

Cost Of Capital and Profitability of Firms Listed in the Construction Sector in Nigeria

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Abstract

The study investigated the relationship between cost of capital on profitability of firms listed in construction industry in Nigeria. Ex-post-facto research design was adopted for the study. The population of the study consist of all 25 firms listed in the Construction/Real Estate sector and a sample of 1 firm was used for the study. Secondary data source was used. The study used descriptive statistics and Multiple Linear Regression to test the hypotheses. The proxy of profitability was Return on Asset while Cost of Debt and Cost of Equity served as proxies of cost of capital. The results revealed that cost of debt has insignificant negative effect on return on assets of the construction sector companies on one side. Also, the results revealed that cost of equity has a significant positive effect on financial performance of the firms inconstruction industry.” The study recommended that construction companies should put more emphasis in obtaining financial equity capital rather than debt capital given that equity capital has positive effect on firms’ profitability while debt capital has negative effect even though it is insignificant.

Keywords: *Cost of Capital, Profitability, Construction Sector*

1. Introduction

The construction industry plays a pivotal role in the economic development of nations,” and Nigeria is no exception. It is a sector characterized by substantial capital requirements, project complexity, and sensitivity to economic conditions. To thrive and grow, construction companies in Nigeria rely heavily on external financing, which introduces the concept of the cost of capital as a critical financial determinant. The cost of capital, comprising the expense associated with both debt and equity financing, has a profound influence on the financial performance of construction firms (Abubakar, et al., 2016). This research endeavors to explore the intricate “relationship between the cost of capital and the financial performance of listed companies within Nigeria’s construction industry.”

The cost of capital represents the price a company pays for acquiring the funds necessary to finance its operations and investments (Lucky, 2017). In the context of construction companies, this cost encompasses the interest rates on borrowed capital, the cost of issuing equity shares, and the associated financial risks. Understanding the interplay between these factors and financial

performance is crucial for both practitioners and policymakers in Nigeria. In Nigeria, where economic conditions can be volatile and financing challenges persist, construction companies often face unique hurdles in their pursuit of growth and profitability.

Finance literature has focused on the kind and degree of association between capital structure and business financial performance. The choice of how a company will combine the numerous funding sources it employs to support its operations and capital projects is called capital structure. The use of long-term loan financing, also known as “debt financing, as well as preferred stock and ordinary stock, also known as equity financing, are some of these sources. Maximizing shareholder wealth via choosing the greatest combination of financial resources for a firm and maximizing the company's value through resource allocation is one of financial managers' top priorities.”

How well a company can use the resources from its core business to create money is measured by its profitability. Erasmus (2008) pointed out that indicators of profitability, such as liquidity, among others, give stakeholders a useful tool for assessing a firm's historical financial performance and present status. One of the many critical problems that profitability evaluations aim to address is “whether the firm has enough cash on hand to cover all of its debts” and if it is producing enough revenue to cover recent investments. Profitability and capital structure are highly related (Tian & Zeitun, 2017). Productivity, expansion, and even customer happiness may be used to gauge profitability. “These metrics are connected to one another. One technique for identifying a company's financial strengths, weaknesses, opportunities, and dangers is financial measurement. They include return on investment (ROI), residual income (RI), earnings per share (EPS), dividend yield, return on assets (ROA), sales growth, return on equity (ROE), etc.” (Stanford, 2009).

Hence, a comprehensive examination of the effect of the cost of capital on profitability is imperative to provide valuable insights for industry stakeholders, investors, policymakers, and researchers.

Statement of Problem

The relationship between a company's profitability and capital costs has been the subject of continuous discussion. This argument has been further condensed to determine which of the elements under discussion has the most impact on forecasting and establishing the cost of capital for businesses in the construction sector. In the dynamic landscape of Nigerian business, construction companies often find themselves at the intersection of capital-intensive operations and the need to maintain strong financial performance.

