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Effect of Financial Leverage on Firms' Financial Performance: A Study of Listed Companies in Agricultural Sector.

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ABSTRACT

Explaining the role of financial leverage in firm performance is one of the primary objectives of contemporary researches and this role remains a questionable subject which has continued to attract the attention of many researchers. This work examined the effect of financial leverage on firm financial performance of listed Agricultural firm in Nigeria. seven (7) firms in Nigeria for the period of five (5) years (2011-2015).The specific objectives of this work were aimed at determining the extent to which debt ratio, debt equity ratio, interest coverage ratio, and asset tangibility ratio affect the firm's financial performance of listed Agricultural firms in Nigeria. This work employed four (4) financial leverage ratios for the independent variables which include debt ratio (DR), debt equity ratio (DER), interest coverage ratio (ICR), and asset tangibility ratio (TANG) in determining their effect on firm performance proxy by Earnings per Share (EPS) as dependent variable. research questions and hypotheses were formulated in line with the objectives of the study. The data were obtained from the financial statement of the listed firms on the Nigerian stock Exchange (NSE). The ex-post facto research design was used while descriptive statistics, Pearson correlation and regressions were employed for the analysis. The results and findings revealed that debt ratio and Interest coverage ratio have negative influence on earning per share and are statistically significant in driving the financial performance of agricultural firms in Nigeria, while debt equity ratio and asset tangibility are statistically insignificant in driving the financial performance of agricultural firms in Nigeria. We therefore recommend that manager's priority should be Interest coverage and debt ratio for improvement on financial performance of Agricultural firm in Nigeria.

Key Words, Financial Leverage, Capital Structure, Debt to Equity Ratio, Gearings, Interest coverage ratio

Introduction

1.1 Background to the Study

Financial leverage is the degree to which a company uses fixed-income securities such as debt and preferred equity and the amount of debt an entity used to purchase more assets which is employed to avoid using too much equity to fund operations (Investopedia, 2013). A firm can finance its investments by the means of debt and equity by the use of fixed-charged funds, such as debt and preference capital along with the owner's equity in the capital structure which is described as financial leverage or gearing (Dera & Sola, 2010). Financial leverage affects profit after tax or earnings per share. Therefore financing manager is concerned with the determination of the best financing mix and contribution of debts and equity for its firm.

Capital structure decision is the mix of debt and equity that a company uses to finance its business (Damodaran, 2001). According to Damouri (2013), leverage ratio contributes in measuring the risk of using equity cost . There are various measures known for the capital structure among which the most important are book value based measures, market value based measures and semi market value based measure (Adjusted market value). Financial leverage takes debt in form of loan and other borrowing, the proceeds of which are reinvested with the intent to earn a greater rate of return than the cost of interest (Laurent, 2005). Combination of debt and equity has long been the subject of debate concerning its determination, evaluation and accounting.

The importance of leverage can be seen from its presence in the capital structure of the organization. It is important for the organization to take decision of leverage portion in the capital structure (Muhammad 2005).Debt portion represents the others claim and it reduces the risk of owners. Management of the companies' remain conscious about the debt portion of the organization because it affects the financial performance of the firms and the performance of the management is measured through the performance of the organization. Management of debt financing is very crucial in the organization because companies are using the funds of creditors which have to be returned with interest (black 2015). Financial leverage is cost of saving and it also reduces the risk of the owners but it becomes costly when organizations are unable to use it efficiently. Companies have to pay financial charges on the leverage, if company fail to use leverage effectively, then they have to suffer from many problems because the amount of leverage is to be repaid with interest expenses. Profitable companies prefer to use leverage because it reduces the risk of owners and more cost saving for the shareholders of the organization. Financial leverage affects the firm performance in aspect of profitability which has direct impact on the management performance, capital structure, stock price, wealth of shareholders and all the stakeholders (Ahmad, 2015).

Financial leverage is very critical in the process of arriving at an appropriate capital structure. Optimal capital structure is a puzzle to every manager and board of directors. Failure to put considerations on capital structure might lead to low profitability, bankruptcy, failure to invest in higher returns project and ultimately decrease in the value of the firms. In the empirical evidence findings from various studies, a general agreement has not been reached on the effect of financial leverage on firms' performance. The findings from the previous empirical studies are inconclusive as the debate has not been resolved. Most of these studies covered other sectors of the economy other than agricultural sector which is another gap the present study tends to fill in knowledge. Hence, this study focuses on firms' in Agricultural sector; and examined the effect of four financial leverage variables namely; debt ratio, debt equity ratio, interest coverage ratio, asset tangibility on firms' financial performance

The main objective of the study is to examine the effect of financial leverage on financial performance of listed firms in Nigerian Agricultural sector. This was pursued using these specific objectives, to examine the effect of debt ratio (DR) on firms' financial performance, to find out the effect of debt-equity ratio (DER) on firms' financial performance, to ascertain the effect of interest coverage ratio (ICR) on firms' financial performance, and to discover examine the effect of asset tangibility ratio (TANG) on firms' financial performance

In view of the research objectives above, the following hypotheses were formulated;

H_{01}: Debt ratio has no significant effect on firms' performance.

