RELATING FINANCIAL LEVERAGE TO CORPORATE PERFORMANCE: A CASE OF CEMENT MANUFACTURING FIRMS IN NIGERIA.

ABSTRACT

The study evaluated the effect of leverage financing on performance of quoted cement manufacturing firms in Nigeria for the period 2006-2017. There are four (4) cement manufacturing firms in Nigeria studied out of eight (8) manufacturing cement firms. Purposive sampling technique were used in selecting the four (4) cement manufacturing firms in Nigeria out of the eight (8) cement manufacturing firms quoted in the Nigerian Stock Exchange (NSE).The main objective of the study is to investigate the effect of financial leverage on corporate performance of cement firms in Nigeria. The analytical tool adopted was ordinary least square (OLS) simple and multiple regressions. Findings of the study showed that Debt Ratio and Debt to Equity Ratio has negative insignificant effect on Return on Assets (ROA) of quoted cement manufacturing firms in Nigeria. On the other hand Interest Coverage Ratio (ICR) has positive and insignificant effect on return on assets of quoted cement firms in Nigeria. This implies that increase in Debt Ratio and Debt to Equity Ratio decreases ROA, while increase in ICR increases ROA of cement manufacturing firms in Nigeria. The study therefore recommended that the corporate managers in Nigeria should be encouraged to use more long term debt in their financing than relying more on short term credits, since increase in ICR increases ROA of cement manufacturing firms in Nigeria.

Keywords: leverage; debt ratio; debt equity ratio; return on asset; interest coverage ratio.

1. INTRODUCTION

Financial decision making is very relevant for the profitability of any firm. These include long-term financing and short-term financial decisions. The long-term decisions are mode of capital sourcing and dividend decisions while the short term financing decisions involve liquidity decisions. Thus, the financial manager is responsible for determining the optimal mix of debt and equity that will ensure maximization of shareholders' wealth (Maina & Kondongo, 2013). Firm's

performance and profitability is very important in any economy, among them are; first the profits to the firm mean income to the shareholders and hence spillover impact and multiplier impact for individual, households and the economy in general. Secondly the corporate taxes that the government will earn will enable the implementation of infrastructural projects and social welfare programs. Thirdly when firms are profitable it means they can attract more investors and hence raising large capital for bigger and high returns projects. Leverage refers to the use of debt in financing a firm. Leverage ratios measure the extent to which debt has been used to finance the activities of a firm. Lenders are interested in this category of ratios because a firm that has been making much use of borrowed funds in financing its activities would have outstanding debts to settle from its financial resources Anyanwaokro , (2008).

Hence, the optimal capital structure decision seems to be relevant to finance managers and board of directors; because, such decision on capital structure might lead to increase profitability and shareholders' wealth maximization. Thus, most finance managers believe that the use of financial leverage is like a 'double-edged sword' because it can either magnify the firm's potential gains or losses. This was corroborated by the works of Alajekwu (2014) on effect of financial leverage on corporate performance of manufacturing firms in Nigeria. It is a recognized theoretical fact that the primary motive of a firm in using financial leverage is to boost the shareholders' return under favorable economic conditions. This is based on the assumption that fixed-commitment financing can be obtained at a cost lower than the firm's rate of return on net assets UbesieM.C, Maduka F.I. and Udaya L. K., (2016).

Financial leverage is a measure of how much firm uses debt and equity to finance its assets. As debt increases, financial leverage increases. Consequently, the firms with the higher leverage should be the most encouraged to improve their performance. However, on the other side, a higher leverage means higher agency costs because of the diverging interests between debt holders and shareholders (equity holders). This principled threat suggests that leverage can significantly affect the value of firms in a negative or in a positive way, since it magnifies returns and risk. However, cement firms would achieve good financial performance if their financial factors are strictly governed by either the companies or the government. It is only when the financial factors are well taken care of that the financial leverage will have positive effect on financial performance of cement firms in Nigeria can be completely realized. In the advanced countries such as United States and France among others, the "ease of doing business" captured by many other variables including the interest (lending) rate has remained impressive. The

interest rate in those countries has remained within single-digit limit. With the interest rate remaining low, firms including cement firms can easily secure low-cost loans which will help them for better performance.

Nigerians have lamented the hardship being posed to them by the skyrocketed increase in price of cement. In many parts of the world, pressure on the price of cement has been attributed to various sources of energy for different stages of production and transportation of cement to end users. Energy sources such as petrol, diesel, electricity and coal have direct impact on the market price of cement; any change in price of any of these may affect the price of cement. Recent study of Cement industry shows that cost of energy accounts for 50 per cent cost of production. The following have been highlighted as the causes of high price of cement in Nigeria: Huge supply gap of cement where demand is higher than supply is a factor that may force up the price of cement, too many middle men in the supply and distribution of cement, unstable power supply which leads to over dependence on expensive alternative fuel which accounts for about 50 per cent of total cost of production, hoarding of cement by marketers to sustain importation, huge cost of transportation of cement from factory to end-users vis-à-vis poor distribution network of some cement companies, sheer monopoly of production and importation of cement by a few players, rise in prices of other raw materials may lead to high cost of cement, unfavorable government policy on production and importation, high capital involved in setting up more cement factories may lead to the supply gap of cement and lastly high tax burden also impact on price of cement. Pan African Capital Research, (2011). However, with the experience of high cost of production, high interest rate charge and mix others, financial managers of cement firms might take advantage of available credit and tax shield to enhance their firm's assets (performance) and this might decrease the financial performance of cement firms in Nigeria when compare with foreign companies or firms performance. It is acknowledge that indicators of the financial leverage are; Debt which is used to measure a company's ability to handle its obligations, Debt to Equity measures the proportion of debt and equity in financing a company's assets. Also Interest Coverage determines a firm's ability to pay interest on outstanding debt. While performance indicator is Return on Assets which measures efficient management is using its assets to generate earnings. The problem of the study is to investigate the impact of financial leverage on Returns on Assets of cement manufacturing firms in Nigeria.