The issue of cost of capital and its effect on profitability has been comprehensively studied. None of the previous studies has examined the effect of cost of capital and profitability in Construction industry in Nigeria. Hence, it is therefore evident to say that the research population for the topic (i.e. Nigerian Listed construction Companies) is a gap; the study period (year 2015 to 2022) is also a gap and; the use of components of cost of capital (debt and equity) against profitability is also a method not used before.

Aim and Objectives of the Study

Overall objective of the research is to determine the relationship between cost of capital and profitability of firms listed in the construction sector. Specifically, the research achieved the following:

1. The effect of cost of debt on return on asset (ROA) of firms in the construction industry listed in Nigeria.
2. The effect of cost of equity on return on asset (ROA) of firms in the construction industry listed in Nigeria.

Research Questions

The following research questions were raised to guide the study:

- i. To what extent does cost of debt influences the return on asset (ROA) of firms in the construction industry listed in Nigeria?
- ii. To what extent does cost of equity influences the return on asset (ROA) of firms in the construction industry listed in Nigeria?

Hypotheses

The following null hypotheses were formulated and will be tested at 0.05 level of significance.

H₀₁: Cost of debt has no significant effect on return on asset (ROA) of firms in the construction industry listed in Nigeria.

H₀₂ - Cost of equity has no significant effect on return on asset (ROA) of firms in the construction industry listed in Nigeria.

2. Related Literature

2.1 Conceptual Review

Cost of Capital

Cost of capital is a critical financial concept that holds particular significance for construction companies operating in Nigeria or any other country. It refers to the overall expense “a company incurs to finance its operations and projects through a combination of debt and equity” (Ibrahim, 2015). For construction firms in Nigeria, understanding and managing the cost of capital is essential for their financial health and project viability.

The cost of capital comprises two main components:

Cost of Debt: This represents the interest rate or other costs associated with borrowing money to finance construction projects. Construction companies in Nigeria often rely on loans from banks or other financial institutions to fund their projects. The market's current interest rates, the creditworthiness of the organization, and the loan agreement's conditions are only a few examples of the variables that affect the cost of debt. In Nigeria, where interest rates can be relatively high, managing the cost of debt is crucial to avoid excessive financial burdens.

Cost of Equity: This reflects the return expected by investors who have provided capital to the construction company through ownership (shares) rather than loans. Investors require compensation for “the risk they bear by investing in the company” (Rad, 2014). For construction companies in Nigeria, “the cost of equity can be influenced by factors such as the company's

historical performance, industry prospects,” and the country's economic and political stability. Attracting equity investors at a reasonable cost is important to maintain a balanced capital structure.

The cost of capital is not a set rate; rather, it is a weighted average of the cost of debt and the cost of equity, taking into consideration the capital structure of the organization.” In order to lower their total cost of capital, Nigerian construction businesses must work to achieve the best balance of debt and equity. A high cost of capital can negatively affect profitability and competitiveness, making it harder to secure financing for new projects and maintain sustainable growth. Furthermore, construction companies in Nigeria may face additional challenges related to currency fluctuations, regulatory changes, and the overall economic environment. These factors can impact both the cost of debt and equity, making it crucial for companies to continually assess and adapt their capital structure and financing strategies to remain financially viable and competitive.

Profitability

A firm's profitability is of relevance to “stakeholders, investors, and the overall economy. The returns on their investments are what attract investors. A successful corporation will reward its investors more favorably. When a company is profitable, it can pay its employees more, provide consumers with high-quality goods or services, and build greater goodwill in the communities where it does business.” Profitability, in the context of construction companies operating in Nigeria, refers to the evaluation of these firms' economic health, stability, and efficiency in managing their financial resources and operations. It involves a comprehensive analysis of various financial metrics and indicators to gauge how effectively a construction company is utilizing its financial assets and achieving its financial goals within the Nigerian business environment. The most often used accounting-based profitability measures are: “return on assets (ROA), return on equity (ROE), return on investment (ROI) and Tobin's Q.”