H_{02}: Debt equity ratio has no significant effect on firms' performance.

H_{03}: Interest coverage ratio has no significant effect on firms' performance.

Ho_4: Asset tangibility ratio has no significant effect on firms' performance.

However, the study is limited to seven (7) listed companies in Agricultural sector in Nigeria, which includes; Afprint Nigeria Plc., Ellah Lakes Plc. Grommac Industries Plc., Livestock Feeds Plc., Okitipupa Oil Palm Plc., Fresco Plc., Okomu Oil Palm Plc. The period of years under review was five years covering 2011– 2015.

Literature review

2.1.1 Leverage

The concept of leverage is one of those important financial analyses which every organization employing fixed operating expenses and or fixed interest charges should be familiar with (Egungwu, 2015). The financing or leverage decision is a significant managerial decision since it influences the shareholder's return, risk and the market value of the form (Pandy 2007). The term leverage indicates the ability of a firm to earn higher return by employing fixed assets or debt. It shows the effects of the investment patterns or financing patterns adopted by a firm. The employment of an asset or source of funds for which a firm has to pay a fixed cost or interest has a consideration influence on the earnings available for equity shareholders. The fixed cost or interest acts as the fulcrum and the leverage magnifies the influence. By leveraging, a firm is able to magnify the returns to the shareholders by using fixed cost bearing assets or funds. It depends on the financial planning where it is desired that a small change in sales or Earnings before Interest and Taxes (EBIT) will have a magnifying effect on EBIT or Earnings per Share (EPS) respectively. It must however be noted that higher the degree of leverage, higher is the risk as well as return to the owners. Thus leverage implies the use of fixed cost in an attempt to increase profitability. Summarily leverage is the responsiveness of firm's return to fluctuations in revenue and operating income, and the ability of a firm to magnify the influence resulting in higher return.

2.1.1.2 Financial Leverage

Egungwu (2015) defined financial leverage as the firm's ability to use fixed financial charges to magnify the effect of changes in Earnings before Interest and Taxes (EBIT) on the firms Earnings per Share (EPS). Financial leverage occurs when a firm obtains financing for its firms owners. Nkechukwu (2009) looks at financial leverage as the extent to which debts are being used in a firm's financial structure or the ratio of total debt of the firm. Also financial leverage according to Pandey (2010) is the use of the fixed charges sources of funds, such as debt and preference capital along with the owner's equity in the capital structure. Van Home (2010) defines financial leverage as the percentage return on equity and the net rate of return in total capitalization. Kuchhal (2013) opines that financial leverage is used to describe a firm's ability to use fixed cost bearing assets or funds to magnify the return to the owners.

Hence, financial leverage can be favourable or unfavourable. Whenever the cost of debt is less than the return on asset, the leverage factor is favourable and the higher the leverage factor the higher the rate of return on owners' equity. And also when leverage factor is however unfavourable if the cost of debt is higher than the return on assets.

2. 1.1.3 Measures of Financial Leverage

There are various measures of leverage, which can be classified as accounting based measures, market-value measures and quasi market value measures as supported by (Loof, 2003). Other measures are:

1. **Debt Ratio (DR)**

Ekwe and Duru (2012) assumed that when external funds are borrowed, example, from banks at a fixed rate, they can be invested in the company and gain a higher paid to the bank. This is measured by the total debt to total assets and is a proxy to leverage; $Debt\ ratio = \frac{\text{Total Debt}}{\text{Total assets}}$

According to Ezeama (2010), $Debt\ ratio$ (DR) measures the amount of the total funds provided by creditors in relation to the total assets of the firm. The formula is total debt by total asset of the firm. Finally, he concludes that the correct formula to be used in analysing this debt ratio is; $Debt\ ratio = \frac{\text{Total liabilities}}{\text{Total assets}}$

2. Debt Equity Ratio:

This is a measure of the proportion of debt to shareholders fund (i.e. Net worth) in the total financing of a business. The ratio indicates how much naira was raised as debt for N1 of equity (Nwude, 2003). Enekwe (2012) continues that debt equity ratio is a financial ratio indicating the relative proportion of equity and debt used to finance a company's assets which is an indicator of the financial leverage. It is equal to total debt divided by shareholders' equity. $Debt\ equity\ ratio = \frac{\text{Total liabilities}}{\text{Shareholders fund or Total equity}}$

3. Interest Coverage Ratio

Ezeama (2010) defines interest coverage ratio as a ratio similar to time interest earned ratio, but it is more inclusive in that it recognizes that many firms lease assets and incur long-term obligations under lease contacts for the payment of lease premium. This ratio is preferable to the time interest earned ratio for making financing analysis. Pandey (2010) indicates the ratio of net operating income (or EBIT) to interest charge i.e. $\text{interest coverage ratio} = \frac{\text{EBIT}}{\text{Interest Charge}}$

4. Asset Tangibility Ratio

Fama and French (2000) Asset tangibility ratio is an important factor of leverage, the tangibility of assets represents the effect of the collateral value of asset of the firms gearing level. Akinstanye (2008), psillake (2010) tangibility asset is calculated by the net fixed assets divided by total assets. $\text{Asset Tangibility ratio} = \frac{\text{Net Fixed Asset}}{\text{Total Assets}}$

5. Total Debt to Total Assets

Total debt to total assets ratio is also an important ratio for analysing the company's use of its debt for financing its assets. It is calculated by taking the company's total debt and dividing it by its total assets. The debt includes both short term and long term obligations. Therefore, it shows the percentage of its total assets that are financial with debt. A total debt to total assets was adopted as a measurement of financial leverage by authors like Pamela (1983), Mehmat (2009), khan (2012), Abor (2005), Lara (2003).