1.3 Objectives of the Study

The broad objective of this study is to investigate the impact of financial leverage on corporate performance of cement manufacturing firms in Nigeria. The specific objectives of the study are:-

i. To evaluate the effect of Debt Ratio (DR) on Return on Assets (ROA) of the cement manufacturing firms in Nigeria.
ii. To ascertain the effect of Debt-Equity Ratio (DER) on Return on Assets (ROA) of the cement manufacturing firms in Nigeria.
iii. To investigate the effect of Interest Coverage Ratio (ICR) on Return on Assets (ROA) of the cement manufacturing firms in Nigeria.

1.4 Research Questions

i. To what extent does Debt-Ratio (DR) impact on Return on Assets (ROA) of the cement manufacturing firms in Nigeria?
ii. To what degree does Debt-Equity Ratio (DER) affect Return on Assets (ROA) of the cement manufacturing firms in Nigeria?
iii. By how much does Interest Coverage Ratio (ICR) affect Return on Assets (ROA) of the cement manufacturing firms in Nigeria?

1.5 Statement of Hypotheses

The following hypotheses in null form guided the study:

1. Debt ratio (DR) has no positive effect on Return on Assets (ROA) of the cement manufacturing firms in Nigeria.
2. Debt-Equity Ratio (DER) has no positive effect on Return on Assets (ROA) of the cement manufacturing firms in Nigeria.
3. Interest Coverage Ratio (ICR) has no positive effect on Return on Assets (ROA) of the cement manufacturing firms in Nigeria.

The study of this kind will prove to be beneficial to the various stakeholders of the Nigerian corporate world and to the academia in the following manner. The result of the study will be of benefit to corporate decision makers in Nigeria as it harps on the benefits/costs of their financing decision on their firms. This is made necessary given that a better understanding of the

benefits/costs of financial leverage, enhances the performance of quoted companies in Nigerian. Securities holders in Nigeria – whether equity, debt or hybrid; this study will be of benefit, as it will enlighten them better on their value added, in the performance of their firms of choice. They could begin to relate performance of quoted companies in Nigerian with the financing structures of their target companies. Further still, this study has the ability to enlighten the various stakeholders of their stakes and share of the pie, in the event of failure. The various policy makers of the Nigerian corporate jurisdiction could benefit immensely from this study, since both the characteristics of the financial structure of Nigeria's quoted firms, and the impact of it on their performance/value will be empirically determined. It will enhance their policy decisions geared towards improving the productivity and profitability of the private sector. As earlier noted, this study is geared towards adding to the body of literature on the study of corporate financing in the Nigerian jurisdiction, and therefore bound to instigate further empirical search on the subject matter; even as it will give some empirical impetus to existing notions about the financing patterns and their impacts on Nigerian quoted firms. The study focused on the impact of financial leverage on corporate performance of four (4) cement manufacturing firms in Nigeria quoted in Nigerian Stock Exchange namely; Lafarge cement (WAPCO) plc, Dangote cement plc, Ashaka cement plc, Cement Company of Northern Nigeria plc .Data were drawn from their website, Nigerian Stock Exchange, Fact Book and their annual report for (12) years from 2006 to 2018. The variables for financial leverage are Debt Ratio (DR), Debt Equity Ratio (DER) and Interest Coverage Ratio (ICR), while Return on Asset (ROA) is a proxy for corporate performance. Aside the introduction section, the rest of the paper is divided into four sections. Section two presents a review of related literature, section three contains the methodology for the study, and section four has the analyses of data while section five concludes.

2. REVIEW OF RELATED LITERATURE

This section provides the theoretical framework of the study, the impact of Financial Leverage on firm, profitability, the Conceptual Framework, empirical review and the summary of the literature review.

2.1 Conceptual Framework

Fraenkel and Wallen (2000) articulated that the greatest study information through the problem statement in perspective of a theoretical context or conceptual. An explanation of this context adds to a research information in at least two means as it identifies research study variables, and association among the study variables. This study tries to examine the impact of financial leverage on profitability of cement companies listed in the Nigeria stock exchange. The conceptual framework of this study spells out the relationship between profitability which will be measured by firm size, growth and productivity. Profitability = Return on Equity(ROE)=Net profit /Total Equity while the independent variables of the study will be financial leverage which will be measured as the ratio of total debt to total assets.

The term 'Leverage' may be defined as the percent of change in one variable by the percent of change in some other variable or variables. In the field, finance management, the term leverage is used to describe the firm's ability to use fixed cost assets or funds; the former is popularly known as 'Operating Leverage' and the latter is known as 'Financial Leverage'.