Return on Asset (ROA)

Return on Assets (ROA) is an important financial indicator used to evaluate how effectively and profitably a firm uses its resources. It measures how effectively a company generates profit from its total assets, making it a valuable indicator of financial performance.

2.2 Theoretical Framework

Several structure of capital theories have been evolved since the “seminal work on capital structure by Modigliani and Miller (1958).” Modigliani and Miller's theory, the theory of pecking order, the efficiency-risk hypothesis, the franchisee value hypothesis, the concept of agency theory, and the static trade off theory are a few of these. Agency cost concept would be applied in this investigation.

The Agency Cost Theory

According to this “capital structure theory, the best capital structure will be found through reducing the costs associated with disputes between the parties. According to Jensen and Meckling (1976), the potential conflict between shareholders and debt holders makes agency cost a crucial factor in

financing choices. Shareholders may push management to make choices that effectively expropriate cash from debt holders to equity holders if a company is on the verge of financial collapse. If this wealth transfer is possible, sophisticated loan holders will demand a larger return on their investment. However, debt and the resulting interest payments could lessen the agency conflict that exists between shareholders and management. Managers who are worried about a possible job loss will be more likely to run the company as effectively as they can in order to make the interest payments, coordinating their behavior closer to maximizing shareholder wealth. Debt holders have legal recourse if leadership fails to make the interest payments when they are due.

According to Jensen and Meckling (1976), agency expenses are made up of the principal's supervision expense, the agent's bonding expense, and a residual loss. Additionally, they contend that using secured debt may lower the agency cost of debt. The level of leverage influences agency conflicts between shareholders and managers when deciding on a firm's capital structure because it encourages or restrains managers from acting in the best interests of shareholders and because their operational choices and behaviors have an impact on the success of the company. This is demonstrated by agency theory." Due to the fact that paying debt interest consumes excess cash, using loan capital will lower agency costs.

2.3 Empirical Review

Khadka (2006) performed a research in the Nepalese capital market to see if enterprises' total cost of capital and cost of equity decreased with rising leverage utilization from 1990 to 2005. The findings indicated that "the link between leverage and total cost of capital had a negative but minor beta value." This is counter to the capital structure theories' conventional methodology. Further analysis reveals that because interest charges are tax deductible, the cost of capital decreases independently of leverage. Leverage and the cost of equity have a very unfavorable connection. In addition to leverage, size and D-P Ratio are significant factors that "influence the cost of capital in the Nepalese setting."

Pagano (2007) creates empirical estimations of the typical capital cost for 58 U.S. sectors between 1990 and 2004. To determine empirical estimates of the WACC for these 58 businesses, a straightforward, parsimonious theoretical relationship between an industry's weighted average cost of capital (WACC) and its economic profit is applied. Overall, the findings imply that the strategy he used may be a quicker, more descriptive, and less subjective way to estimate the average weighted cost for capital and economic return for an industry (or business). The textbook method for calculating the cost of capital can be supplemented or replaced with this innovative technique.

The link between business success and the cost of investing in equity was researched by Mohammad and Qamar in 2011. "The cost of equity capital was considered a dependent variable, with return on asset serving as a proxy for measuring corporate success. Corporate performance was taken into consideration as an independent variable. The efficiency of the random and fixed effects was examined using panel regression and the Hausman test. The results support the M&M research in that there is no correlation between company success and equity capital cost."

For “460 bigger companies listed on the Main Board of Bursa Malaysia from 2004 to 2006”, Embong et al. (2012) investigate the association between disclosure and cost of equity capital. For the investigation, several regression and correlation analysis tests were run. The findings indicate that transparency and the cost of equity capital have a substantial negative connection for large enterprises but not for small firms. They advise managers to plan the firm's disclosure strategy with the understanding that it lowers the cost of equity for larger enterprises.