6. Short Term Debt to Total Assets

This ratio is a measurement representing the percentage of a corporation's assets that are financed with loans and financial obligations lasting within one year. Sajid (2015) adopted short term debt to total asset as a measure of financial leverage. Short term debt is used to finance its company's investments in working capital, which is important for the production and sales continuity (Mohammed 1989). The value of short term debt to total asset is very important when determining a company's performance (Investopedia 2016).

Capital Structure

Capital structure is a segment of a firm's financial structure; it consists of the permanent financing of a firm and is represented by long-term debt, preferred stock and common equity. It thus excludes short-term credit. Common equity includes common stock, capital surplus and accumulated retained earnings (Egungwu, 2015). Capital structure refers to the sources of financing, particularly the proportions of debt (leverage/gearing) and equity that a business used to fund its assets, operations and future growth (Jensen 1979).

Hence, the relationship between financial structure and capital structure can be expressed in an equation form capital structure + current liabilities = financial structure (CS + CL = FS). Financial structure refers to the way the firm's assets are financed and includes the entire liability side of a statement of financial position (Egungwu, 2015). Financial structure includes all items of liabilities and equity, while liabilities includes short-term and long-term liabilities, funds sources obtained by the company to finance its investments, whether short-term or long term(munir,1989;khali 1989).

2.1.2.1 Measuring Firm Financial Performance

As multiple concepts of firm financial performance exist depending on the level of aggregation and the difference in dimensionality. Chakravarthy (1986) financial performance such as profit maximization, maximizing profit of assets, and maximizing shareholders' benefits are at the core firm's effectiveness. Firm financial performance from accounting hinges on the company profitability and performance of stock in the capital market. The most commonly used performance proxies are return on assets (ROA), return on equity (ROE) and return on investment (ROI). These accounting measures representing the financial ratios from statement of financial position and income statement have been used by many researchers (for example Demsetz & Tehn, 1985; Ang Cole and Line 2000, Mehran, 1995, Gorton & Posen 1995.).

However, other measures of performance called market performance measures, such as price per share to the earnings per share (EPS) (Abdel Shahid, 2003), market value of equity to took value of equity (MBVR), and Tobin's Q. return on assets (ROA) Masood, Zaman Saleem & Saced, Khatab (2011) ROA gives an idea as how efficient management is at using its assets to generate earnings. It is express as profit before tax divided by total assets.

Earnings per Share (EPS)

According to Pandey (2005) the net profits of a company expressed on a per (equity) share basis. The formula is $\text{Earnings per share.} = \frac{\text{Profit after Tax}}{\text{Number of shares}}$

Tobin's Q

Tobin's Q-ration (Q) mixes market value with accounting value and is used to measure the firm's value (Morck, Shleifoer, & Vishing 1988, Meconnel & Serveas, 1990 &Zhon 2001). By dividing the sum of the market value of equity and the book value of total assets (Kabir and Renneboog, 2002).

Return on Equity (ROE)

According to Masood, Zaman & Saleem (2011) return on equity measures a corporate profitability by revealing how much profit a company generates with money shareholders have invested determined the measure through dividing profit by equity.

Profit margin

Farlex financial dictionary (2012) defines profit margin as a measure of how well a company control its costs. It is calculated by dividing a company's profit by its revenues and expressing the result as a percentage. The higher the profit margin is, the better the company is thought to control costs. Investors use profit margin to compare companies in the same industry and well as between industries to determine which are the most profitable. Dictionary of financial terms (2008) profit margin is calculated as profit after tax in dividend by turnover or net sales.

