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A Study on the Effect of Cost of Capital on Profitability of a company

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Abstract

The Cost of Capital plays a significant role in capital budgeting decisions and is also used as a financial standard. The Weighted Average Cost of Capital (WACC) caters to the need to have a single rate, which helps to analyze and compare the cost of different sources of funds. It is important for all companies to understand the relationship between the cost of capital and its profitability to take proper care of the cost of capital to ensure a favorable financial situation in the company. The use of a statistical method such as correlation in understanding the relationship is systematic and scientific, which will provide better insight for future decision making. This paper undertakes to study the relationship between the cost of capital and profitability of Ports And Special Economic Zone Limited.

Keywords: Cost of capital, Correlation, Profitability, Return, Equity.

1. Introduction

Finance is very important to all industry and its participants for the survival, growth, and expansion of business which is the three major goals of any organization. Finance does not come for free of cost because it incurs opportunity cost for the investor that is the income, he would have earned had he invested the same funds in the next best alternative which is foregone. Such cost is called as cost of capital. The cost of capital has an impact on the profitability of the company and in turn, the capital structure affects both cost of capital and profitability. This gives rise to a situation to take proper care of the cost of capital to ensure a favourable financial situation for the company. Thus, an effort is taken to measure the impact of the cost of capital on the income generation capacity of the company.

1.1 Objectives of The Study

To study the effect of cost of capital on a company's profit.

1.2 Need for the Study

Every company runs with the aim of achieving two

concepts namely wealth maximization and profit maximization. Thus, company should keep an eye on all the factors that will affect its profitability. One such factor is the cost of capital.

1.3 Statement of the Problem

In the financial year 2019-20 the profit before depreciation and tax but after interest reduced and there was a vast increase in interest expense. This gives a view that the profitability of the company is adversely affected due to the cost of capital.

1.4 Research Methodology

- The necessary data for the study is taken from secondary sources.
- The period of study is of five financial years from 2015-2016 to 2019-2020.
- The statistical tool used to find the impact of cost of capital on the profits of the company is Correlation.

1.5 Limitations of the Study

The correlation will only show the direction and degree of relationship between two variables. It does not show the exact magnitude of change in a variable due to the change in another related

variable.

2. Review of Literature

Asha Sharma (2012)¹, did cost of capital and profitability analysis of the telecommunication industry. The objective of the author is to analyse the relationship between the cost of capital and a company's profitability. The author discovered that the highcost of capital adversely affects the profitable position of the companies. The author suggests that finance is an important aspect for any business thus proper sources of finance are to be used to ensure that cost of capital is under proper control. The tools are calculations and formulas of cost of capital. **Vinod K. Bhatnagar and et al (2015)**², The aim of this paper is to identify the optimum capital structure and cost of capital. The author also tries to analyse the impact of capital structure and cost of capital on shareholders' wealth maximization by studying the 12 highest net worth companies listed on BSE stock exchange. Tools used for the analysis are regression analysis and the use of the arithmetical formula for calculating capital structure, shareholder's wealth and cost of capital. The result of the study shows that there is linearity between cost of capital and shareholder's wealth maximization while there is no relationship or linearity between shareholders' wealth maximization and capital structure. They suggest that in making decisions about maximizing shareholders' wealth, management must consider the long-run impact on the firm and must consider all those factors which are responsible for shareholders' wealth maximization. **Parmjit Kaur and Neeti Khullar (2019)**³, examine whether the cost of capital is the function of capital structure or remains invariant to the same. They try to analyse the relationship between the cost of equity capital, cost of capital, value of firm and other financial variables. The study is done on 500 Indian companies for the period from 2008 to 2010. They found that cost of capital has an impact on the various business decision on the basis of the nature of the industry that helps managers to make financial decisions of the company to run the firm profitably. The authors suggest that while taking decisions for financial variables various factors that contribute towards the strategic effectiveness and efficiency of the company should be considered. **Babasaheb R. Jadhav (2017)**⁴, The

