©IDOSR PUBLICATIONS
International Digital Organization for Scientific Research ISSN: 2550-7931
IDOSR JOURNAL OF APPLIED SCIENCES 1(1) 54-67, 2016.

DETERMINANTS OF CAPITAL STRUCTURE ON CORPORATE PERFORMANCE OF SELECTED CEMENT FIRMS IN NIGERIA.

Ubesie Madubuko C., Maduka Fineness I. and Udaya Lovely K.

Department of Accountancy, Enugu State University of Science and Technology Enugu State, Nigeria.

ABSTRACT

The 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 the 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.

Keywords: Capital Structure, Cement firm and Financial performance.

INTRODUCTION

In the quest to optimize financing decisions objective, which hinges primarily on quantifiable performance, financial managers have adopted various capital structures as a means to quantifiable performance; firms can finance its investment by debt and/or equity [1]. Capital structure of an enterprise is a combination of debt capital, equity shares, preference shares and retained earnings. Therefore, organizations assemble different combinations of sources of finance in which the level of debt capital could be huge or small in capital mix [2]. The success or failure of any firm depends upon the managerial and financial decisions made by the management. The financial decisions include the raising of funds

from different sources, the motive behind this is to minimize the financial costs of funds rising and these financial decisions may be viewed by various capital structure theories [3]. Capital structure decision is one of the most crucial decisions made by financial managers, and borders on the mix of debt and equity used by firms in financing their assets [4]. According to [5 and 6], capital structure usually refers to a firm's debt-to-equity ratio, which shows how risky a firm is to put investment in and thus helps the investors in their investment decisions. Also, they employed that if a company has debt as major portion of its capital structure it has high leverage and thus higher degree of risk. This puts pressure on the debt and equity constituting capital structure to be stable and optimal for the firm and investors as well.

Optimal capital structure is the key element of any successful company especially in a current complex and dynamic times; it is one of the major ways of maximizing the value of the firm [7]. The capital structure of a company is a particular combination of debt, equity and further sources of finance that it uses to fund its long-term asset; the key partition in capital structure is between debt and equity. Therefore, proportion of debt funding is measured by gearing or leverages [8]. There are different factors that affect a firm's capital structure, and a firm should challenge to determine what its best, or best, mix of financing [9]. [10], used both forms of debts, in analyzing capital structure, [11], took total debts in determining the determinants of debt adjustment and [12], used total debts or total liabilities while determining the factors of capital structure.

The combination of different proportions of debt and equity in order to increase the market value of a firm can be recognized as capital structure of the firm. Therefore, in as much as wealth maximization remains a primary motive to going concern business firms, capital structure decision should be regarded as practical and necessary phenomenon to business firms, as it facilitates maximization of return on investment over a long-run perspective while risk is minimized through boosting the

efficiency of project financing, financing of mergers, acquisition and expansion as well as dividend decisions.

Statement of the Problem

Significant progress has been made in the development of the theory of capital structure issues and decision framework. The basis for important departures from the original Modigliani and Miller theorems on the irrelevance of capital structure on the value of firms has become clearer. However, not enough is known about the empirical relevance of the different theories. Empirical work has revealed some facts on capital structure choice and on financial leverage, but such evidence is largely based on the experience of firms in the United States, and it is not at all clear how these facts relate to different theoretical models. Without testing the robustness of these findings outside the environment in which they were uncovered, it is hard to determine whether these empirical findings are merely spurious correlations, let alone whether they support one theory or another.

It is a recognized theoretical fact that the primary motive of a firm in using financial leverage is to boost the shareholders' return under favourable 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. Consequently, the large volume of empirical studies already carried out on the subject matter, has not laid to rest, the controversies generated by the initial propositions. There is therefore the need to join the empirical search by using cross-sectional industry data to determine the effect of financial leverage on the performance of cement companies in Nigeria. The major problem of the study was to evaluate the extent of capital structure among Nigerian cement firms and how this affects returns to assets.