Hussain et al. (2012) investigate how the WACC affected Pakistan's cement industry's corporate profitability between 2003 and 2008. Under the premise that the size of operations and management effectiveness in all the businesses operating in this sector stay constant, “the results have estimated the proportionate influence of Cost of Capital on Return on Equity ROE in the cement industry.” The study has emphasized that the cost of capital is a key factor in cement manufacturing business profitability. However, the research does not advocate for the inclusion of other sectors because the debt-to-equity ratio varies for practically every business, making it difficult to obtain reliable conclusions if more industries are added.

3 Methodology

“The ex-post facto research design and the adoption of this research design were both used in this study.” A secondary data source was employed in this investigation. The published financial statements and accounts of companies in the listed industrial sector for the years 2015 through 2022 were the secondary data sources used in this study. All 25 companies in the construction/real estate industry that were listed on the Nigerian Exchange Group as of 2023 made up the study's sample. The study's sample was chosen using the criteria sampling approach, which ensures the correctness and dependability of the data. The criteria used was that the firms must have all information required to measure the variables of the study within the period of study (2015-2022). Only 1, Julius Berger Construction Plc met the conditions and hence they formed the sample of the study.

Model Specification

One equation was developed for the study which is multiple linear regression models aimed at explaining effect of cost of capital on profitability. Equation-1 used ROA as a measure of profitability. “Our focus independent variables are Cost of Debt and Cost of Equity.” The model is thus:

$$\text{Profitability} = \alpha + \text{Cost of Capital} + e \text{ ---Research Model.....1}$$

The model was expanded into equation 2 viz:

$$ROA_i = \alpha + \beta_1 CoD_i + \beta_2 CoE_i + e_i \text{ _____ 2}$$

Where: ROA = Return of Asset

α = Regression Constant

CoD = Cost of Debt

CoE = Cost of Equity

e = Error term

β_1 = Coefficients of Regressors

i = firm

t = time period

Variables Definition and Measurement

Dependent Variable Measurement

- a. Return on Asset (ROA): The component of the Dependent Variable is Return on Asset ROA as computed from the company's financial statements.

$$ROA = \text{Net Income} / \text{Total Assets}$$

Independent Variable Measurement

- a. Cost of Debt (CoD): CoD is simply the interest a company pays on its borrowings. The CoD would be expressed as a percentage rate of the total debt in this study given that the dependent variable ROA is taken as a percentage rate. Hence, Cost of Debt is calculated as:

$$CoD = \text{After Tax Interest Expenses} / \text{Total Debt} \times 100\%$$

- b. Cost of Equity (CoE): CoE can be measured in several ways. The two most popular approaches in calculating CoE are the "ex-post cost of equity capital and ex-ante cost of equity capital." Ibrahim (2015) use the following formula to calculate CoE, thus:

$$CoE = \text{Dividend Paid} / \text{Market Value of Equity (excluding dividend)}$$

Both descriptive and regression analysis was utilized in the study. Descriptive statistics was computed using E-views which amongst other things help show the pattern, distribution, deviation and nature of the data. For the regression analysis, "Ordinary Least Square (OLS) Regression using E-view Software Package was used to test the hypotheses."

4. Analysis and Discussion

This section presents the descriptive statistics and regression analysis results.

Descriptive Statistics

Table 4.1: Descriptive Statistics

	ROA	COD	COE
Mean	0.013750	0.996250	0.006250
Median	0.015000	0.955000	0.005000
Maximum	0.020000	1.480000	0.020000
Minimum	0.000000	0.240000	0.000000
Std. Dev.	0.007440	0.405672	0.007440
Skewness	-0.660484	-0.538357	0.660484
Kurtosis	2.261186	2.537624	2.261186
Jarque-Bera	0.763601	0.457702	0.763601
Probability	0.682631	0.795447	0.682631
Sum	0.110000	7.970000	0.050000
Sum Sq. Dev.	0.000388	1.151988	0.000388
Observations	8	8	8

Source: Researcher’s Computation using E-VIEWS 2023

The average value of ROA was approximately 0.01. COD and COE “averaged 0.99 and 0.06 respectively. This shows that the businesses made a lower profit on the overall amount of investment throughout the time period of the research.” A pictorial view of the descriptive analysis is shown in the histogram below.