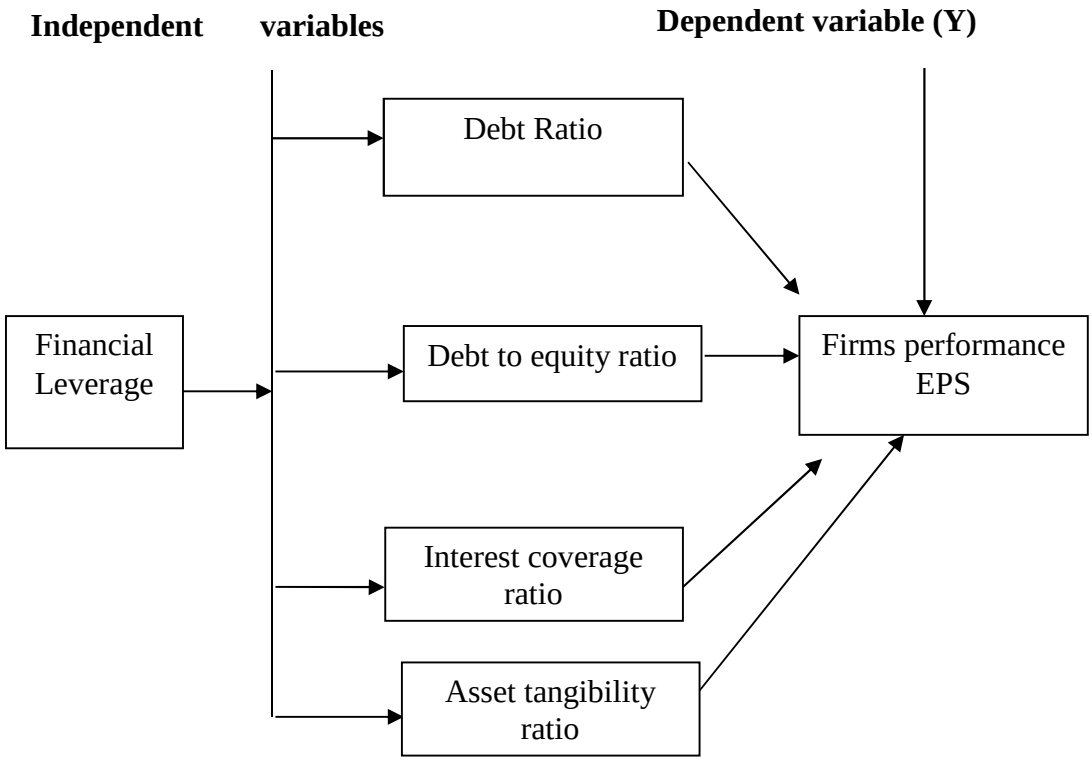
2.2 Theoretical Framework

This work is anchored on ***intermediate theory*** which was propounded by Pandy (2009). States that mix of debt and equity can increase the value of the firm by reducing the weighted average cost of capital (WACC) up to a certain level of debt. He posited that financial leverage is very critical to the survival and performance of corporate entities. According to him, benefit of debt is basically the tax-shield effect that arises due to deductible of interest payments. It also entails that debt funds are cheaper than equity funds which implies that the cost of debt and the increased cost of capital, with weighted basis, will be less than the cost of equity that existed on equity before debt financing.

Therefore, this work is anchored on this theory because it serves as the foundation for investigating the effect of financial leverage on firm financial performance of listed companies in Nigeria Stock Exchange. The theory is

very pertinent as it is the basis on which financial leverage stands since firms trading on debt run less risk due to tax shield than those trading on equity financing.

2.2.1 Theoretical model for this study



Source: ***Researchers, 2017.***

From the above diagram, it illustrated the theoretical model of this work which serves as guide to the solution to the problem identified in this work by the conceptualization of the dependent and independent variables of this work, dependent variable y and independent variables (x1-4). However, the framework utilized debt ratio, debt equity ratio interest coverage ratio and asset tangibility as proxies for financial leverage while earnings per share (EPS) is used to proxy performance.

Other theories relating to this study includes Static Trade-Off Theory which state that firms have an optimal structure which is determined by trading off the cost against the benefits of the use of debt and equity (Jensen (1996). One of benefits of the use of debt is the debt tax shield, and disadvantage of cost of potential financial distress, when the firm relies on too much debt. There cost and benefits are the use of debt and equity.

The other is **Agency Theory which** was initially developed by Berle & Means (1932), who states that due to a continuous dilution of equity ownership of large corporations, ownership and control become separated, which gives professional managers an opportunity to pursue their interest instead of that of shareholders. Jensen & Meckling (1976) see agency costs as the sum of the monitoring expenditure by the principal, bonding cost by the agent, and a resided loss. Menson (1976) opines that agency is relationship as a contract under one or more people (principle here another (Agent) to perform sum services and then delegate decision making authority to the agent. In respect of this, an agency relationship exists between shareholders and managers. Therefore, firms which are mostly financed by debt given managers less decision power of those financed mostly by equity, and thus debt can be used as a control mechanism, in which lenders and shareholders becomes the principal parties in the corporate governance structure.

2.3 Empirical Review

2:3:1 Debt ratio and Firms' Financial Performance

Innocent, Ikechukwu and Nnagbogu (2014) conducted a study on the effect of financial leverage on financial performance: evidence from quoted pharmaceutical companies in Nigeria for the period 2001-2012. Financial leverage surrogated by debt ratio (DR), debt-equity ratio (DER) and interest coverage ratio (ICR) was used as independent variable. The study utilized secondary data sourced from financial statement of 3 pharmaceutical companies quoted on the Nigerian stock exchange. Descriptive statistics, Pearson correlation and multiple regressions were employed in order to determine the effect of financial leverage variables on company performance measured by ROA. The results showed that debts to total asset and debt-equity ratio have negative and insignificant effect on ROA interest coverage ratio has a positive and significant effect on ROA in Nigerian pharmaceutical industry. The study also revealed that on the aggregate, financial leverage variables have no significant effect on financial performance of sampled companies.