Objectives of the Study

The main objective of this study is to investigate the effect of capital structure on corporate performance of selected cement firms in Nigeria: whereas the specific objectives are;

- To determine the effect of Debt Ratio (DR) on Return on Assets (ROA) of the quoted cement firms in Nigeria.
- To ascertain the effect of Debt-Equity Ratio (DER) on Return on Assets (ROA) of the quoted cement firms in Nigeria.
- To investigate the effect of Interest Coverage Ratio (ICR) on Return on Assets (ROA) of the quoted cement firms in Nigeria.

Research Questions

- To what extent does debt-ratio (DR) affect Return on Assets (ROA) of the quoted cement firms in Nigeria?
- What is the effect debt- equity ratio (DER) on Return on Assets (ROA) of the quoted cement firms in Nigeria?
- How does Interest Coverage Ratio (ICR) affect Return on Assets (ROA) of the quoted cement firms in Nigeria?

Hypotheses

The hypotheses to be tested are:

- Debt Ratio (DR) has no significant impact on Return on Assets (ROA) of the selected cement firms in Nigeria.
- Debt Equity Ratio (DER) has no significant impact on Return on Assets (ROA) of the selected cement firms in Nigeria.
- There is no significant relationship between Interest Coverage Ratio (ICR) and Return on Assets (ROA) of the purposely selected cement firms in Nigeria.

METHODOLOGY

Research Design

This study basically made use of the corporate annual reports of Cement Companies of Nigeria

Area of study

Selected listed cement companies in Nigerian manufacturing sector; for the period 2006 – 2015. Four out of the eight (8) listed cement companies were used.

Method of Data Analysis

Data were analyzed using fixed effect Panel data regression model.

Model Specification

The Panel Regression Model

The general model equation was represented as stated below:

$$Y = b_0 + b_1x_1 + b_2x_2 + \ldots u \quad \ldots\ldots 1$$

Where y = Dependent Variable (the various firm performance measures)

x = Independent Variables (the leverage finance variables).

U = Stochastic disturbance

This could also be represented in a pooled data regression model thus:

$$Yit = b_0 + b_1x_{1it} + b_2x_{2it} + \ldots u_{it} \quad \ldots\ldots 2$$

Where:

i = cross-sectional observations of the variables

t = time-series observations of the variables

Hypothesis Test Models

To validate the hypotheses, the multiple regression panel data estimation model was adopted because of its adjudged appropriateness for adjusting for the presence of heteroskedasticity. With panel data one can include variables at different levels of analysis.

The following models were adopted for the various hypotheses in line with the general regression model earlier stated.

Hypothesis One: Debt ratio has no positive significant effect on return on assets of quoted cement companies in Nigeria.

$$ROA = b_0 + b_1 \text{Debt ratio} + u \quad \ldots\ldots 3$$

Hypothesis Two: Debt equity ratio has no positive significant effect on return on assets of quoted cement companies in Nigeria

$$ROA = b_0 + b_1 DER + u \quad \ldots\ldots 4$$

Hypothesis Three: Interest coverage ratio has no positive significant effect on return on assets of quoted cement companies in Nigeria

$ROA = b_0 + b_1 ICR + u$ 5

Where

ROA = Return on Assets

DR = Debt Ratio

DER = Debt Equity Ratio.

ICR = Interest Coverage ratio.

The equation 3 to 5 above can be stated to form a panel multiple regression model as shown below,

$$ROA_{it} = b_0 + b_1 \sum_{i=1}^{n} DR_{it} + b_2 \sum_{i=1}^{n} DER_{it} + \beta_3 \sum_{i=1}^{n} ICR_{it} + u_i + v_{it}$$

.... 3.5

where;

β_0 is the constant term, μ_i is the panel specific error, and ν_{it} is the error term, while $_i$ coefficients which measure the impact of each variable.

Econometric software

The econometric software used for the analysis in this study is the E-views 9.0

DATA PRESENTATION AND ANALYSIS

Data presentation

Data is presented in App 4 – 7 on page 24–27.