main principle of research was to explore the relationship between capital structure and cost of capital by examining the industries in Ahmednagar district, India. The statistical tools used in the hypothesis testing were Ratios and Proportions, Percentages and Weighted averages. One of the finding by calculating WACC was that the group of industries fell into 10-15% weighted average cost of capital of the organization. He concluded by saying that the industries are aware of all techniques and change according to the changing circumstances. **Akarsh Singhal (2014)**⁵, investigated the correlation between corporate governance variables and cost of capital of the company. The tools used for analyzing cost of capital and performance of firm are weighted average cost of capital, cost of equity, Tobin Q return on capital employed, return on equity, sales growth and cost of debt. The tools used to measure corporate governance are Board size, Board independence, CEO duality and ownership pattern in the company. The sample contains 30 SENSEX companies listed in Bombay Stock Exchange (BSE) for 10 years from FY 2003-04 to FY 2012-13. Author concludes that competitive and legal infrastructure of the corporate has an important role improving company's performance thus enabling it to attract foreign capital which positively impacts cost of capital. [1-4]. **E. ChukeNwude (2016)**⁶, discusses the importance of correct and flawless calculation of cost of capital. This project provides detailed understanding into various types of cost of capital thus acting as a guide about cost of capital to various beneficiaries. From lender's point of view high cost of capital is better as it provides him with high returns. Whereas, from fund user's point of low cost of capital is ideal. Thus, author suggests that rate of cost of capital is required rate of return for company's all sources of funds. The tools analysed are cost of equity, cost of debt, cost of preference and cost of term loans. **ShowkatBusru Ahmad Busru and et al (2019)**⁷, The main objective of the study is to examine the effect of corporate governance mechanism on cost of capital in listed Indian firms and to determine vital areas in corporate governance which directly or indirectly contribute towards reducing capital cost of sample Indian listed firms. The sample includes 270 NSE listed Indian firms for period of nine years ranging

from 2007–08 to 2015–16. The tool used is OLS multiple regression model. This study reveals that that board characteristics failed to affect cost of capital especially cost of debt. The authors' also advocate the effectiveness of corporate governance and board structure are supporting the argument that potential investors in equity and debtholders get greater assurance and confidence on the company. **Sanjay Bhayani (2009)⁸**, aims to analyze the impact of financial leverage on average cost of capital. He conducted a study on the selected Indian Cement Industries for the period from 2000-2001 to 2007-2008. He calculated the financial leverage and Weighted Average Cost of Capital and compared them using the coefficient of correlation and t-test analysis. He found that there is no impact of financial leverage on cost of capital in the cement industries in India. And he founded a positive correlation between high and low levered companies with the cost of capital. **Dr. A. Vijayakumar and Ms. A. Karunaiathal (2014)⁹**, made a study to analyze the relationship between cost of capital and capital structure for the period 1997-98 to 2009-10. They conducted the study on 10 large scale companies in Indian Paper Industry. Their objective of the study is to construct a capital structure by maximizing the value of the firm and minimizing the cost of capital. They came out with a negative result using the regression analysis and correlation analysis as their Earnings Per Share is very low. They recommended to use the retained earnings in company's business and to avail more debt by issuing higher rate offers in the absence of secondary market. **Bhargav Pandya (2017)¹⁰**, aims to analyze the effect of financial leverage on the cost of capital. He conducted a study on 28 companies listed in the stock exchange for a period of three years from 2013 to 2015. He calculated debt-equity ratio and interest coverage ratio to analyze the relationship of financial leverage on cost of capital. And the study revealed that financial leverage and cost of capital are negatively correlated as the debt reduces the cost of capital and its interest is tax deductible. Hence, he implied that by raising the debt in capital structure, a company can reduce its cost of capital.[5-10].

3. Overview of the Study

3.1 Cost of Capital Analysis – Definition

The cost of capital is the return expected by the investors from various sources of investments. In other words, it is the cost of a firm's debt and shareholders' funds.

3.2 Correlation

Correlation is a statistical tool, also known as dependence that measures the degree and nature of the relationship between two variables.

3.3 Formula of Pearson Correlation

$$r = \frac{\sum(x_i - M_x)(y_i - M_y)}{\sqrt{\sum(x_i - M_x)^2 \sum(y_i - M_y)^2}} \quad (1)$$

x_i : First variable

y_i : Second variable

M_x : Mean of x values

M_y : Mean of y values

$x_i - M_x$ and $y_i - M_y$: Deviation scores

$(x_i - M_x)^2$ and $(y_i - M_y)^2$: Deviation squared

$(x_i - M_x)(y_i - M_y)$: Product of deviation scores

The square of correlation coefficient that is, r^2 shows the degree of dependence.

