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ESTIMATES OF COSTS OF CAPITAL IN PHARMACEUTICAL INDUSTRIES

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ABSTRACT

The Indian Pharmaceutical Industry is successfully providing employment for millions and ensuring that essential drugs at affordable prices are available to the vast population of India. It is in the front rank of India's science based industries with wide ranging capabilities in the complex field of drug manufacturer and technology. Playing a key role in promoting and sustaining development in the vital field of medicines, Indian Pharma Industry boasts of quality producers.

KEYWORDS: *Pharmaceutical Industry, financial risk, Equity capital, drug manufacturer and technology*

INTRODUCTION

The cost of capital is an important concept in formulating a firm's capital structure. It is one of the corner-stone of the theory of financial management. In recent years, it has received considerable attention from both theoreticians and practitioners. The cost of capital is defined as the rate of return on investment projects necessary to leave unchanged the market price of a firm's stocks. It is the rate of return required by those who supply the capital. If a firm's cost of capital is the rate of return on an investment, they must increase the value of the firm. From this point of view, it may be said that the cost of capital is not accost as such. It is merely a hurdle rate and represents a minimum rate of return,

which depends upon whether a firm operates at a zero-risk level or at some business or financial risk. Where risk is involved, the minimum rate of return is higher. The cost of capital is related to the break-even point, which relates to operating costs, while the optimum cost of capital is the financial break-even point.

The cost of capital is an important concept, as it serves to connect the firm's long-term financing decisions directly to its long-term investment decisions, and thus to the wealth of its shareholders. The firm's financing decisions will affect its cost of capital, which in turn will affect its investment decisions. If a firm finances an investment by raisin g long-term debt, the cost of the debt will impact its overall cost of capital.

STATEMENT OF THE PROBLEM

The cost of capital is a critical parameter for determining the capital structure of a company. The cost of capital may not be applied in day-to-day operations in précised terms, but it provides a signal to the management for procuring the funds from various sources. The concept of cost of capital is so perennial that more research work can be expected to come. There is no considerable work on the cost of capital in the past. All the articles and work done in this area are more conceptual.

The Indian Pharmaceutical Industry is successfully providing employment for millions and ensuring that essential drugs at affordable prices are available to the vast population of India. Science-based industries with wide ranging capabilities' in the complex field of drug manufacture and technology. Playing a key role in promoting and sustaining development in the vital field of medicines, Indian Pharma Industry boasts of quality producers.

OBJECTIVES

1. To assess the specific and overall cost of capital of selected pharmaceutical companies.
2. To examine the relationship among the cost of capital and its related variables in selected pharmaceutical companies.

RESEARCH METHODOLOGY

Research Design:-

This study analyses cost of capital of the Pharmaceutical Industry. In this study the researcher has used facts and information already available and analysed them to make evaluation of Cost of capital.

Period of Study:-

The study covers a period of ten years from 2000-2001 to 2000-2010.

Selection of Sample:-

To carry out the study, a sample of 103 companies belonging to pharmaceutical industry was taken up. The companies for which the data were not available for one and more than one year in between or in the beginning or at the end of the study period have been ignored. The Database of Center for Monitoring Indian Economy (CMIE) has made compilation for 657 pharmaceutical companies of which only 103 companies were selected based on the availability of financial data for a continuous period of ten years. The needed data belonging to these companies have been collected from Center for Monitoring Indian Econimy (CMIE) Prowess and Capitaline database.

CLASSIFICATION OF COMPANIES

The Companies selected for study have been divided into three categories Small, Medium and Large based on Sales turn over.

Table 1 represents the classification of Companies according to its Size.

Annexure 1 represents the list of Pharmaceutical Companies selected for study.

TOOLS FOR ANALYSIS

The following tools were applied in tune with the objectives of study. All the tests were carried out at 5% of significant.

- ⇨ Summary Statistics
- ⇨ Mean
- ⇨ Standard Deviation
- ⇨ Co-efficient of Variation
- ⇨ Correlation Analysis

LIMITATION OF THE STUDY

1. Financial information collected for present study is entirely secondary in nature. In such a case the study carries all the limitations inherent with the secondary data and financial information.
2. The weighted average cost of capital is calculated by taking book value weights. Book value weights are based on arbitrary accounting polices. Thus they do not reflect true economic values.

SUMMARY STATISTICS

Cost of debt (kd): It is found from Table-2 that the average cost of debt from small, medium and large category are 7.77, 6.28 and 8.75 with respective co-efficient of variation 11.58, 26.27 and 48.8. It is large category have highest average cost of debt (8.75 percent) when compared to Companies in other categories. Further the co-efficient of variation under Small category (11.58 percent) is relatively law indicating that the cost of debt (kd) is more consistent during the study period when compared to other categories.