Abbasali and Esfandiar (2012) investigated the impact of capital structure on the financial performance of companies listed in the Tehran Stock Exchange and tested a sample of 40 firms. They concluded that there was a significant negative relationship between debt ratio and financial performance of companies studied. Also a significant positive relationship between asset turnover, firm size, asset tangibility ratio, and growth opportunities with financial performance measures.

Adekunle (2009) conducted a study on the effect of capital structure on company performance. Debt ratio was used to proxy capital structure while return on asset and on equity was used as measures firms' performance. The study used the ordinary least squares method of estimation. The results of the study indicated that debt ratio has a significant negative effect on firm's financial measures of performance. The study, however, did not consider other financing decisions in the analysis including the mediating effect of internal cash flow available.

Onaolapa and Kajola (2010) investigated the effect of capital structure on financial performance of companies listed on the Nigeria stock exchange (NSE). The study was performed using 30 non financial companies in 15 industrial sectors in period showed that financial leverage (debt ratio) has a significant effect on financial performance (ROA and ROE) of sampled firms.

2.3.2 Debt Equity Ratio and Firm Financial Performance

Simon-oke and Afolabi (2011) conducted a study on the relationship between financial leverage and firm performance using a study of five quoted firms in Mali within a period of nine years (1999-2007).they anchored their work on static trade off theory and also the agency cost theory. They employed the panel data regression model in analysing their data; the study revealed that there is a positive relationship between firms' performance and equity financing as well as between firms' performance and debt equity ratio.

Kaumbuthu (2011) conducted a study to determine the relationship between capital structure and return on equity for industrial and allied sectors in Nairobi securities exchange during the period 2004-2008.Capital structure was proxy by debt equity ratio while performance was proxy by return on equity. The study focused on only one sector from the listed companies in Nairobi Securities Exchange and also paid attention to only one aspect of financing decision, the study applied regression analysis and found a negative relationship between debt equity ratio and ROE,

Rehman (2013) investigated the relationship between financial leverage and financial performance of 35 listed sugar companies in Pakistan for a period of 6years from 2006-2011 correlation technique was used to test financial leverage proxy by debt equity ratio as independent variable and financial performance surrogated by EPS, NPM, ROA, ROE and sales growth as dependent variables. The results revealed that financial leverage has a positive relationship with ROA and sales growth, and negative relationship with EPS, NPM and ROE.

Ofia (2016) conducted a study on investigating the effect of financial leverage on company performance using selected quoted companies in Nigeria for the period of 2010 – 2015. Financial leverage surrogated by debt to total asset, debt to equity ratio, short term debt to total asset, long term debt to total asset, and interaction of debt to total asset and debt to equity ratio and dependent variable was proxy with return on equity. The results

revealed debt to equity ratio has no significant effect on the performance and should be the priority of the managers for improved performance.

2:3:3 Interest Coverage Ratio and Firm Financial Performance

Thaddeus and Chigbu (2012) studied effect of financial leverage on bank performance using 6 banks in Nigeria. The study utilized secondary data from Nigerian stock exchange facts book and the financial statements of the sampled banks. Debt equity and interest coverage ratios were used as proxies for financial leverage and hence constituted the independent variables, while earnings per share (EPS) represented performance was the dependent variable. Multiple regression technique was used to establish the effect of financial leverage on performance of sampled banks. The findings revealed mixed results. While some banks reported significant positive relationship between leverage and performance, others revealed significant negative relationship between leverage and performance

Maroko (2014) examined the influence of capital structure on financial performance of financial performance of firms listed in Nairobi Securities Exchange. The study employs secondary data sourced from financial statements of sampled listed firms, which were selected using stratified random sampling technique. Multiple regression technique was used to explain the relationship between financial leverage, cost of equity, interest ratio and organization financial performance. The findings revealed that positive relationship exit between financial leverage, cost of equity, interest ratio and organization financial performance. Results from their study also found a positive and significant relationship between leverage and profitability.

2:3:4 Asset Tangibility and Firm Financial Performance

Gweyi, Minoo and Luyali (2013) in their paper determinants of leverage of saving and credit co-operative societies in Kenya. The study sampled 40 Sacco registered by Sacco Society Regulatory Authority (SARA) which extended from the period 2010 to 2012. For the data analysis, regression model was employed, the explanatory variables comprised of firm size, growth rate, liquidity, profitability and tangibility, whereas the explained variable was the leverage ratio. The results show that for Sacco; there were statistical significant relationships between financial leverage and variable measured. The results from the study revealed that firm size has significant relationship with leverage at 99% confidence level, whereas liquidity and tangibility have significant relationship with leverage at 95% confidence level.