3.4 Formula of Cost of Equity

Cost of equity is the rate of return expected and required for a shareholder.

$$K_e = \frac{D}{P_0} \quad (2)$$

3.5 Formula of Return on Equity

Return on Equity measures the profitability of investment made in equity funds of the firm.

$$ROE = \frac{\text{Net Profit after Tax}}{\text{Equity Shareholders' Fund}} \times 100 \quad (3)$$

3.6 Formula of Return on Capital Employed

Return on Capital Employed measures the profitability of investment in shareholders' funds.

$$ROCE = \frac{\text{Net Profit after Tax + Interest}}{\text{Capital Employed}} \times 100 \quad (4)$$

3.7 Weighted Average Cost of Capital

WACC is the calculation of the overall cost of capital of the firm. It is the weights of the costs of each source of funds in the proportion of funds to the total capital.

4. Analysis and Interpretation

Table.3. shows the cost of equity and return on equity (ROE) for 5 years from 2015-16 to 2019-20. The correlation(r) between the cost of equity and return on equity is -0.38. There is a negative correlation as well as low correlation between them. The relationship between the above two

variables is weak and the low correlation means they are hardly related. The square of correlation (r^2) is 14.44% which means 14 percent of the variation in the cost of equity is related to or can be associated with return on equity.

4.1 Calculation of Cost of Equity

Table.1. Cost of Equity

Year	Dividend Per Share-D (Rs)	Net Proceeds-P0 (Rs)	Cost of Equity (%)
2015-2016	2.20	248	0.89
2016-2017	0	344	0
2017-2018	1.30	368	0.35
2018-2019	2.00	383	0.52
2019-2020	3.40	261	1.30

(Source: compiled from annual reports of the company 2015-2016 to 2019-2020)

4.2 Calculation of Return on Equity

Table.2. Return on Equity

Year	NPAT (Rs.)	Equity Shareholders' Fund (Rs.)	ROE (in %)
2015-2016	2,841.58	13,625.57	20.85
2016-2017	3,100.61	16,862.04	18.39
2017-2018	2,408.10	18,280.45	13.17
2018-2019	2,637.72	20,488.86	12.87
2019-2020	1,934.25	19,862.67	9.74

(Source: compiled from annual reports of the company 2015-2016 to 2019-2020)

4.3 Comparison between Cost of Equity and Return on Equity:

Table.3. Correlation between k_e and ROE

Years	Cost of equity (k_e) (in %)	Return on equity (ROE) (in %)
2015-2016	0.89	20.85
2016-2017	0	18.39
2017-2018	0.35	13.17
2018-2019	0.52	12.87

2019-2020	1.3	9.74
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(Source: compiled from annual reports of the company 2015-2016 to 2019-2020)

4.4 Calculation of Weighted Average Cost of Capital

Table.4. WACC 15-16

Name	Amount (Rs in Crore)	Fraction	Cost (%)	Net cost (%)
Equity	414.19	0.3145	0.89	0.28
Preference	2.81	0.0021	19.6	0.04
Debenture	900.00	0.6834	6.34	4.33
Term loan	0	0	0	0
WACC				4.65

(Source: compiled from annual reports of the company 2015-2016 to 2019-2020)

The WACC for the 2016-17, 2017-18, 2018-19 and 2019-20 are calculated same as above.

4.5 Calculation of Return on Capital Employed

Table.5. Return on Capital Employed
(in Crores)

Year	Net Profit After Tax	Interest Paid (Rs.)	Capital	ROCE (%)
2015-2016	2,841	856.14	13,628	27.13
2016-2017	3,100	907.49	16,864	23.77
2017-2018	2,408	1,154.92	18,283	19.49
2018-2019	2,637	1477.22	20,491	20.08
2019-2020	1,934	1,858.37	19,865	19.09

(Source: compiled from annual reports of the company 2015-2016 to 2019-2020)

4.6 Comparison Between Weighted Average Cost of Capital and Return on Capital Employed

Table.6. Correlation between k_o and ROCE

Years	Cost of capital (ko) (in %)	Return on capital employed (ROCE) (in %)
2015-2016	4.65	27.13
2016-2017	4.37	23.77
2017-2018	4.48	19.49
2018-2019	2.16	20.08
2019-2020	1.73	19.09

(Source: compiled from annual reports of the company 2015-2016 to 2019-2020)

Table.6. shows the weighted average cost of capital and return on capital employed for 5 years from 2015-16 to 2019-20. The correlation(r) between these two variables is 0.65. There is a positive and high correlation between the above two variables. The relationship between the above two variables is strong and has a high correlation. The square of correlation (r^2) is 42.25% which means 42 percent of the variation in the cost of capital will change the return on capital employed.