The interest coverage ratio is used to determine a firm's ability to pay interest on outstanding debt. The greater the multiple, the less risk to the lender and typically, if the company has a multiple higher than one, it is considered to have enough capital to pay off its interest expenses. It is expected that a company should cover interest and fixed charges by at least a factor of two, or even more ideally, 3:1, if not, its ability to meet interest payments may be questionable.

$$\text{Interest Coverage Ratio} = \frac{\text{Earnings Befort Interest and Taxes (EBIT)}}{\text{Interest Expenses (IE)}}$$

Debt Equity Ratio is the measure of a company's financial leverage calculated by dividing its total debts by stockholders' equity. It indicates what proportion of debt to equity the company is using to finance its assets. The extent to which a firm uses debt funding or financial leverage has implications for the firm. By raising funds through debt, shareholders are able to maintain control without having to increase investment. Enekwe (2014) submits that debt to 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 to Equity Ratio = Total Liabilities

Total Equity

Debt Ratio on the other hand is a financial leverage ratio used in corporate finance to measure a company's ability to handle its obligations. It compares company's total debt to its total assets, which is used to gain a general idea as to the amount of leverage being used by a company. It gives users a quick measure of the amount of debt that a firm has on its financial position compared to its assets. Debt includes all short term and long term obligations. The ratio is used to evaluate a firm's financial structure and its financing operators. Typically, the more debt compared to assets a company has amongst its peers, which is signaled by high debt ratio, the more leveraged it is and the riskier it is considered to be.

$$\text{Debt Ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

2.2 Concept of Financial Performance

A firm's performance represents how effective managers operate a company and thereby enhance the value of the firm to their shareholders. The relationship between managers and shareholders has raised the issue of a conflict of interest when managers use discretionary power to act in their personal best interest Gweyi and Karanja, (2014).

Firm or corporate performance is measured in this context using the following proxy;

This is an indicator of how profitable a company is relative to its total assets. Return on Asset (ROA) is calculated by dividing a company's annual earnings by its total assets.

$$\text{ROA} = \frac{NetIncome}{TotalAsset}$$

Emekekwue (2008) defines Return on Assets (ROA) as a ratio which seeks to measure the amount of profit generated from the entire assets of the firm.

It is expressed as = $\frac{\text{Profit Before Tax}}{Total\ Asset}$

Enekwe, C. Agu, C. and Eziedo, K., 2014, in citing Khalaf (2013) opine that Return on Assets (ROA) is a dependent variable. It is the quotient of dividing profit after tax by total assets. Ekwe and Duru (2012) opined that return on assets (ROA) was used as dependent variables, because it is an indicator of managerial efficacy. Lazaridis and Trynidis (2006), Delof (2003), Falope and Ajilore (2009), Singh and Pandy (2008) and Karaduman et al (2011) agree that the formula for Return on Assets (ROA) is expressed as Profit before Tax divided by Total Assets.

Return on Assets = $\frac{\text{Profit Before Tax}}{\text{Total Asset}}$

2.2 Theoretical Framework

This section covers the theories that support the impact of financial feverage on firms profitability. These theories include: Modigliani-Miller theorem, Pecking Order Theory and Trade-off Theory.

The theory of Trade-off was propounded by Modigliani and Miller (MM) in 1958 as asserted in Pratheepkanth(2011) The theory assumed that a business's value is distinct from its debt and equity mix of financing but ignoring issues that play a positive role in determining the best capital structure such as corporate taxes. Consequently, Modigliani and Miller (1963) cited in Khalid (2012) reaffirmed that corporate taxes are significant characteristic of capital structure.The theory suggested that, there is an optimal capital structure that maximizes the value of a firm in balancing the costs and benefits of an additional unit of debt. These are characterized by models of trade-off which allow the bankruptcy costs to exist. The bankruptcy costs of debt are the increased costs of financing with debts instead of equity. The trade-off theory of capital structure refers to the idea that a company chooses how much debt and equity finance to use by balancing the costs and benefits. Trade-off theory assumes that there are benefits to leverage within a capital structure up until the optimal capital structure is reached. Akinmulegun (2012)

With the assumption of Trade-off theory that there are benefits to leverage within a capital structure up until the optimal capital structure is reached as a result the research anchored her work on Trade-off theory.

Secondly, the Pecking Order theory This theory postulate that the cost of financing increases with asymmetric information and that financing comes from three sources namely, internal funds, debt and new equity, also companies prioritize their sources of funding, first internal that is, equity financing, secondly debt and raising new equity as its last resort. The theory in its view in asymmetric information that managers know more about their companies prospect, risks and value more than the outside investors, Brealey, Myers and Allen, (2008). Myers, (1984) anchored in line with the theory that, most firms prefer the Pecking Order Theory for their investment. By virtue of the theory, the management prefers ready fund for investment first in their activity and if the fund is not available they use debt and finally benefit from external share Gweyi and Karanja, (2014).

The result of Pecking Order of financing is as follows: an internally generated fund first is followed by respectively low-risk debt financing and share financing. In Myers and Majluf model (1984), outside investors rationally discount the firm's stock price when managers issue equity instead of riskless debt. To avoid this discount, managers avoid equity whenever possible. The Myers and Majluf model predicts 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 Gweyi and Karanja, (2014).