Cost of Equity Capital (ke): It is clear from Table-3 that average cost of Equity capital (ke) from Small, medium and large category are 7.93, 23.85 and 18.88 with respective co-efficient of variations 62.93, 24.32 and 62.82. It is concluded that the Companies in medium category have highest average Cost of Equity Capital (23.85 percent) when compared to Companies in other categories. Further the co-efficient of variation under medium category (24.32 percent) is relatively law indicating that the cost of Equity capital is more consistent during the study period when compared to other categories.

Cost of Retained earnings (kr): It is found from Table-4 that the average cost of retained earnings (kr) for small, medium and large category are 5.13, 15.74 and 12.26 with respective co-efficient of variations 62.57, 23.82 and 60.03. It is concluded that the Companies in medium category have highest average cost of retained earnings (15.74 percent) when compared to Companies in other categories. Further the co-efficient of variation under medium category (23.82 percent) is relatively low indicating that the cost of retained earnings (kr) is smore consistent during the study period when compared to other categories.

Cost of Preference Capital (kp): It is clear from Table – S that the average cosy of preference capital (kp) for small, medium and large category are 0.26, 0.67 and 0.67 with respective co-efficient of variations 103.85, 102.99 and 98.51. It is concluded that the companies in medium and large category have highest average cost of preference capital (0.67 percent) when compare to companies in other categories. Further the co-efficient of variations under large category (98.71 percent) is relatively low indicating that the cost of preference capital is more consistent during the study period when compare to other categories.

Weighted Average Cost of Capital (kw): It is inferred from Table – 6 that the average weighted cost of capital for small, medium and large category are 8.03, 11.61 and 10.76 with respective CV 49.56, 28.60 and 58.55 respectively. It is concluded that the companies in medium category have highest weighted average cost of capital (11.61 percent) when compare to companies in other categories.

Table – 1: Classification of Companies

Sl No	Company Classification	No of companies
1	Small	67
2	Medium	26
3	Large	10
	Total	**103**

Table – 2: Summary statistics – Cost of Debt (kd)

Category	Figure in Percentage		Co-efficient of variations
	Mean	Standard Deviation(SD)	
Small	7.77	0.90	11.58
Medium	6.28	1.65	26.27
Large	8.75	4.27	48.8

Table – 3: Summary Statistics – Cost of Equity capital (ke)

Category	Figure in Percentage		Co-efficient of variations
	Mean	Standard Deviation(SD)	
Small	7.93	4.99	62.93
Medium	23.85	5.80	24.32
Large	18.88	11.86	62.82

Table – 4: Summary Statistics – Cost of Retained Earnings (k_r)

Category	Figure in Percentage		Co-efficient of variations
	Mean	Standard Deviation(SD)	
Small	5.13	3.21	62.57
Medium	15.74	3.75	23.82
Large	12.26	7.36	60.03

Table – 5: Summary statistics – Cost of Preference Capital (k_p)

Category	Figure in Percentage		Co-efficient of variations
	Mean	Standard Deviation(SD)	
Small	0.26	0.27	103.85
Medium	0.67	0.69	102.99
Large	0.67	0.66	98.51

Table – 6: Summary Statistics – Weighted Average Cost of Capital (k_w)

Category	Figure in Percentage		Co-efficient of variations
	Mean	Standard Deviation(SD)	
Small	8.03	3.98	49.56
Medium	11.61	3.32	28.60
Large	10.76	6.30	58.85

Table – 7: Correlation Analysis of Pharmaceutical Companies in India (Small Category)

Variable	Cost of Debt(k_d)	Cost of Equity Capital(k_e)	Cost of Retained earnings(k_r)	Cost of Preference capital(k_p)	Weighted Average Cost of Capital(k_w)
Cost of Debt(kd)	**1**	**0.23.**	**0.23**	**-0.02**	**0.13**
Cost of Equity Capital(ke)		1	1*	0.04	0.71*
Cost of Retained earnings(kr)			1	0.04	0.72*
Cost of Preference capital(kp)				1	0.01
Weighted Average Cost of Capital(kw)					1

**Significant at 5% level.*

Table – 8: Correlation Analysis of Pharmaceutical Companies in India (Medium Category)

Variable	Cost of Debt(k_d)	Cost of Equity Capital(k_e)	Cost of Retained earnings(k_r)	Cost of Preference capital(k_p)	Weighted Average Cost of Capital(k_w)
Cost of Debt(kd)	1	0.2	0.2	-0.03	0.25
Cost of Equity Capital(ke)		1	1*	-0.17	0.95*
Cost of Retained earnings(kr)			1	-0.17	0.95*
Cost of Preference capital(kp)				1	-0.2
Weighted Average Cost of Capital(kw)					1

**Significant at 5% level.*

Table – 9: Correlation Analysis of Pharmaceutical Companies in India (Large Category)

Variable	Cost of Debt(k_d)	Cost of Equity Capital(k_e)	Cost of Retained earnings(k_r)	Cost of Preference capital(k_p)	Weighted Average Cost of Capital(k_w)
Cost of Debt(kd)	1	-0.35	-0.35	-0.04	-0.03
Cost of Equity Capital(ke)		1	1*	0.61	0.98*
Cost of Retained earnings(kr)			1	0.60	0.98*
Cost of Preference capital(kp)				1	0.68*
Weighted Average Cost of Capital(kw)					1

**Significant at 5% level.*

Further the Co-efficient of variations under medium category (28.60 percent) is relatively low indicating that the weighted average cost of capital is more consistent during the study period when compared to other categories.

