- 2016, using Fixed Effect Model (FEM). The findings revealed that short-term debt ratio (STDR) has positive effect on the financial performance, while long-term debt ratio (LTDR) and total-debt equity ratio (TDER) have significant negative effect on the financial performance, measured by the return on asset (ROA). Using FEM and evidence from seven (7) quoted services firms in Nigeria covering the period 2005- 2016, Abubakar and Garba (2017) examined the effect of financial leverage on the financial performance, and uncovered that STDR, LTDR and TDER have negative and significant effect on the financial performance proxy by return on equity (ROE). Abubakar (2017b) analyzed the effect of financial leverage on the financial performance of eleven (11) quoted industrial goods firms in Nigeria, using the period 2005- 2016. The results of Fixed Effects Model, the best panel estimator indicated that STDR and total-debt ratio (TDR) have no significant effect on the ROE, while TDER has significant negative

effect on the financial performance represented by ROE. In another study of the Health Care Sector of Nigeria utilizing the period between 2005- 2014, Abubakar (2016) discovered that STDR and LTDR have significant positive effect on ROE, while TDR and TDER have significant negative effect on the ROE, using FEM.

David and Olorunfemi (2010) assessed the impact of capital structure on corporate performance using evidence from the petroleum sector of Nigeria over the period of 1999- 2005. The authors documented significant positive link between debt equity ratio and financial performance surrogated by earnings per share (EPS) and dividend per share (DPS) using fixed effects estimation, random effects estimation and maximum likelihood estimation. Applying correlation and multiple regression analysis, Yahaya and Andow (2015) analyzed the effects of capital structure on financial performance of six (6) quoted conglomerate firms in Nigeria over the period of 2009- 2013, and reported no significant association between financial leverage measures (debt equity ratio, debt to total asset ratio and long term debt to total asset) and return on asset (ROA). Innocent; Ikechukwu and Nnagbogu (2014) studied the effect of financial leverage on the financial performance of three (3) quoted pharmaceutical firms in Nigeria over the period of 2001- 2012, utilizing descriptive statistics, Pearson correlation and multiple regression techniques. The authors reported that debt ratio and debt-equity ratio have negative relationship with ROA, while interest coverage ratio is positively associated with ROA. Ashraf; Ahmad & Mehmood (2017) examined the impact of financial leverage on performance of ten (10) listed companies from the fuel and energy sector of Pakistan and found among others that debt equity ratio has a significant negative impact on ROA, ROE and return

on capital employed (ROCE) using multiple regression technique. In another study of Pakistani firms, Nazir (2017) measured the impact of financial leverage on financial performance of twenty-one (21) listed companies in the textile, automobile, sugar, petroleum and energy sectors of Pakistan using ordinary least squares and correlation techniques during the period 2012- 2015. The study unraveled that financial leverage measured by debt to asset ratio has significant negative effect on financial performance proxy by ROA.

Nirajini and Priya (2013) studied the impact of capital structure on financial performance of listed trading companies in Sri Lanka from the period 2006- 2010 using correlation and multiple regression techniques. The findings revealed significant positive link between debt asset ratio, debt equity ratio, long term debt and financial performance proxies: gross profit margin, net profit margin, return on capital employed, ROA and ROE. Relying on 136 quoted companies in South Africa during the period 2000- 2014, Abata; Migiro; Akande & Layton (2017) discovered that total debt to total equity and total debt to total assets are negatively related to Tobin's and ROA, while long-term debt to total assets is positively related to Tobin's and ROA. The authors also reported that total debt to total equity and long-term debt to total assets are negatively linked to ROE. Ahmed; Sani; Ezienyi & Lukman (2017) studied the impact of capital structure on firm value from 2007 to 2016, using Dangote Cement Plc as area of study and Ordinary Least Squares as method of analysis. The authors found significant positive connection between debt and firm value. Akingunola, Olawale and Olaniyan (2017) evaluated the effect of capital structure decisions on the performance of 22 listed non-financial firms in Nigeria spanning 2011 to 2015. The results revealed that short term debt to total asset (STDTA)

and total debt to total equity (TD/TE) have significant negative effect on performance indicated by ROA, while STDTA and long-term debt to total asset (LTDTA) have significant positive effect on the ROE. The authors also found total debt to total asset (TD/TA) to be significantly positively associated with ROE.