2.3: Empirical Review

This section discusses the empirical studies in relation to the two main variables of this study which are financial leverage and profitability of listed firms. It consists of both local and global studies as follows:

Enekwe and Eziedo(2014)wrote on the effect of financial leverage on financial performance. Gweyi and Karanja, (2014) Their main objective of this study is to determine the effect of financial leverage on financial performance of the Nigeria pharmaceutical companies over a period of twelve (12) years (2001 – 2012) for the three (3) selected companies. Their work

employed three (3) financial leverage for the independent variables such as: debt ratio (DR); debt-equity ratio (DER) and interest coverage ratio (ICR) in determining their effect on financial performance for Return on Assets (ROA) as dependent variable. They used secondary data obtained from the financial statement. Descriptive statistics, Pearson correlation and regressions were employed and used for this study. The results of the analysis showed that debt ratio (DR) and debt-equity ratio (DER) have negative relationship with Return on Assets (ROA) while interest coverage ratio (ICR) has a positive relationship with Return on Assets (ROA) in Nigeria pharmaceutical industry.

Rondk (2015)investigated the impact of capital structure on firm performance: evidence from companies listed on Iraq Stock Exchange for the period 2009-2013. Multiple regression data analysis was used in his study to analyse the impact of the company's capital structure on its financial performance by employing 40 companies (18 manufacturing, 7 services, 10 tourism, 5 agriculture) listed in Iraq stock market. The research used three measures for financial performance namely, Return on equity (ROE), and Return on assets (ROA), as dependent variables and leverage (which is short term debt/total assets) as an independent variable. The results of the study demonstrate that short term debt ratio (DR) has a negative effect on return on assets (ROA) and short term debt ratio (DR) has a positive and significant effect on return on equity (ROE). Significant determinant of return on equity (ROE) is asset turnover because it has a positive and significant effect in the model. The results are different from both return on assets (ROA) and return on equity (ROE).

Robert and Mohamed (2015) investigated the relationship between financial leverage and the financial performance of listed firms in Kenya. They use annual data for the period 2007 – 2011. Using various panel procedures, the study finds that financial leverage significantly, and negatively, affects ROA of listed firms in Kenya. Also, financial leverage has negatively insignificant effect on ROE. Secondly, because the performance of firms depends on other things than just their financial leverage, they control for the effects of those other variables by including them in their models. In this respect, the findings suggest that asset tangibility and ownership concentration are important determinants of performance measured in terms of Tobin's Q.

Waqas & Mobeen, (2014) investigated the Impact of liquid ratios, solvency ratios and profitability. In their paper, they applied regression model and correlational analysis. Solvency ratio (Debt Ratio, Debt-Equity Ratio and Interest Cover Ratio) has negative and highly significant impact on the ROA and ROE. It means that debt to equity ratio increases then

performance decreases. It is also concluded that liquidity (Current Ratio and Quick Ratio) has high positive effect over Return on Assets of sector (i.e. if liquidity Rate is increased, ROA will also be increased with greater effect and vice versa). Suppliers check the solvency position of the companies before delivering the goods. The investors are also interested in solvency position how much the company is risky. Liquidity, solvency and profitability are closely related because one increases the other decreases.

Ubesie, Maduka and Udaya (2016) in their study evaluated the effect of capital structure on financial performance of quoted cement companies in Nigeria for the period 2006-2015. The main objective of their study was to investigate the effect of financial leverage on corporate performance of some cement firms in Nigeria which were Dangote cement, Lafarge Cement, Ashaka cement and Cement Company of Nigeria. The methodology adopted was the fixed effect econometric panel regression model. Overall, the findings of the study showed that debt ratio has no significant effect on return on asset of quoted cement companies in Nigeria. Debt equity ratio has negative significant effect on return of assets of quoted cement companies in Nigeria. Interest coverage ratio has positive and significant effect on return on assets of quoted cement companies in Nigeria. The study therefore recommended that the regulators and operators of the market for corporate finance, like the CBN, SEC, and NSE should collaborate to develop the capital market in Nigeria to enable quoted companies in Nigeria access long term debt.

Chinaemerem and Anthony (2012) investigated the effect of capital structure portfolio on financial performance of Nigerian firms using 30 listed non-financial firms on the Nigerian Stock Exchange for a span of 7 years from 2004- 2010. Panel data for the chosen companies were examined using ordinary least squares method of approximation. The findings indicate that company's capital structure represented by debt ratio has negatively significant association with the firm's financial performance surrogated by Return on Assets and Return on Equity.

Gweyi and Karanja, (2014) investigated the effect of financial leverage on financial performance of deposit taking Sacco in Kenya. The sample data was extracted from 40 Savings and Credit Co-operative Societies (Saccos) registered by Sacco Society Regulatory Authority extended from the period 2010 to 2012. The secondary data used for analysis was collected from the financial statements of the various deposit taking Saccos. Two basic approaches descriptive and analytical design were adopted. The results show perfect positive correlation between debt equity ratio

(DER) with return on equity (ROE) and profit after tax at 99% confidence interval and a weak positive correlation between debt equity ratio with return on assets and income growth.

Naveed, Malik, Muhammad and Naqvi (2014) investigated the impact of working capital on the corporate performance in the cement, chemical and engineering sectors of Pakistan. They obtained data from the annual reports issued by the companies during 2007-2011. To verify the relationship between the measures of working capital and profitability, regression models were used. The results show that average collection period and operating cycle were positive whereas average age of inventory was negatively related to the return on equity (ROE). Firm size was positive whereas leverage is negatively related to the return on equity (ROE). Average payment period is negative whereas cash conversion cycle is positively and significantly related with return on equity. The results indicate that working capital management influences the firms' profitability.