5.1 Calculation of Return on Capital Employed

Objective 1: To study the effect of cost of capital on a company’s profit

- The correlation between the cost of equity and return on equity is -0.38. This negative correlation means when there is an increase in the Cost of equity the return on equity falls and vice versa. There is a low correlation between these two variables thus resulting in low dependency.
- The correlation(r) between the cost of capital and return on capital employed is 0.65. There is a positive correlation between these two variables. This means when there is an increase in the Cost of capital the return on capital employed also rises. There is a higher correlation between these two variables.

5.2 Suggestions

- From the wealth maximization point of view from the company's end, it is always better to have a low weighted average cost of capital. This is because of an increased gap between WACC and return on capital invested (ROIC).
- From analysing the return on capital employed and return on other sources of funds over the period of study it is discovered that the rate of return is falling and it is important for the

company to increase its investment performance.

Conclusions

This study is about the relationship between the cost of capital profitability of Adani Ports and Special Economic Zone Limited for the period from FY 2015-16 to FY 2019-20. The above findings and suggestions show that the company is having the cost of capital under control and better regulated. At the same time, few suggestions are provided to ensure that the company maintains the same control, value and also to reduce the risk associated with the company in the foreseeing future. While analysing the return on the major source of fund separately and all sources as a whole it is discovering that it is important for the company to take measures to increase the profitability of the company and its performance in the future.

References

Journals

- [1] Asha Sharma.(2012). Cost of Capital and Profitability Analysis (A Case Study of Telecommunication Industry), Journal of Commerce and Accounting Research, Volume 1 Issue 4.
- [2] Vinod K. Bhatnagar [Ph.D.], Manju Kumari and Nikku Sharma.(2015). Impact of Capital Structure & Cost of Capital on Shareholders’ Wealth Maximization- A Study of BSE Listed Companies in India, Chanakya International Journal of Business Research, Volume 1(1), Issue March 2015, P.No 28 to 36.
- [3] Parmjit Kaur, Neeti Khullar.(2019). Relationship of Cost of Capital, Cost of Equity Capital, Value of Firm & other Financial Variables: Panel Data & Simultaneous Equation Analysis of Indian Companies, FINANCE INDIA, Volume 33, Number 2, Issue March 2019, P. No 21-58.
- [4] Babasaheb R. Jadhav. (2017). The study of relationship between capital structure and cost of capital with respect to Industries from Ahmednagar District, International Journal of Management, IT & Engineering, Volume 7, Issue 9, P. No 332-347.
- [5] Akarsh Singhal.(2014). Corporate Governance, Cost of Capital and Value Creation: Evidence from Indian Firms, IOSR Journal of Economics and Finance (IOSR-JEF),Volume 4, Issue 6. (Jul-Aug. 2014).

- [6] E. ChukeNwude.(2016). A review on the calculation of cost of capital, International Journal of Advanced and Applied Sciences, Volume 3, Issue 8 (August 2016), P. No 108-119.
- [7] ShowkatBusru Ahmad Busru, G. Shanmugasundaram, Aamir Rashid Bhat.(2019). Corporate Governance and Its Impact on Cost of Capital: Empirical Insights from Indian Listed Firms, International Journal of Financial Management, Volume 9, Issue 1.
- [8] Sanjay Bhayani. (2009). Impact of Financial Leverage on Cost of Capital and Valuation of Firm: A Study of Indian Cement Industry, PARADIGM, Volume XIII, Issue2, P. No 44-49.
- [9] Dr. A. Vijayakumar and MS. A. Karunaiathal. (2014). Impact of Cost of Capital on Capital Structure - Evidence from Indian Paper Industries, GE-INTERNATIONAL JOURNAL OF MANAGEMENT RESEARCH, Volume 2, Issue 10.
- [10] Bhargav Pandya. (2017). Association of Financial Leverage with Cost of Capital and Shareholder Value: An empirical study of BSE Sensex Companies, Nmims Journal Of Economics And Public Policy, Volume 2, Issue 1.