In a study of six quoted conglomerate firms in Nigeria from 2011 to 2015, Cyril (2016) unraveled that LTDTA and STDTA have significant negative effect on ROA, while TD/TA has no effect on ROA. In Ghana, using data from five manufacturing companies listed on the Ghana Stock Exchange from 2005- 2015, investigated the effect of debt policy on firms performance, and found that debt proxies (short-term debt ratio, long term debt ratio and total debt ratio) have negative effect on firms performance surrogated by Tobin's Q and ROA. Kakanda; Bello and Abba (2016) studied 7 quoted firms from the consumer goods sector of Nigeria using the period 2008- 2013, descriptive statistics, correlation and hierarchical multiple regression, documented significant positive association between long-term debt (LTD) and ROE. However, the authors did not find evidence in support of any significant relationship between short-term debt (STD) and ROE.

Hsu (2013) investigated the moderating effect of leverage and ownership structure on firm performance using three hundred and thirty six (336) information and technology firms in Taiwan for the period spanning 2006 to 2009. Utilizing descriptive statistics, correlation and multiple regression techniques, the study revealed that ratio of total debt to total asset has a negative effect on the association between research and development and performance. Enakirerhi and Chijuka (2016) explored the determinants of capital structure of United Kingdom (UK) Financial Times Security Exchange (FTSE)

100 firms using Fixed Effects Model, and discovered significant relationship between long term debt, short term debt, total debt and ROA. Hossain and Nguyen (2016) examined the relationship between financial leverage and performance of ten (10) US companies for a ten-year period from 2004 to 2013, and reported strong negative association between financial leverage and performance using regression analysis.

In a sample of thirty-six (36) engineering firms from Pakistan from the period of 2003 to 2009, Khan (2012) evaluated the relationship between capital structure decisions and financial performance adopting Pooled Ordinary Least Squares Regression. The results revealed that financial leverage surrogated by short-term debt to total asset (STDTA) and total debt to total assets (TDTA) have significant and negative effect on ROA, GPM and Tobin's Q as measures of financial performance. Javed; Rao; Akram and Nasir (2015) examined the effect of financial leverage on performance of one hundred and fifty-four (154) textile companies in Pakistan for a period of six (6) starting from 2006 to 2011, using Ordinary Least Squares (OLS) Regression. Their findings indicate that financial leverage has negative association with ROA and ROE. Kuria and Omboi (2015) investigated the relationship between capital structure and financial performance of listed firms from the investment and banking sector of Kenya during the period 2009 to 2013. The authors adopted descriptive and regression analysis techniques and found debt to equity ratio to have significant positive relationship with ROE among others. Gweyi and Karanja (2014) assessed the effect of financial leverage on financial performance of forty (40) deposit-taking savings and credit co-operative in Kenya using the period 2000-2012, descriptive statistics and correlation technique. The results revealed the existence of perfect positive correlation

between debt-equity ratio and ROE. Umar et al. (2012) examined the impact of capital structure on financial performance of top 100 quoted firms in Pakistan during the period 2006 to 2009 using exponential generalized least square regression. The results showed that significant positive relationship exists between long term liabilities to total asset and ROE, while current liabilities to asset and total liabilities to total asset have no significant relationship with ROE. Velnampy and Niresh (2012) evaluated the relationship between capital structure and profitability of ten (10) listed banks in Sri Lanka from 2002 to 2009 using descriptive statistics and correlation analysis. Their findings showed that there is no significant relationship between financial leverage variables (debt to equity and debt to total funds) and profitability proxy by ROE.