FIGURE

1

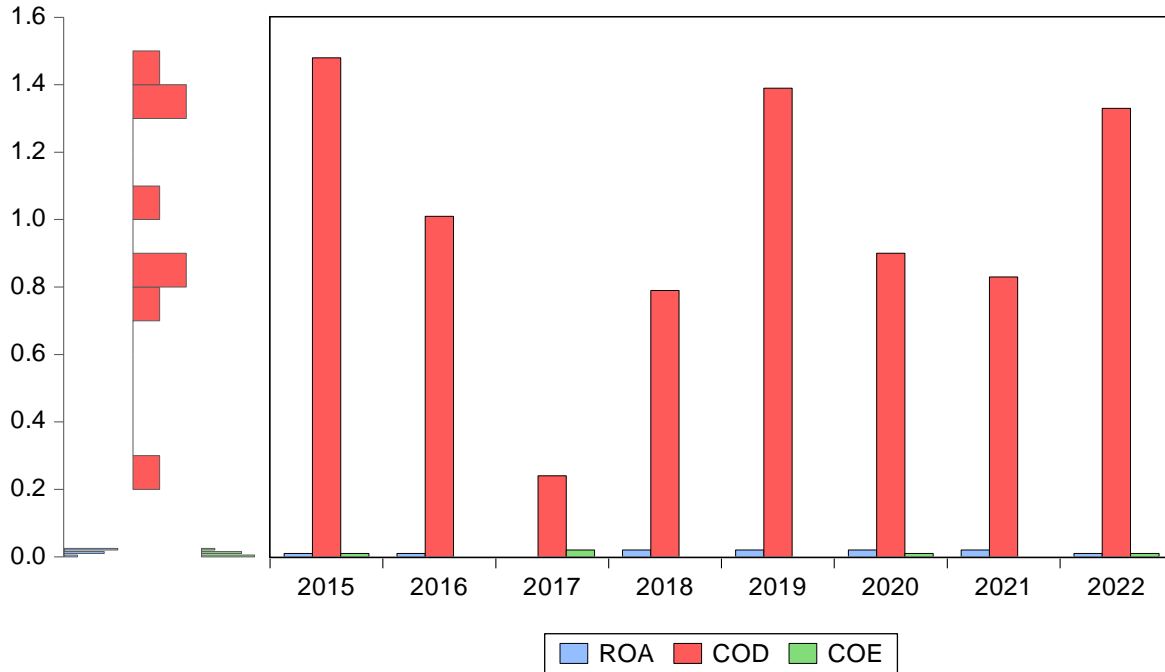


Table 4.3: Correlation matrix of the selected variables

	ROA	COD	COE
ROA	1		
COD	0.3224	1	
COE	-0.7419	-0.3745	1

ROA was positively correlated with COD, but negatively correlated with COE.

Testing Hypotheses

H₀₁: Cost of debt has no significant effect on return on asset (ROA) of firms in the construction sector listed in Nigeria.

Dependent Variable: ROA
 Method: Least Squares
 Date: 09/08/23 Time: 00:57
 Sample: 2015 2022
 Included observations: 8

Variable	Coefficien t	Std. Error	t-Statistic	Prob.
C	0.007858	0.007556	1.040048	0.3384
COD	0.005914	0.007088	0.834373	0.4360
R-squared	0.103967	Mean dependent var		0.013750
Adjusted R-squared	-0.045372	S.D. dependent var		0.007440
S.E. of regression	0.007607	Akaike info criterion		6.707137
Sum squared resid	0.000347	Schwarz criterion		6.687276
Log likelihood	28.82855	Hannan-Quinn		-
F-statistic	0.696178	Durbin-Watson stat		6.841087
Prob(F-statistic)	0.436025			1.459924

There is a 10.3percent of the variation in the dependent variable may be explained by utilizing an R-squared value of -0.0453 instead. Due to the F-statistic of 0.696, it was determined that none of the regression coefficients were zero (p.05). F-statistics and an adjusted R2 for the regression model imply that the model has a strong fit and can account for variations in ROA. Both the t-statistic and coefficient for our variable of interest (COD) were positive [t-statistic (0.834373), p (0.4360>0.05)]. Retaining the null hypothesis. As a result, the cost of debt has little impact on the return on assets (ROA) of listed Nigerian construction companies.