In this chapter of the work, the collected data were analysed 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 companies audited annual reports of 2006 to 2015.

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

Year	Firms	ROA	ICR	DER	DR
2006	LAFCEM	73.91705	9.639643	64.1812	33.63095
2006	DAGCEM	8.575892	21.38909	248.4205	71.299
2006	ASHAKACEM	72.566	249.3678	58.73199	37.04287
2006	CEMCN	0.161012	5.628709	422.2922	80.85363
2007	LAFCEM	79.60585	13.93	48.00379	31.12528
2007	DAGCEM	6.887669	52.0246	282.648	73.86632
2007	ASHAKACEM	2.184691	6.744786	107.3895	51.81026
2007	CEMCN	2.895938	0.358126	189.6379	65.47657
2008	LAFCEM	1075.521	53.20094	2.995356	6.519597
2008	DAGCEM	45.54623	4.768995	80.61622	29.43896
2008	ASHAKACEM	28.0247	7.405682	95.6812	48.91831
2008	CEMCN	34.87281	3.13138	121.1898	54.78998
2009	LAFCEM	884.3949	41.2407	2.389537	5.995161
2009	DAGCEM	45.45273	8.615852	76.63423	35.43241
2009	ASHAKACEM	18.96056	50.5116	94.94558	48.70629
2009	CEMCN	41.48169	6.698909	132.4438	56.97867
2010	LAFCEM	14.57606	3.621152	120.2484	49.01217
2010	DAGCEM	53.18521	34.854	90.08179	47.39107
2010	ASHAKACEM	36.641	36.06231	74.18948	42.59125
2010	CEMCN	29.24455	32.33808	127.3709	55.62179
2011	LAFCEM	31.50282	10.92704	57.94555	21.29264
2011	DAGCEM	0.049528	21.63325	78.05429	43.83736
2011	ASHAKACEM	31.10357	217.2805	80.40892	44.57037
2011	CEMCN	34.89076	17.25652	109.3891	52.24203
2012	LAFCEM	25.38218	5.928919	122.127	54.98071
2012	DAGCEM	65.19784	11.93659	51.39005	33.1213
2012	ASHAKACEM	4.646202	268.7453	237.9335	174.9879
2012	CEMCN	14.26142	6.601626	115.0191	53.4925

2013	LAFCEM	40.82258	9.955981	72.56481	42.05076
2013	DAGCEM	80.35309	17.56318	43.54988	30.3378
2013	ASHAKACEM	14.04074	19.80457	42.96145	30.05107
2013	CEMCN	31.08768	7.344409	81.76425	44.98368
2014	LAFCEM	88.5741	15.6839	10.62967	10.62967
2014	DAGCEM	65.57115	9.373398	50.88138	33.72277
2014	ASHAKACEM	25.91103	22.13356	39.53296	28.33237
2015	CEMCN	39.10063	7.995458	67.061	40.14162
2015	LAFCEM	61.83795	19.33083	13.1088	13.1088
2015	DAGCEM	58.66206	6.530393	50.23468	33.43747
2015	ASHAKACEM	18.4855	31.67521	32.74698	24.66872
2015	CEMCN	22.13041	4.08489	69.02193	40.83608

Panel regression results

We estimated a fixed effects model with ROA_{it} (return on assets of firm i at time t) as the dependent variable, DR_{it} -debt ratio, DER_{it}-debt equity ratio, and ICR_{it}- interest coverage ratio of firm i at time t as the explanatory variables. The regression output is given in table II below.