Ahmed (2011) investigated the impact of firm level characteristics on performance of the life insurance sector in Pakistan over the period of seven years. For this purpose, size, profitability, age, risk, growth and tangibility were selected as explanatory variables while ROA was taken as dependent variable. The results of ordinary least square (OLS) regression analysis revealed that leverage, firm, size, and risk were the most important determinants of performance of life insurance sector whereas ROA has statistically, insignificant effect on tangibility effect on tangibility of assets.

Chandrasekharan (2012) conducted a study on the determinants of capital structure using 7 firms out of the population of 116firms listed on the Nigeria stock exchange for a period of five years (2007-2011).from static trade-off, and pecking order theory point of view. He employed the panel multiple, regression analysis and the study reveals that for the Nigeria listed firms, firms' size, growth and age are significant with the debt ratio of the firms, whereas, profitability and tangibility are not,

Salawu (2012) investigated the effect of capital structure on firms' performance using 70 firms out of the 100 firms listed on Nigeria Stock Market from 1990 – 2006 cutting across 14 sectors of the Nigeria stock Exchange classification. The estimation from the panel data showed that long – term debts and tangibility (asset structure) were positively related to firm's performance (R OA).

Obradovich and Gill (2013) investigate impact of corporate governance and financial leverage on the value of American firms. A sample of 333 listed on New York Stock Exchange (NYSE) for a period of 3 years from 2009-2011 was used. The purpose of this study was a find the impact of corporate governance and financial leverage on the value of American firms. The co-relational and non-experimental research design was used to conduct this study by taking firm value as dependent variable and CEO Duality, Board size, Audit committee and Financial Leverage as dependent variable. Overall outcomes show that larger board size negatively impacts

the value of African firms and CEO duality, audit committee, financial leverage, firm size, return on assets and insider holdings positively impact the value of American firms.

Akinyomi (2013) conducted. The study also revealed that on the aggregate, financial leverage variables a study on impact of financial on performance using three manufacturing companies selected randomly from the food and beverage categories in Nigeria under a period of five year (2007-2011) using the static trade-off and the pecking order theory point of view. He adopted the use of correlation analysis method and revealed that each of debt to capital, debt to common equity, short term debt to total debt and the age of the firms is significantly and positively related to return on asset and return on equity but long term debt to capital is significantly and relatively related to return on asset and return on equity.

Maina and Kondongo (2013) examined effect of capital structure on financial performance of the firms listed on Nairobi stock exchange from the year 2002-2011. The study did not exclude the financial sector firms. The study used ROA, ROE and Tobin's Q as measure of performance. It was found that there is a negative relationship between capital structure and all measures of performance used in the study.

METHODOLOGY

3.1 Research Design: ex-post facto research design was adopted by collecting already existing data from annual financial statement of companies in seven listed companies in agricultural sector and the data were base on the Nigerian Stock Exchange (NSE) as at 31st Dec, 2015

3.8 Model Specification and Proxy

The analytical model considered in this study took element of financial leverage (debt ratio, debt equity ratio interest coverage ratio, asset tangibility) as predictor variables and firms performance proxy by earnings per share as criterion variable. This study specified model, on attempt to ascertain the effect of financial leverage characteristics on firms' performance of listed companies in agricultural sector in Nigeria as follows: EPS =f (DR, DER, ICR, TANG).

$EPSti=bo+\beta_1 DRti+\beta_2 DERti+\beta_3 ICRti+\beta_4 TANGti\mu$ …… (1)

It also builds on the model of Agu, Enekwe & Eziedo 2014 which specifies the model given below

$ROA=bo+b_1 DRyt+b_2 DERyt+b_3 ICRyt+\varepsilon i$

DATA ANALYSIS AND INTEPRETATION

This study investigated the effect of financial leverage on firm performance quoted Agricultural companies in Nigeria. In analyzing the data, the study adopted panel multiple regression to identify the possible effects of financial leverage (debt ratio, debt to equity ratio, interest coverage ratio, asset tangibility ratio) on performance (earnings per share) of quoted companies in agricultural sector. The study conducted some preliminary analysis such as descriptive statistics, correlation matrix and further test like normality test, multi-colinearity and autocorrelation test.

4.1 Descriptive Statistics

The descriptive statistics result shows the mean (average) for each of the variables, their maximum values, minimum values, standard deviation and the Jarque-Bera (JB) statistics (normality test).

Table 4.1 below, provides the summary of the descriptive statistics of the sampled quoted agricultural companies in Nigeria selected for the study between 2011 and 2015.

Table 1 Descriptive Statistics

Variables	Mean	Max	Min	Std Dev	Jarque-Bera	JB (P-value)
EPS	0.0864	0.4910	-0.0350	0.0976	150.65	0.0000*
Debt_Ratio	0.5670	0.9500	0.2000	0.2045	1.7671	0.0133*
Debt_Equity	0.3736	0.6360	0.1820	0.1130	2.9153	0.2327**
Int_Cov	0.3990	1.2300	0.1200	0.3057	13.708	0.0011*
Asset_Tan	0.4425	0.8100	0.2200	0.1811	2.7360	0.2546**
No of cross section	-	8				
All data observation	-	40				

Source: Source: Researcher's summary of E-view 8 descriptive analysis

Note: *1% level of significance ** not significance at level.