Nawaz A., Atif S. and Aamir F.S,, (2015) investigated the impact of financial leverage and Profitability of cement sector operating in Pakistan. The sample size for 18 firms for six (6) years consists of 108 observations. They used Ordinary Least Square model on the data to establish a causal relationship between the variables. The researchers found that financial leverage has a statistically significant inverse impact on profitability at 99% confidence interval.

Soumadi and Hayajneh (2012) investigated the relationship between capital structure and corporate performance of Jordanian shareholdings firms. The study used multiple regression models by Ordinary least squares (OLS) to establish the link between capital structure and corporate performance of firms over a period of 5 years. The results showed that capital structure was associated negatively and statistically with the performance of the firms in the sample. Another finding from the study was that there was no significant difference in the impact of financial leverage between high financial leverage firms and low financial leverage firms in their performance. The study also concluded that the relationship between capital structure and firm performance was negative for both high growth firms and low growth firms.

Suhaila (2014) investigated the effect of liquidity and leverage on financial performance of commercial state corporations in the tourism industry in Kenya. The study adopted descriptive

research design where data was retrieved from the Balance Sheets, Income Statements and Notes of ten (10) Commercial State Corporations in the tourism industry in Kenya during the study period 2008-2012. A regression model was used to assess the impact of liquidity and leverage on financial performance measured with profitability. A positive relationship was found to exist between tourism industry liquidity and profitability of Commercial State Corporations in the tourism sector in Kenya.

Tale (2014) investigated the relationship between capital structure and financial performance of non-financial firms listed at the Nairobi securities exchange in Kenya. The study used a descriptive survey. The population of the study consisted of all the 40 nonfinancial firms listed and duly registered with capital market authority of Kenya. Secondary data used was obtained mainly from the annual audited and published books of accounts, financial statements and the NSE. Data analysis was done using regression analysis model. However, the results showed that there was a negative relationship between financial performance and the size and growth of the firm.

Al-Taani (2013) investigated the relationship between capital structure and firm performance: Evidence from Jordan. The study showed that firm's working capital management policy, represented by financial leverage and firm size have significant relationship to firm's performance in respect to net income however found no significant impact on Return on equity (ROE) and return on assets (ROA). The firm size had the potential to influence the firm's financial performance in form of the preference of capital structure mix.

Nwude,Itiri, Agbadua and Udeh(2016) investigated on the impact of debt structure on the performance of Nigerian quoted firms. They conducted it using 12-year annualized panel data spanning the period 2001-2012 for cross sectional analyses of 43 firms from different sectorial classifications. Their study employed three regression estimations (Pooled OLS, Fixed Effects and Random Effects) as a result of unobserved heterogeneity in the dataset. The outcome from their regression estimations showed that debt structure (Short term Debt Ratio, Long term Debt Ratio, Total Debt Ratio, Firm's Size and Firm's Age) has negative and significant impact on the performance (ROA) of Nigerian quoted firms within the period under review. The study concludes that debt structure contributes negatively to performance of Nigerian quoted firms; thereby agree with pecking order theory.

3. METHODOLOGY

The study adopts *ex-post facto* research design (after the fact research) which uses data that are already in existence. The study was carried out in Nigeria, on cement manufacturing firms quoted in Nigerian Stock Exchange (NSE). Data for the study were collected from the annual reports and accounts of quoted cement manufacturing firms in Nigeria as documented on Nigerian Stock Exchange (NSE) yearly Fact Book. The population of this research study comprises of eight (8) cement manufacturing firms in Nigeria, as at 31st December 2018. The emphasis on cement manufacturing firms quoted on the Nigerian Stock Exchange (NSE),is based on the premise that they are under obligation by law to file their annual reports periodically. Only cement manufacturing firms with data needed for the variables of this study were chosen and as result, the researcher selected four (4) cement manufacturing firms quoted on the Nigerian Stock Exchange, which constitute the sample of this study. Purposive sampling technique was used to select: Lafarge Cement(WAPCO) plc, Dangote Cement plc, Ashaka Cement plc and Cement Company of Northern Nigeria plc .Purposive sampling method involved the analyst to judgmentally sample the population items and as to which items constitutes a representative sample while relying particularly on data availability.

Model Specification

To pursue the broad objective of this study which is to investigate the impact of financial leverage on corporate performance of cement manufacturing firms in Nigeria, we adopt the Panel Least Squares which follows either the Random Effects Model or the Fixed Effect Model.

Cross Sectional Random Effects

The random effect model will be of the form specified below**:**

$$Y_{it} = \alpha + \beta x_{it} + w_{it}, w_{it} = \varepsilon_{it} + \mu_{it,}$$

where:

ε_{it}measures the random deviation from the global or common intercept term α, subscript "***it"*** represents the combination of individuality and time.