The review of above empirical studies revealed that among the measure of financial leverage adopted by some of the prior studies was the ratio of total debt to total assets. This ratio according to Rajan and Zingales (1995) fails to take into consideration the fact that there are some assets that are offset by specific non-debt liabilities. Additionally, it was also found from the review that none of the authors specifically utilize firms from the Agricultural sector. These are some of the gaps in knowledge addressed by the present study.

### **Development of Hypotheses**

This study tested the following hypotheses:

**H<sub>01</sub>:** short-term debt ratio (STDR) has no significant effect on the financial performance.

**H<sub>02</sub>:** long-term debt ratio (LTDR) has no significant effect on the financial performance.

**H<sub>03</sub>:** total-debt equity ratio (TDER) has no significant effect on the financial performance.

**Methodology**

Ex-post factor and longitudinal research designs were used. The choice of Ex-post factor design was justified because the study relied on historical data, while the use of panel data justifies our selection of longitudinal design, which is a hybrid of time series and cross sectional data.

This research consisted of three (3) firms that are quoted on the agricultural sector in the Nigerian economy during the year 2005 and still remain quoted as at 31<sup>st</sup> December, 2017. From a total of 5 companies that are quoted on the Agricultural sector as at 31<sup>st</sup> December, 2017, two (2) companies: FTN Cocoa Processors Plc and Ellah Lakes Plc were removed from the study, leaving a working population of 3 quoted firms. FTN Cocoa Processors Plc was excluded from the study because the company was quoted on the 24<sup>th</sup>

July, 2008; this is a period after the cut-off year 2005 set for the study, while Ellah Lakes Plc was dropped because of non- rendition of annual reports of the company for some periods. Okomu Oil Palm Plc, Presco Plc and Livestock Feeds Plc were the three quoted firms utilized in the study.

In sourcing for data, annual reports/financial statements of the three selected companies for the period 2005-2017 were used. The reports were obtained from the websites of the selected firms; Nigerian Stock Exchange (NSE) library in Kano; [www.demo.streamicm.com](http://www.demo.streamicm.com); [www.nse.com](http://www.nse.com); [www.proshareng.com](http://www.proshareng.com); and [www.resoucedata.com](http://www.resoucedata.com).

The variables of the study were measured using the procedures employed by Abubakar (2016) and Pandey (2010). Table 1 presents the variables and the procedure of measurement.

**Table 1:** Variables and Measurement

<b>Variable</b>	<b>Measurement</b>
Short-term debt ratio (STDR) [independent variable]	Short-term debt divided by total capital (total debt plus equity)
Long-term debt ratio (LTDR) [independent variable]	Long-term debt divided by total capital (total debt plus equity)
Total debt-equity ratio (TDER) [independent variable]	Total debt (long-term & short-term debt) divided by equity
Return on equity (ROE) [dependent variable]	Earnings before interest & taxes (EBIT) divided by equity

**Source:** Abubakar (2016) and Pandey (2010)

In this study, the empirical model is specified as:

$$ROE_{it} = \alpha_0 + \beta_1 STDR_{it} + \beta_2 LTDR_{it} + \beta_3 TDER_{it} + C_{it} + \mu_{it} \quad (1)$$

Where: ROE = return on equity (a measure of financial performance)  $\alpha_0$  = intercept,  $\beta_1$  = coefficient of short-term debt ratio, STDR = short-term debt ratio,  $\beta_2$  = coefficient of long-term debt ratio, LTDR =

long-term debt ratio,  $\beta_3$  = coefficient of total-debt equity ratio, TDER = total-debt equity ratio, subscript i and t refer to each firm i in year t, C = unit-specific error component,  $\mu$  = the remaining error component. Thus, the a priori expectation is  $\beta_1, \beta_2 < 0$  and  $\beta_3 > 0$

The study adopted descriptive statistics and panel regression techniques. Mean; median; maximum value; minimum value; standard deviation; coefficient of

variation; skewness and kurtosis were the descriptive statistics used in data presentation. Pooled Ordinary Least Squares (POLS) was the panel technique utilized in examining the effect of financial leverage on the financial performance. Random Effects Model (REM) could not be computed due to insufficient degrees of freedom, while Fixed Effects Model (FEM) was not used because the F-statistic was not significant, and the model could not be relied upon. Additionally, the F-test for best model selection between POLS and FEM favoured the selection of the former.