Table 2 Random effects model Dependent variable = PAT

Variable	Coefficient	Standard error	t-stat	Probability
CONSTANT	240.5101	61.88826	3.886198	0.0005
ICR	2.700624	0.627759	4.302007	0.0005
DER	-1.570436	0.743364	-2.112607	0.0443
DR	-2.851885	2.285721	-1.247696	0.2209
Fixed Effects (Cross)				
LAFCEM—C	90.09606			
DAGCEM—C	42.82509			
ASHAKA—C	-36.51955			
CEMON—C	-96.40161			

Source: Authors computation

Result Interpretation

Interest coverage ratio and debt equity ratio helps explain the return on assets of cement companies in Nigeria. Interest coverage ratio is highly significant - as its p-values is both 0.0005 – and coefficient positive. This means that a one-unit increase in ICR increases ROA of cement companies in Nigeria by 2.7 units.

Moreover, debt equity ratio significantly helps explain the return on assets of cement companies in Nigeria. Thevariable is significant - as its p-values is both 0.0443 – and its coefficient is negative. A one-unit increase in DER decreases ROA by 1.57 units. On the general note, the return on assets of cement companies in Nigeria is influenced by interest coverage ratio and debt equity ratio, whereas ICR has a positive impact, DER has a negative impact. The result of company specific analysis is presented below, this unveiled how each company performed in terms of the impact of leverage finance on return on assets.

Table 3 Fixed effects model Dependent variable = ROA

Variable	Coefficient	Std. Error	T-statistic	Probability
Constant	464.5799	96.10096	4.834290	0.0001
ICR-LAFCEM	0.115806	0.654766	0.176866	0.8611
ICR-DAGCEM	8.328032	3.434476	2.424833	0.0244
ICR-ASHAKA	-0.050901	0.764380	-0.066592	0.9475
ICR-CEMON	-7.498769	2.588267	-2.897216	0.0103
DER-LAFCEM	2.580930	0.933303	2.765373	0.0108
DER-DAGCEM	5.604075	5.853225	0.957434	0.3479
DER-ASHAKA	-0.871966	3.130427	-0.278545	0.7830
DER-CEMON	-7.140668	2.176888	-3.280218	0.0005
DR-LAFCEM	-22.02689	5.027008	-4.381709	0.0002
DR-DAGCEM	-29.07131	13.95215	-2.083644	0.0480
DR-ASHAKA	4.880933	0.604956	8.068244	0.0000
DR-CEMON	-33.03978	2.587180	-12.77056	0.0000
Fixed effects (Cross)				
LAFCEM-C	338.6010			
DAGCEM-C	372.7091			
ASHAKA-C	-392.8589			
CEMON-C	-318.4512			
R^2	0.718711			

Result Interpretation

From the result in table 3 above, ICR significantly help explain return on assets in two of the cement companies (Dangote cement and Cement Company of Nigeria).

A one-unit increase in ICR in Dangote cement increases return on asset by 8 units.Also a one-unit increase in ICR in Ashaka cement decreases return on assetby 7 units.

Thus, interest coverage ratio increases returns on asset in Dangote Cement Company and but reduces ROA in Cement Company of Nigeria.

Also, debt equity ratio (DER) significantly helps explain return on assets in two of the cement companies (Lafarge cement and Cement Company of Nigeria).

A one-unit increase in debt equity ratio in Lafarge increases return on assets by 2.5 units. However, a one-unit increase in debt equity ratio in Cement Company of Nigeria decreases return on assets by 7 units.

Thus, debt equity ratio significantly affects returns on asset in Lafarge Cement Company and Cement Company of Nigeria.

Lastly, debt ratio (DR) significantly helps explain return on assets in all the four cement companies.

A one-unit increase in debt ratio in Lafarge decreases return on assets by 22 units. The same is applicable with Dangote Cement, where a one-unit increase in debt ratio decreases return on assets by 29 units. In Ashaka Cement company, a one-unit increase in debt ratio decreases return on assets by 4 units while a one-unit increase in debt ratio decreases return on assets by 33 units in Cement Company of Nigeria. Thus, debt ratio has a negative significant impact on return on assets in the cement companies used in this study.

Test of Hypotheses

Hypothesis one

Debt Ratio has no significant impact on return on assets of cement companies in Nigeria.