The result provided some insight into the nature of the selected Agricultural companies that were used for the study. Firstly, it was observed that within the period under review, the sampled companies has average positive EPS value of 0.0864, maximum and minimum value of 0.4910 and -0.0350 respectively. The large difference between the maximum and minimum value shows that the sampled companies used for the study are not dominated by either large or small companies. Secondly, it was observed that on the average, over the period, the sampled companies were characterized by positive earnings per share value of 0.0864. Debt ratio within the period has a mean value of 0.5670, maximum value of 0.9500 and minimum value of 0.2000. These values indicate that within the period under review, debt ratio fluctuate greatly, this may have negative effect on performance of firm, the fluctuating debt ratio can increase the proportion of bad debt and cost of debt. The result also reveals that debt to equity ratio has a mean value of 0.3736, maximum and minimum value of 0.6360 and 0.1820 respectively. The mean value reveals that the quoted agricultural firms used about 37% of debt to equity financing. The large difference between the mean, maximum and minimum value of debt to equity ratio indicates that most agricultural firms within the period under review does not used only equity financing. Interest coverage has a mean value of 0.3990, maximum value of 1.2300 and minimum value of 0.1200, those value shows that most agricultural firms has large interest coverage ratio which is a good indication of performance. The analysis of asset tangibility shows a mean value of 0.4425, maximum value of 0.8100 and minimum value of 0.2200. The mean value reveals that agricultural firms has low tangible asset compare to non tangible assets. The large difference between the maximum and the minimum value indicates that the asset of the selected firms in agricultural sector varies greatly but the sample is not dominated by firms with low tangible asset or high tangible assets. Thus the firms are homogenous.

Lastly, the Jarque – Bera (JB) which test for normality of the data or the existence of outlier or extreme value among the data used shows that all variables are normally distributed at 1% level of significance except assets tangibility, and debt to equity ratio. The result means that there is extreme value in assets tangibility, and debt to equity ratio. Though there are outliers in assets tangibility and debt to equity ratio, they are not likely to distort our conclusion; hence our result is reliable for drawing generalization. This also means that ordinary least square estimation techniques can be used to estimate the panel regression model.

4.2 Correlation analysis

In examining the association among the variables, the study employed the Pearson correlation coefficient (correlation matrix), the results are presented below

Table 4.2 Correlation Matrix

	EPS	DEBT_RATIO	DEBT_EQUITY	INT_COV	ASSET_TAN
EPS	1.000000				
DEBT_RATIO	-0.327918	1.000000			
DEBT_EQUITY	0.146680	0.191617	1.000000		
INT_COV	-0.278669	-0.072216	-0.213659	1.000000	
ASSET_TAN	0.142367	-0.118734	0.306429	-0.296417	1.000000

Source: Researcher's summary of E-view 8 correlation analysis

The use of correlation matrix is to check for multi-colinearity and to explore the relationship that exist between each variables used in the study.

The findings from the correlation matrix table, shows that Earnings per share has a negative relationship with debt ratio, this reveals that the higher the level of debt ratio, the lower the earnings per share. Thus, debt ratio has strong negative relationship with earnings per share. When debt ratio increase by 1%, earnings per share will tend to fall by about 32.79%. Earnings per share have a positive relationship with debt to equity ratio; hence the more debt to equity ratio agricultural firm uses the better their performance measured by their earnings per share. From the table, earnings per share has negative relationship with interest coverage, the relationship reveals that the more agricultural firm thrive to increase their interest coverage ratio, the lesser their earnings per share. Earnings per share has a positive relationship with asset tangibility, this reveals that the more tangible asset agricultural used the higher their earnings per share will tend to be. Thus when agricultural firm increase their tangible asset by one naira, their earnings per share will tend to increase by about fourteen kobo. The relationship between debt ratio and debt-equity ratio, interest coverage, assets tangibility, shows that debt ratio has a positive relationship with interest coverage and debt –equity ratio and negative relationship with asset tangibility. Debt-equity ratio has strong positive relationship with interest coverage and assets tangibility. Interest coverage has a strong positive relationship with asset tangibility of agricultural firms in Nigeria.

In checking for multi-colinearity the study noticed that no two explanatory variables were perfectly correlated. This indicates the absence of multi-colinearity problem in the model used for the analysis and justifies the use of the ordinary least square.

4.3 Hypotheses Testing

To examine the effect of leverage financing on firm performance and to test our formulated hypotheses, we used the multiple regression analysis. The result obtained from the analysis is presented below in table 4.3

Table 4.3 Regression analysis

	DEBT_RATIO	DEBT_EQUITY	INT_COV	ASSET_TAN
Coefficient	-0.184245	0.149203	-0.089849	-0.021463
T-value	-2.490735	1.065364	1.783183	0.241530
P- value	0.0176	0.2940	0.0832	0.8106
R. sq	0.4247			
R. sq(Adj)	0.4136			
F-start				
F-stat P-value	2.5359			
Durbin Watson	0.0574			
	1.5897			

Source: Researcher's summary of E-view 8 Regression analysis result.