Furthermore, a balanced panel comprising 39 observations i.e. 3 firms and 13-year period (2005- 2017) was adopted in

this study. Following the procedure of Abubakar (2016), Abubakar (2017), Abubakar and Abdulkarim (2017), and Abubakar et al. (2018), the panel regression was run using the Robust Heteroscedasticity- and Autocorrelation Consistent (HAC) standard errors which is robust in the presence of Autocorrelation and Heteroscedasticity. Unit root test and collinearity tests were also carried out.

## Results and Discussion

### Unit Root Test

Unit root test is employed to test whether the variables are stationary or not. Levin-Lin-Chu unit root test for stationary is presented in Table 2.

**Table 2:** Unit Root Test Results

Variable	Levin-Lin-Chu Test	
	Constant	Constant and Trend
STDR	-3.274**	-4.156**
LTDR	-3.798***	-4.937***
TDER	-3.287**	-3.510**
ROE	-4.997***	-4.938**

**Note:** \*\*\* and \*\* denote the rejection of the null hypothesis at 1% and 5% level of significance respectively. The null hypothesis is that the variable is non-stationary.

**Source:** Authors Computation Using GRETL

In Table 2, the results of the unit root test with intercept, and with intercept and trend are shown. The results reveal that all the variables are stationary at levels. The study therefore, rejects the null hypothesis that the variable is non-stationary, and concludes that the variables are stationary at levels.

### Descriptive Results

Table 3 shows the descriptive results of the three (3) quoted firms in the Agricultural sector employed in the present study. The results reveal that the mean value of STDR for companies in the agricultural

sector stood at 0.71, signifying that about 71 per cent of the capital of companies in the agricultural sector was financed by short-term debt. This is so because most agricultural products are harvested within a year and investment in agricultural produce are short-term in nature. The implication is that firms in this sector are over relying on short-term financing instruments and may be exposed to the risk of refinancing. The result is consistent with the findings of Abubakar (2016) and Abubakar (2017b).

**Table 3:** Descriptive Statistics

Variable	Mean	Median	Minimum	Maximum
STDR	0.71	0.07	0	11.81
LTDR	0.11	0.05	0	0.42
TDER	0.36	0.31	-1.24	1.96
ROE	0.24	0.21	-0.07	0.61
Variable	Std. Dev.	C.V.	Skewness	Ex. kurtosis
STDR	2.15	3.02	4.13	17.21
LTDR	0.12	1.14	1.02	0.06
TDER	0.63	1.73	-0.47	1.72
ROE	0.15	0.61	0.59	0.45

**Source:** Authors' Computation Using GRETL

The minimum and maximum values for STDR are 0 and 11.81 respectively. This shows that some firms in this sector did not employ any form of short-term debt instruments in their capital structure while some firms had a maximum of 1181 per cent of their capital financed by short-term debt. The negative value for shareholder's equity was responsible for this ridiculous high maximum value of STDR. The effect of this negative equity on capital is that it reduced the value of capital up to a level that the capital being the denominator is lesser than the short-term debt which is the numerator, thereby increasing the STDR. Similarly, the mean value of LTDR is 0.11 which shows that firms in the agriculture sector had more preference for short-term debt over long-term debt.

The mean value for TDER is 0.36, meaning that firms in the Agricultural sector employed more equity than debt during the period of study. Equity is about 3 times higher than debt. In addition, the mean value for the dependent variable (ROE) is 0.24. This implies that for every ₦1 investment in equity, about 24 kobo was generated for the shareholders during the period of study.