The probability value of debt ratio in the general panel result is 0.0005 which is less than the 0.05 probability level for significance, which implies that Debt Ratio has significant impact on the return of assets of Cement Companies.

Hypothesis two

Debt Equity Ratio has no significant impact on return on assets of cement companies in Nigeria.

The probability value of debt ratio in the general panel result is 0.0443 which is less than the 0.05 probability level for significance, which implies that Debt Equity Ratio has significant impact on the return of assets of Cement Companies.

Hypothesis three

Interest Coverage Ratio has no significant impact on return on assets of cement companies in Nigeria.

The probability value of debt ratio in the general panel result is 0.2209 which is greater than the 0.05 probability level for significance, which implies that Debt Ratio has no significant impact on the return of assets of Cement Companies.

Summary of Findings

The findings of the study show that:

- Debt Ratio has no significant effect on return on asset of listed cement companies in Nigeria.
- Debt equity Ratio has negative significant effect on return on assets of listed cement companies in Nigeria
- Interest coverage ratio has positive and significant effect on return on assets of listed cement companies in Nigeria.

Having concluded that the peculiar investment environment in the country, may have contributed to the low leverage behaviour of quoted cement companies in Nigeria, the study makes the following recommendations:

- 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.

- Corporate managers in Nigeria should be encouraged to use more long term debt in their financing than relying more on short term credits from the money market.
- Shareholder activism should be encouraged, so as to correct the agency problems in the Nigerian corporate jurisdiction. When the management of a failed company (or a take-over corporation) is not left off the hook until the mismanagement has been corrected, corporate agents will be more accountable.

REFERENCES

1. Dare, F. D, and Sola, O. (2010). Capital Structure and Corporate Performance in Nigerian Petroleum Industry: Panel Data Analysis. *Journal of Mathematics and Statistics,* Science Publications.

2. Dereje G. R. (2014) Determinants of leverage for unlisted firms:Evidence from Ethiopian Private Insurance Companies. *Journal of Poverty, Investment and Development,* vol.4.

3. Abdul, G. A., and Muhammad, S. A., (2014) "Determinants of Capital Structure'. European *Journal of Accounting Auditing and Finance Research Vol.2 (9), pp. 22-41*www.eajournals.org

4. Ishaya L. C., Sannomo L. G., and Abu S. O.(2013) Determinants of Capital Structure in the Nigerian Chemical and Paints Sector. *International Journal of Humanities and Social Science Vol. 3 No. 15.*

5. Kandir, S. Y., Karadeniz, E., Balcilar, M. &Beyazit, Y. O., 2009. Determinants of capital structure: evidence from Turkish lodging companies. *International Journal of Contemporary Hospitality Management,* 21(5), pp. 594-609.

6. Rashid S., Hafiza M. M., Rab N. L., Ayesha R., and Amber I. (2014) Capital Structure and Its Determinants: Empirical Evidence from Pakistan's Pharmaceutical Firms.*Journal of Basic and Applied Scientific Research 4(2)115-125. www.textroad.com.*

7. Ujah, U and Brusa, O. (2013).The effect of financial leverage and cash flow volatility on Earnings management Texas A and M International University.

8. Ahmadu A. (2015) Relationship between Financial Leverage and Financial Performance of Deposit Money banks in nigeria. *International Journal of Economics, Commerce and Management, 3(10), 759.*

9. Kavitha R., (2014). Determinants of Capital Structure: Empirical Evidence from India. *Indian Journal of Applied Research,* Vol. 4.

10. Ezeoha, A. E., (2008). Firm size and corporate financial-leverage choice in a developing economy: Evidence from Nigeria. *The Journal of Risk Finance,* 9(4), pp. 351 - 364.

11. Saeedi, Ali. And Mahmoodi, Iman(2011)Capital Structure and Firm Performance: Evidence from Iranian Companies.*International Research Journal of Finance and Economics.*

12. Abor, J., (2007). Debt policy and performance of SMEs: evidence from Ghanaian and South Africa firms. *Journal of Risk Finance, 8.*