μ_{it} = the regular error term

In substituting our parameters into the random effect model it will appear thus:

$$ROA_{it} = \alpha + \beta_1 DR_{it} + \beta_2 DERS_{it} + \beta_3 ICR_{it} + (\mu_i + \varepsilon_{it})$$

Where y = Return on Assets (firms performance proxy for Dependent Variable)

x = Debt Ratio, Debt Equity Ratio, and Interest Cover Ratio

Fixed Effect Model

$Y_{it}=\alpha + \beta xit + \lambda i + v_{it}$

λ_i is a time-varying intercept that captures all of the variables that affect Y_{it} that vary over time but are constant cross sectionally (Brooks, 2014)

In substituting our parameters into the fixed effect model the model appears thus:

$ROA_{it} = \alpha + \beta_1 DR_{it} + \beta_2 DERS_{it} + \beta_3 ICR_{it} + \lambda_i + v_{it}$

Where:

Where y = Return on Assets (firms performance proxy for Dependent Variable)

x = Debt Ratio, Debt Equity Ratio, and Interest Cover Ratio

The Haussmann Test

The choice of either of the Models is a function of the Haussmann Test conducted on the panel regression results. This test as shown in Asteriou and Hall (2007) looks like this:

$$H_{stat} = (\beta^{FE} - \beta^{RE})'[Var(\beta^{FE}) - Var(\beta^{RE})]^{-1}(\beta^{FE} - \beta^{RE}) \sim \chi^{2(k)}$$

The Haussmann test represents a distance measure with an H_o that the Random Effects (ECM) are better, efficient and consistent and an H_1 that the Fixed Effects (LSDV) are better, more efficient and consistent.

4. Results

4.1 Data presentation

In this section of the work, the collected data were analyzed and interpreted in line with the aim of the study which is to determine the impact of leverage finance variables on the financial performance of cement firms in Nigeria. The study used the data of four cement firms audited annual reports of 2006 to 2017.

Table 1 presents values for leverage finance variables and return on assets of the four cement firms Nigeria.

YEARS	FRIMS	DR	DER	ICR	ROA
2006	LAFCEM PLC	47.6000	90.8397	9.6396	52.2248
2007	LAFCEM PLC	35.1608	54.2276	13.9300	70.4693
2008	LAFCEM PLC	34.5035	52.6800	53.2009	61.1535

2009	LAFCEM PLC	49.8520	99.4096	1.3696	21.2584
2010	LAFCEM PLC	59.2409	145.3439	2.2410	12.0593
2011	LAFCEM PLC	63.2540	172.1388	2.0741	10.6045
2012	LAFCEM PLC	54.9807	122.1270	5.5146	25.3822
2013	LAFCEM PLC	42.0508	72.5648	9.3146	40.8226
2014	LAFCEM PLC	19.4872	19.4872	22.2013	48.3146
2015	LAFCEM PLC	20.6338	20.6338	52.5758	39.2861
2016	LAFCEM PLC	36.7382	58.0734	3.7399	10.0701
2017	LAFCEM PLC	57.0299	132.7199	1.1467	2.0200
2006	DANG CEMENT PLC	71.2990	248.4205	21.3891	16.5007
2007	DANG CEMENT PLC	65.5326	190.1293	2.5994	8.8941
2008	DANG CEMENT PLC	69.3680	226.4556	26.6038	14.4652
2009	DANG CEMENT PLC	48.2230	93.1363	15.9003	39.5174
2010	DANG CEMENT PLC	47.3911	90.0818	34.8540	52.4523
2011	DANG CEMENT PLC	44.5125	78.0543	21.3611	51.2968
2012	DANG CEMENT PLC	33.9422	51.3900	12.1294	65.1978
2013	DANG CEMENT PLC	30.2927	43.5499	17.5632	80.3531
2014	DANG CEMENT PLC	33.7228	50.8814	9.3734	65.5711
2015	DANG CEMENT PLC	33.4375	50.2347	7.1328	58.6621
2016	DANG CEMENT PLC	28.3138	54.3332	5.7240	41.7635
2017	DANG CEMENT PLC	38.4662	62.5691	11.2393	55.1797
2006	ASHAKACEM PLC	36.9384	58.7364	185.9215	72.5674
2007	ASHAKACEM PLC	51.8129	107.3939	0.0000	21.8180
2008	ASHAKACEM PLC	48.9152	95.6780	0.0000	28.0183
2009	ASHAKACEM PLC	48.7040	94.9399	0.0000	10.6115
2010	ASHAKACEM PLC	42.5913	74.1895	1.9696	36.6410
2013	ASHAKACEM PLC	30.0511	42.9614	19.8046	14.0407
2014	ASHAKACEM PLC	28.3324	39.5330	22.1336	25.9110
2015	ASHAKACEM PLC	24.6687	32.7470	31.6752	18.4855
2016	ASHAKACEM PLC	26.7130	36.4498	122.0455	13.3593
2017	ASHAKACEM PLC	28.3358	40.2477	7.6912	10.6689
2006	CCNN PLC	80.8536	422.2922	5.6287	0.1610
2007	CCNN PLC	65.4749	189.6442	10.3773	2.8811
2008	CCNN PLC	54.7925	121.1895	4.0652	34.8828
2009	CCNN PLC	56.9826	132.4363	9.4364	41.4787
2010	CCNN PLC	55.6216	127.3597	7.9291	29.2439
2011	CCNN PLC	52.2420	109.3891	28.9377	34.8908
2012	CCNN PLC	53.4925	115.0191	6.6016	71.8506
2013	CCNN PLC	44.9837	81.7643	7.3444	41.9977
2014	CCNN PLC	40.1416	67.0610	7.9955	39.1006
2015	CCNN PLC	40.8361	69.0219	4.0849	22.1304
2016	CCNN PLC	42.6203	74.2778	19.8101	20.3881
2017	CCNN PLC	41.5295	71.0264	17.4944	41.0606

Source: Authors computation from annual report and account.

4.2 Basic Statistical Properties

To show the basic statistical characteristics of the series under, the basic descriptive statistics are presented below in table 2.