H₀₂: “Cost of equity has no significant effect on return on asset (ROA)” of firms in the industrial sector listed in Nigeria.

“Dependent Variable: ROA
 Method: Least Squares
 Date: 09/08/23 Time: 00:58
 Sample: 2015 2022
 Included observations: 8

Variable	Coefficien t	Std. Error	t-Statistic	Prob.
C	0.018387	0.002560	7.181325	0.0004
COE	-0.741935	0.273719	-2.710576	0.0351

R-squared	0.550468	Mean dependent var	0.013750
Adjusted R-squared	0.475546	S.D. dependent var	0.007440
			-
S.E. of regression	0.005388	Akaike info criterion	7.396908
			-
Sum squared resid	0.000174	Schwarz criterion	7.377048
		Hannan-Quinn	-
Log likelihood	31.58763	critier.	7.530858
			1.273596
F-statistic	7.347222	Durbin-Watson stat	”
Prob(F-statistic)	0.035079		

There is a 55.04 percentage of variation in the dependent variable that can be explained with an R-squared value of 0.4755. “The hypothesis that all of the regression coefficients are zero is rejected due to the F-statistic of 7.347 (p. 05).” F-statistics and an adjusted R2 for the regression model imply that the model has a strong fit and can account for variations in ROA. The t-statistic and coefficient for our variable of interest (COE) were both negative [t-statistic (-2.710576), p (0.03510.05)]. Rejecting the null hypothesis. Hence, “cost of equity has a significant effect on return on asset (ROA)” of firms in the construction sector listed in Nigeria.

Discussion of Findings

The findings revealed that cost of debt has a weak positive but insignificant “relationship with ROA of listed construction companies in Nigeria. Also, the findings revealed that cost of equity has a strong and significant relationship with ROA of listed construction companies in Nigeria.” The findings on Cost of Equity and profitability concur with the previous studies by Embong, et. al., (2012), Tsai and Chen (2015). However, the findings disagree with the previous research by Mohammad and Qamar (2011), Ibrahim (2015), Lucky (2017). On the other hand, findings on Cost of Debt and profitability concur with the previous studies by Raja and Dave (2015), Lucky (2017). However, the findings disagree with the previous research by Jeon and Kim (2015).

5. Conclusion and Recommendations

Conclusion

Given that the research seeks to answer questions to the problem of the effect, magnitude and direction of cost of capital and listed Nigerian construction businesses' profitability, with specific emphasis on the two key parts of cost of capital (debt and equity), the study therefore, concluded that cost of debt has insignificant negative relationship on the profitability of construction companies in Nigeria. This implies that debt capital is generally not favourable with regards to financial performance even though the effect is insignificant since it is negative. On the other hand, “cost of equity has a significant effect on the profitability of construction companies in Nigeria.” This implies that equity capital is generally a good instrument for corporate managers given that it has a positive effect on the profitability of construction sector companies in Nigeria.

Recommendations

Given that equity capital has a positive, considerable impact on a company's profitability, it would be ideal to advise any corporate management of construction enterprises in Nigeria to make a serious attempt to secure equity capital in light of the study's findings. However, it is not desirable for corporate entities to seek for loan financing due to the detrimental impact it has on businesses' performance, despite the fact that the impact is minimal. Because going by the strict economic ideal, any negative or positive effect on company finances whether significant or otherwise cannot be overlooked.

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