Similarly, the descriptive results of the measures of dispersion (standard

deviation and coefficient of variation [C.V]) show that STDR, LTDR and TDER are more dispersed as confirmed by their C.Vs which is greater than 1. However, ROE is homogenous as confirmed by the C.V of 0.61, which is less than 1. In addition, the values of skewness imply that STDR, LTDR and ROE are positively skewed, while LTDR is negatively skewed. The values of kurtosis show that STDR is leptokurtic while the remaining variables are platykurtic.

### Collinearity Test

Variance Inflation Factor (VIF) was employed to detect the presence or otherwise of collinearity among the explanatory variables. The existence of high correlation among the independent variables may be termed as multicollinearity. The presence of multicollinearity in a model has the potential of biasing the regression results. The VIFs for STDR, LTDR, and TDER are respectively 1.661, 1.083 and 1.566. As pointed out by Myers (1990), VIF of less than 10, is an indication of absence of collinearity. This implies that there is no multicollinearity in our model since the VIFs are less than 10.

**Regression Results**

Return on Equity (ROE) was regressed on the STDR, LTDR and TDER using Pooled Ordinary Least Squares (POLS) and Fixed Effects Model (FEM). However, the result of the F-test for FEM

was not significant, implying that FEM cannot be relied upon. Thus, analysis is done on the basis of POLS. Table 4 presents the results of the Pooled Ordinary Least Squares.

**Table 4: Regression Results**

Independent variables	Pooled Ordinary Least Squares
CONSTANT	0.26 (30.21)***
STDR	-0.02 (-12.22)***
LTDR	-0.07 (-0.78)
TDER	0.02 (3.46)***
R <sup>2</sup>	0.16
F	2.30 (0.09)*
STANDARD ERROR	0.14
DURBIN-WATSON	1.84

**Note:** The values in parentheses for variables are t ratios and those against F-statistic are P-values. \* and \*\*\* implies significant at 10% and 1% respectively.

**Source:** Authors' Computation using GRETL

The regression results in Table 4 reveal that STDR has a significant negative impact on the financial performance measured by the ROE at 1 per cent level of significance. The coefficient of STDR is -0.02, which implies that a 1 per cent increase in STDR is associated with 0.02 per cent decline in the financial performance of quoted firms in the agricultural sector during the period 2005-2017. The high preference for short-term debt in this sector is hurting shareholders wealth, measured by the ROE. This result is consistent with the Pecking Order Theory which predicts negative link between debt and financial performance. The high interest rates on short-term financing instruments are deteriorating shareholders value. The finding is in agreement with Abubakar (2017a), Abubakar and Garba (2017), Akingunola et al. (2017) but contrary to those of Abubakar (2016), Abubakar (2017b) and Kakanda et al. (2016). Similarly, LTDR has no significant impact on the ROE as a measure of financial

performance. This is additional evidence that debt finances whether short-term or long-term has no positive impact on the financial performance of quoted firms in the agriculture sector of Nigeria. This result is in consonance with Abubakar (2017a) and in disagreement with Abubakar and Garba (2017), Kakanda et al. (2016), and Nirajini and Priya (2013).

In Table 4, the regression results also indicate that TDER has a positive and significant impact on the financial performance surrogated by the ROE, at 1 per cent significant level. The coefficient of TDER is 0.02, which signifies that a 1 per cent increase in the equity portion of TDER will result in about 0.02 per cent rise in the ROE as a metric for measuring the financial performance. The result is a testimony that the high proportion of equity in the capital structure of agriculture firms in Nigeria has impacted positively on shareholders wealth during the period under review. The finding is consistent with the result of Abubakar (2017a), Gweyi and Karanja (2014), Kuria

and Omboi (2015), Nirajini and Priya (2013) but contrary to those of Abata (2017), Ashraf *et al.* (2017), Velnampy and Nireesh (2012) and Yahaya and Andow (2015).