Table 2: DESCRIPTIVE STATISTICS

	LOGROA	LOGICR	LOGDR	LDER
Mean	3.193724	2.377688	3.752060	4.381774
Median	3.552109	2.265880	3.774050	4.332608
Maximum	4.386431	5.225325	4.392640	6.045697
Minimum	-1.826351	0.136888	2.969758	2.969758
Std. Dev.	1.110193	1.106234	0.328346	0.624329
Skewness	-2.362193	0.209353	-0.355827	0.146759
Kurtosis	10.61038	3.132694	2.634292	3.244709
Jarque-Bera	153.7891	0.345651	1.227036	0.279900
Probability	0.000000	0.841284	0.541443	0.869402
Sum	146.9113	102.2406	172.5948	201.5616
Sum Sq. Dev.	55.46378	51.39770	4.851510	17.54042
Observations	46	43	46	46

Source: Authors' Computation

The descriptive statistics in Table 2 above contains the mean, median and mode for the series. Kurtosis and skewness respectively shows the degree of peakedness and symmetry of the series. The dispersion in the series is also shown using standard deviation.

In an attempt to confirm the degree and significance of the linear association among the variables under study, table 3 contains the correlation matrices of the proxies for return on assets and all the leverage indicators. As can be seen a number of the variables share positive and significant linear association while others share negative and significant linear association.

Table 3: CORRELATIONAL ANALYSES

Correlation			
t-Statistic			
Probability	LOGROA	LOGICR	LOGDR
LOGICR	0.329657	1.000000	
	2.235814	-----	
	0.0309	-----	
LOGDR	-0.445697	-0.438845	1.000000
	-3.188007	-3.127190	-----
	0.0027	0.0032	-----
LDER	-0.538623	-0.422977	0.984050
	-4.093383	-2.988911	35.42017
	0.0002	0.0047	0.0000

Source: Authors' Computation

4.2 Test of Hypotheses

The panel least squares were used in the test of hypotheses of the four cements firms. One of the major benefits from using panel data as compared to cross-section data on individuals is that it

enables us to control for individual heterogeneity. Not controlling for these unobserved individual specific effects leads to bias in the resulting estimates.

In arriving at a decision, the following steps were taken; (i) the hypotheses were restated in null forms, (ii) the decision criterion or criteria were stated, (iii) the presentation of the Eviews result, and (iv) the selection of the more efficient model is done following the Haussmann Test results (v) the null hypothesis is rejected based on the decision criterion or criteria.

Panel Estimates

The results of the panel regression following the fixed effect framework is presented in table 4 below:

Table 4: FIXED EFFECT ESTIMATES

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.452073	3.283471	-1.965016	0.0574
LOGICR	0.116091	0.126444	0.918129	0.3648
LOGDR	9.382828	1.944610	4.825045	0.0000
LDER	-5.888687	0.990551	-5.944857	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	68%			
Adjusted R-squared	62%			
F-statistic	10.83970	Durbin-Watson stat		1.66321
Prob(F-statistic)	0.000000			

Source: Authors' Computation

The results of the panel regression following the random effect framework is presented in table 4 below:

Table 5: RANDOM EFFECT ESTIMATES

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.108221	3.200231	-2.221159	0.0322
LOGICR	0.141579	0.117986	1.199969	0.2374
LOGDR	9.574637	1.914683	5.000639	0.0000
LDER	-5.926449	0.981448	-6.038476	0.0000
Effects Specification				
			S.D.	Rho
Cross-section random			0.544081	0.3749
Idiosyncratic random			0.702540	0.6251

Weighted Statistics			
R-squared	0.635114	Mean dependent var	1.213283
Adjusted R-squared	0.607045	S.D. dependent var	1.144825
S.E. of regression	0.689333	Sum squared resid	18.53201
F-statistic	22.62753	Durbin-Watson stat	1.112765
Prob(F-statistic)	0.000000		
Unweighted Statistics			
R-squared	0.536620	Mean dependent var	3.212414
Sum squared resid	25.35856	Durbin-Watson stat	0.813208

Source: Authors' Computation

The determination of the appropriate model between the fixed and random effect follows the Haussmann test results presented in table 6 below:

Table 6: **HAUSSMANN TEST RESULTS**

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.547426	3	0.6714

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LOGICR	0.116091	0.141579	0.002067	0.5751
LOGDR	9.382828	9.574637	0.115497	0.5725
LDER	-5.888687	-5.926449	0.017953	0.7781

Source: Authors' Computation

Given that the Pvalue of the Haussmann Chi-square Statistic (67%) is greater than 5% and the standard null hypothesis which follows that Random Effect is better than fixed effect; we cannot reject the null hypothesis. This evidently leads to the conclusion that the random effect model is a preferred model to the Fixed Effect model.

4.2.1 Test of Hypothesis One

Step One: ***Restatement of Hypothesis in Null and Alternate Form***

H_0: Debt ratio (DR) has no significant effect on Return on Assets (ROA) of the cement manufacturing firms in Nigeria.

H_1: Debt ratio (DR) has significant effect on Return on Assets (ROA) of the cement manufacturing firms in Nigeria.

Step two*: Decision Rule/criteria*

Reject H_0 if the t-statistics > 2, probability of t-statistics < 0.05; otherwise refuse to reject H_0.