Note: The OLS result follows the assumption of no heteroscedaticity.

In table 4.3 above, the study observed from the result the R. squared value of 0.4247 and R-sq(adj) 0.4136(41%); the R-sq(adj) value indicates that all the independent variables jointly explain about 41.36% of the variation in earning per share of the sampled companies. Thus about 41.36% of the earning per share of agricultural companies can be attributable to the leverage financing policy. The F-statistics value of 2.5359 and its probability value of 0.0574 shows that leverage policy have effect on firm performance (earning per share) and the effect is statistically at 10% levels. The Durbin Watson statistics result was 1.5897 can be approximated into two, this indicates the absence of autocorrelation in our model, and hence the model is appropriate for the analysis.

Hypotheses Testing

Hypotheses 1: Debt ratio has no significant effect on earnings per share of agricultural firms in Nigeria.

The regression result showed a coefficient value of -0.1842, t-value of 2.4907 and a P-value of 0.0176. The coefficient value which reveals the degree of variation caused by the individual independent variable to the dependent shows a negative value of -0.1842, this means that debt ratio negatively influence the performance of agricultural firms. Thus a ₦1.00 increase/change in debt financing can lead to about ₦0.18 decrease in agricultural firm performance. The t-value of -2.4907 (is above absolute 2) shows that debt financing has effect on the earning per share of agricultural firms. The probability value of 0.0176 reveals that the effect of debt financing on earnings per share is statistically significant at 5% level. Based on the result, the study rejects the null hypothesis and accepts the alternate hypothesis it therefore concludes that, debt financing has statistical significant effect on the performance (earning per share) of agricultural firms in Nigeria.

Hypothesis 2: Debt-equity ratio has no significant effect on earnings per share.

The analysis of the effect of debt-equity financing on earnings per share showed a coefficient value of 0.1492, t-value of 1.0654 and a P-value of 0.2940. The coefficient value of 0.1492 reveals that debt – equity financing influence about less than 1% of earning per share. Thus a one naira increase in debt to equity ratio will lead to about less than 1% increase in indicates that 0.14% increase in earnings per share of agricultural firms in Nigeria. The t-value of 1.0654 (less than absolute 2) shows that debt –equity ratio has an effect on the earnings per share of agricultural companies. The probability value of 0.2940 reveals that the effect of debt - equity financing on the earnings per share of agricultural firms in Nigeria is not statistically significant. Based on the result, the study accept the null hypothesis and reject the alternate hypothesis, it therefore concludes that, although debt – equity financing has effect on earnings per share, the effect is not statistical significant.

Hypotheses 3: Interest coverage ratio has no significant effect on earnings per share of agricultural firms in Nigeria.

The analysis result showed a coefficient value of -0.0898, t-value of 1.7832 and a P-value of 0.0832. The coefficient value which reveals the degree of influence/variation caused by the interest coverage to the earning per share shows a negative value of -0.0898, this reveals that interest coverage negatively influence the earnings per share of agricultural firms (though the influence is small-0.0898). The t-value of 1.7832 (approximate into 2) reveals that interest coverage has a positive effect on the earnings per share of agricultural companies. The probability value of 0.0832 shows that the effect of interest coverage is statistically significant at 10% level, on the performance of agricultural firm measured by earnings per share of agricultural companies in Nigeria. Based on the result, the study accepts the alternate hypothesis and reject the null hypothesis it therefore concludes that, interest coverage has statistical significant effect on the performance of agricultural firms in Nigeria.

Hypothesis 4: Asset tangibility has no significant effect on earnings per share.

The analysis result of the effect of asset tangibility on earnings per share showed a coefficient value of -0.0215, t-value of 0.2415 and a P-value of 0.8106. The coefficient value of -0.0215 indicates asset tangibility has negative influence on earnings per share. Thus a one naira increase in the asset tangibility will lead to about two kobo decrease in earnings per share. Although the level of influence is low it is negative. The t-value of 0.2415(below absolute two) shows that asset tangibility has weak effect on the earnings per share of agricultural

companies. The probability value of 0.8106 reveals that the effect of assets tangibility on the earnings per share of agricultural companies in Nigeria is not statistically significant. Based on the result, the study reject the alternate hypothesis and accept the null hypothesis, it therefore concludes that, asset tangibility has a no statistical significant effect on the earnings per share of agricultural firms in Nigeria.

5.1 Summary of findings and conclusion

From the result of the analysis and hypotheses tested, we found that: Debt ratio and Interest coverage ratio have negative influence on earning per share and are statistically significant in driving the financial performance of agricultural firms in Nigeria, while debt equity ratio and asset tangibility are statistically insignificant in driving the financial performance of agricultural firms in Nigeria. Though Debt equity ratio has a positive and Asset tangibility has a negative influence on earnings per share. We therefore conclude that manager's priority should be Interest coverage and debt ratio for improvement on financial performance of Agricultural firm in Nigeria.

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