### Conclusions and Recommendations

In this study, the impact of financial leverage on the financial performance of some quoted agriculture firms in Nigeria was analyzed. Return on equity (ROE) was regressed on STDR, LTDR and TDER using Pooled Ordinary Least Squares and Fixed Effect Model, covering the period 2005- 2017. Findings indicated that STDR has significant negative impact on the financial performance, while LTDR has no significant impact on the financial performance. The study also found that TDER has positive and significant impact on the financial performance proxy by the ROE.

The study, therefore concludes that debt financing is not the best financing option for quoted firms in the agricultural sector of Nigeria. This is so because short-term financing will erode and deteriorate shareholders wealth, while long-term financing will not have any positive impact on the financial performance. Additionally, the study also conclude that equity financing particularly retained earnings is the best financing choice that will enhance the financial performance of firms in the agricultural sector.

Following the conclusions, the study recommends that quoted firms in the Agriculture Sector should further increase equity financing and reduce debt financing, particularly short-term debt. Equity can be enhanced through increased in the amount of ploughed back profit/retained earnings and bonus issue.

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**APPENDIX**  
**Pooled Data of the Firms used in the Study**

COMPANY	YEAR	STDR	LTDR	TDER	ROE
LSF	2005	5.17583	0	-1.23947	0.22185
LSF	2006	11.81321	0	-1.09248	-0.07455
LSF	2007	5.19366	0	-1.23846	0.0472
LSF	2008	0.40217	0.00278	0.68053	0.30084
LSF	2009	0.31485	0.00278	0.46529	0.23969
LSF	2010	0.4829	0.00095	0.93742	0.2831
LSF	2011	0.52743	0	1.11608	0.37343
LSF	2012	0.59442	0.0051	1.46879	0.56976
LSF	2013	0.33443	0	1.96033	0.25632
LSF	2014	0.49271	0	0.97125	0.3126
LSF	2015	0.21233	0	0.26957	0.1799
LSF	2016	0.52386	0	1.10022	0.09246
LSF	2017	0.48805	0	0.95332	-0.00052
OKOMU	2005	0.04164	0.135	0.21453	0.14072
OKOMU	2006	0.04822	0.25357	0.43223	0.21044
OKOMU	2007	0.14442	0.22519	0.58632	0.19291
OKOMU	2008	0.0768	0.19876	0.38036	0.33429
OKOMU	2009	0.04542	0.21682	0.35547	0.18762
OKOMU	2010	0.02361	0.03876	0.06651	0.33185
OKOMU	2011	0.01335	0.01335	0.02744	0.51804
OKOMU	2012	0.00444	0	0.00446	0.17063
OKOMU	2013	0.01647	0.05216	0.07369	0.11504
OKOMU	2014	0.08467	0.05472	0.16197	0.09363
OKOMU	2015	0.02145	0.21334	0.30683	0.166389
OKOMU	2016	0.0188	0.12203	0.16392	0.29571
OKOMU	2017	0.01887	0.02972	0.05107	0.37054
PRESKO	2005	0.00206	0.35931	0.56587	0.30994
PRESKO	2006	0.09346	0.28945	0.62049	0.23408
PRESKO	2007	0.12465	0.25217	0.60468	0.20569
PRESKO	2008	0.12949	0.15529	0.39818	0.50606
PRESKO	2009	0.07281	0.42275	0.98238	0.1696
PRESKO	2010	0	0.39495	0.65276	0.4259
PRESKO	2011	0.03644	0.08389	0.1368	0.16367
PRESKO	2012	0.00329	0.10516	0.12164	0.24505
PRESKO	2013	0.03161	0.18668	0.27925	0.15674
PRESKO	2014	0.01473	0.15192	0.19997	0.18953
PRESKO	2015	0.05455	0.10796	0.19405	0.15699
PRESKO	2016	0.03252	0.07011	0.11436	0.61227
PRESKO	2017	0.0538	0.04697	0.11207	0.15695