Step Four: Decision

Table 5 shows that the coefficient of LOGDR 9.57 and the t-statistics of 5.006 > 2 and the probability value of 0.0000< 0.05 and significant at 5% critical value. Thus, the study rejects the null hypothesis which state that Debt ratio (DR) has no significant effect on Return on Assets (ROA) of the cement manufacturing firms in Nigeria.

4.2.2 Test of Hypothesis Two

Step One: Restatement of Hypothesis in Null and Alternate Form

H_0: Debt-Equity Ratio (DER) has no significant effect on Return on Assets (ROA) of the cement manufacturing firms in Nigeria.

H_1: Debt-Equity Ratio (DER) has significant effect on Return on Assets (ROA) of the cement manufacturing firms in Nigeria.

Step two*: Decision Rule/criteria*

Reject H_0 if the t-statistics > 2, probability of t-statistics < 0.05; otherwise refuse to reject H_0.

Step Three*: Presentation of Panel Regression Result*

Step Four: Decision

Table 5 shows that the coefficient of LOGDER -5.92 and the t-statistics of 6.03 > 2 and the probability value of 0.0000< 0.05 and significant at 5% critical value. Thus, the study rejects the null hypothesis which state that Debt Equity ratio (DER) has no significant effect on Return on Assets (ROA) of the cement manufacturing firms in Nigeria.

4.2.3 Test of Hypothesis Three

Step One: ***Restatement of Hypothesis in Null and Alternate Form***

H_0: Interest Coverage Ratio (ICR) has no significant effect on Return on Assets (ROA) of the cement manufacturing firms in Nigeria.

H_1: Interest Coverage Ratio (ICR) has significant effect on Return on Assets (ROA) of the cement manufacturing firms in Nigeria.

Step two: ***Decision Rule/criteria***

Reject H_0 if the t-statistics > 2, probability of t-statistics < 0.05; otherwise refuse to reject H_0.

Step Four: Decision

Table 5 shows that the coefficient of LOGICR 0.14 and the t-statistics of 1.199 < 2 and the probability value of 0.2374 > 0.05 and non-significant at 5% critical value. Thus, the study refuses to reject the null hypothesis which state that Interest Coverage Ratio has no significant effect on Return on Assets (ROA) of the cement manufacturing firms in Nigeria.

DISCUSSION OF RESULTS

In case of this study, the researchers found out that some researchers have found insignificant relationship between financial leverage and performance and a significant relationship between the two but varying extent. Such studies include: in Nairobi(Kaumbuthu, 2011) found a negative association between equity to debt ratio (EDR) and Return on equity (ROE).in Jordan (Al-Shamaileh & Khanfar, 2014),in Pakistan (Nawaz, Salmani & Shamsi, 2015) who found that financial leverage has a statistically significant inverse impact on profitability at 99% confidence interval; in Tehran, Iran on the relationship among financial leverage and profitability (Fengju, Fard, Maher and Akhteghan,2013).Other examples include (Banchuenvijit2011) in Thailand and (Srivastava,2014) in India who established a positive relationship amid financial leverage and profitability. The association between the two types of leverage is also demonstrated in several studies in Africa such as: Enekwe, Agu and Eziedo (2014) in Nigeria, (Ubesie M.C, Maduka F.I. and Udaya L. K., 2016) found that debt Ratio and Debt equity Ratio (DER) and have negative significant effect on ROA, while Interest coverage ratio (ICR) has positive and significant effect on (ROA) of quoted cement companies in Nigeria

5. CONCLUSION

The study evaluated the effect of leverage financing on performance of quoted cement companies in Nigeria for the period 2006-2017. The research findings from this findings of the study showed that Debt ratio (DR) has an significant effect on the Return on assets (ROA) of cement manufacturing firms in Nigeria; Debt Equity Ratio (DER) has significant effect on the Return on assets (ROA) of cement manufacturing firms in Nigeria and that Interest coverage ratio (ICR) has an insignificant effect on the Return on assets (ROA) of cement manufacturing firms in Nigeria.

Overall the study has shown that quoted cement manufacturing firms in Nigeria are highly levered and employ more of long-term liabilities. As such in the case of higher debt, financial

performance will rise correspondingly. The reason behind this may be due to the high interest of shorter term sources of fund. The study has also shown that leverage financing has a statistical significant effect on the corporate performance of cement manufacturing firms in Nigeria. The study on the other hand, concludes that financial leverage may constitute a major determinant of financial performance (across all the measures of performance) of quoted cement manufacturing firms in Nigeria. To address the above findings of the study, the following actions are recommendations are made, which will enable the quoted cement firms to improve corporate performance through effective use of financial leverage in their firms. It is expected that Cement firms in Nigeria should endeavor to guard their Debt cost because it impacts their firms' ROA if it is high, then the financial managers of cement firms should depend on their internal sources of financing in order to increase their financial performance. Also, the results on Debt Equity ratio has confirmed that Debt Equity ratio impacts the financial performance of the firms, hence Financial managers of cement firms should take advantage of available credit and tax shield advantage to enhance the firm's financial performance (ROA). It is expected that the financial managers of cement firms should monitor the interest charged on debt financing to avoid liquidation of the cement firms.

It is our belief that this study adds to knowledge by suggesting that Government should support sectors by giving out policy that will guard against cost levied on debt.

Lastly, it has been brought out that financial leverage can enhance firms assets in Nigeria by monitoring the interest charged on debt financing; this finding can play a role in reengineering how firms manage their leverage properties locally and internationally.

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