CORRELATION ANALYSIS

Correlation Analysis of Pharmaceutical Companies in India (Small category):-

It is clear from Table-7 that the cost of retained earnings (k_r) has significant high correlation with cost of Equity capital (k_e) (1.00). The weighted average cost of capital (k_w) has significant correlation with cost of Equity capital (k_e) (0.71) and cost of retained earnings (k_r) (0.72).

Correlation Analysis of Pharmaceutical Companies in India (Medium category):-

It is found from Table-8 that the cost of retained earnings (k_r) has significant high correlation with cost of Equity capital (k_e) (1.00). The weighted average cost of capital (k_w) has significant correlation with cost of Equity capital (k_e) (0.95). It is concluded that the weighted average cost of capital (k_w) has significant Inter correlation with maximum number of variable such as cost of Equity capital (k_e) and cost of retained earnings (k_r).

Correlation Analysis of Pharmaceutical Companies in India (Large category):-

It is clear from Table-9 that the cost of retained earnings (kr) has significant high correlation with cost of Equity capital (ke) (1.00). The weighted average cost of capital (kw) has

significant correlation with cost of Equity capital (ke) (0.98), cost of retained earnings (kr) (0.98) and cost of preference capital (kp) (0.68). It is concluded that weighted average cost of capital (kw) has significant Inter-correlation with maximum number of variables such as cost of Equity capital (ke), cost of retained earnings (kr) and cost of preference capital (kp) in large category of pharmaceutical Industry.

Results of summary statistics:-

Cost of Debt (kd): The companies in large category are having highest average cost of debt (8.75 percent) when compared to Companies in other categories. Further the co-efficient of variation under Small category (11.58 percent) is relatively low which indicates that the cost of debt (kd) is more consistent during the study period when compared to other categories.

Cost of Equity capital (ke): The companies in medium category are having highest average cost of Equity capital (23.85 percent) when compared to companies in other categories. Further the co-efficient of variation under medium category (24.32 percent) is relatively low which indicates that the cost of Equity capital (kd) is mire consistent during the study period when compared to other categories.

Cost of retained earnings (kr): The companies in the medium category are having highest average cost of retained earnings (15.74 percent) when compared to Companies in other categories. Further the co-efficient of variation under medium category (23.83 percent) is relatively low which indicates that the cost of retained earnings (kr) is more consistent during the study period when compared to other categories.

Cost of Preference capital (kp): The companies in the large and medium categories are having highest average cost of preference capital (0.67 percent) when compared to companies in other categories. . Further the co-efficient of variation under large category (98.51 percent) is relatively low which indicates that the cost of preference capital (kd) is more consistent during the study period when compared to other categories.

Weighted Average Cost of Capital (kw): The companies in medium category are having highest weighted average cost of capital (11.61 percent) when compared to companies in other categories.

Results of correlation Analysis:-

- The cost of retained earnings (kr) has significant high correlation with the cost of equity capital (ke) (1.00). The weighted average cost of capital (kw) has significant correlation with cost of equity capital (ke) (0.71) and cost of retained earnings (kr) (0.72) in small category of pharmaceutical industry.
- The weighted average cost of capital (kw) has significant inter correlation with maximum number of variables such as cost of equity capital (ke) and cost of retained earnings (kr).
- The weighted average cost of capital (kw) has significant inter correlation with maximum number of variables such as cost of equity capital (ke), cost of retained earnings (kr) and cost of preference capital (kp) in large category of pharmaceutical industry.

SUGGESTIONS

Based on the above observations suggestions are made to improve the operational efficiency of the companies concerned.

- Small, medium and large category companies are suggested to use preference share capital as a long term source of finance.

- The small category companies are suggested to minimize their long term debt utilization

  Medium and large category companies are suggested to use cheaper source of outsiders fund as a source of finance to magnify their earnings.

CONCLUSION

This study provides an analysis of cost of capital in pharmaceutical Industry using data of companies traded in Bombay Stock Exchange during 2000-2001 to 2009-2010 cost of capital plays an important role in framing policy and decision making. Pharmaceutical Industry contributes substantially to Indian Economic development. Equity and Shareholders reserves contribute the major source of finance in majority of pharmaceutical companies. This indicates high dependence on Internal generated funds.

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