Companies Performance And Cost Of Capital An Interrelationship Study Of Indian Companies

Dr. Bidyut Jyoti Bhattacharjee

(Assistant Professor of Commerce,B.H. College, Howly,P.O- Howly,Dist: Barpeta,Assam)

ABSTRACT

Finance is the lifeblood of the business. It is well known that finance is required besides the requirement of fixed and working capital for undertaking the program of extension, reorganization or expansion. Now a days market is open and finance is raised through issue of shares, debenture/bond from domestic as well as international capital market in the form of GDR (Global Deposit Receipts), ADR (American Deposit Receipts) and FCCB (Foreign Currency Convertible Bonds) and from the wide range of financial institutions. But, the finance is not free of cost. The suppliers of various sources of funds have a charge on the income of organization, like; dividend for shareholders, interest for bond/debenture holders; dividend /interest for non-banking financial companies, foreign investors and so on. This charge on each source capital is known as cost of capital. The present study focuses on whether cost of capital has any relationship with financial performance of companies like capital structure. For this purpose 151 top Indian companies on the basis of market capitalization 2007 have been selected and classified under different industrial groups. The statistical tools of ANOVA, correlation and multiple regression method have been applied. The study found that change of cost of capital affects the company's profitability position. The higher cost of capital adversely affects the profitability position of the companies. Specially, Indian larger companies should necessary to give proper emphasize at the time of procuring the funds. Again the relationship between cost of capital and companies performance is not specific rather depends on nature of industry as different companies are regulating under different regulations.

COMPANIES PERFORMANCE AND COST OF CAPITAL: AN INTERRELATIONSHIP STUDY OF INDIAN COMPANIES

During the last 40 years or so, the role of financial management has undergone a tremendous change. The ownership structure, size of business firms, security markets, financial system and instruments have greatly changed. As a result, the role of a finance manager has become far more important than merely a fund raiser. The finance manager is expected to maximize the economic welfare of the owners, which is represented by the market value of the firm. To achieve this objective, one has to take a number of decisions, the most important being the investment, financing and dividend decisions. Do changes in capital structure affect the companies' performance- *size of business, growth of business, liquidity of business, dividend payout of the business, profitability of the business*? This question has been puzzling the minds of both the finance managers and academicians for the last 40years.

Moreover, it is well-recognized fact that finance is necessary for every business concern. However, finance can be raised through issue of shares, debenture/bond from domestic as well as international capital market in the form of GDR (Global Deposit Receipts), ADR (American Deposit Receipts) and FCCB (Foreign Currency Convertible Bonds) and from the wide range of financial institutions. However, the finance is not free of cost. The suppliers of various sources of funds have a charge on the income of organization, like; dividend for shareholders, interest for bond/debenture holders; dividend /interest for non-banking financial companies, foreign investors and so on. This charge on each source of capital is known as ***cost of capital***. Again, whether cost of capital affects the companies' performance in terms of growth, size, profitability, dividend, liquidity? This question has confusing the academician as well as business policy maker while taking business decision.Inthis paper a humble attempt has been madeto empirically test whether there exists any relationship betweencost of capital and companies performance.

I. Statement of the problem

Studies in Indian context revealed that irrespective of nature of industries, *cost of capital* does not hold a prime factor in the financial decision making process in true sense and most of Indian companies have not considered the *cost of capital* as pre-requisite for capital structure decisions and financial managers are only emphasizing on available sources of finance in the market. However, *optimum capital structure* is sine- qua -non for sustainable growth of any industry. It is therefore, argued that *optimum capital structure* helps to maximize the market value of the firm as well as to minimize the overall cost of capital (Pandey: 1999). It has also been observed from a number of research investigations undertaken abroad that cost of capital has an impact on capital structure decision. But literature in this respect in Indian context is in the nascent stage. Here lies therefore, an essence of investigating the interrelationship between costs of capital and companies financial performance including financing decision of the firms with reference to India.

II. Review of Literature

A comprehensive review of literature in respect of interrelationship between cost of capital and companies' performance both in the domestic and international level was carried out. The major observations are summarized as under:

Cost of capital declines with leverage due to the tax deductibility of interest charges, (Modigliani and Miller, 1962). The cost of capital is affected by debt apart from its tax advantages (Sarma and Rao, 1968). Age, retained earnings, and profitability were negatively correlated while total assets and capital intensity was positively related to debt- equity ratio (Chakroborty, 1977).

There is an impact of size, growth, business risk, dividend policy, profitability, debt service capacity and the degree of operating leverage on the leverage ratio of the firm (Bhat, 1980). The practicing Indian corporate managers generally preferred to borrow instead of using other sources of funds because of low cost of debt to the interest tax deductibility and the complicated procurers for raising the equity capital (Pandey, 1984). 72 to 80 percent of the assets of sample companies were financed by external debt, including current liabilities (Pandey, 1985). The weighted average cost of capital of a company will fall with the increased borrowing until a point is reached where the higher cost of share and loan capital force the average up. The overall cost of capital should be viewed only as the first step in the development of divisional and specific project's cost of capital (Brigham & Gapenski,1988). The cost of capital must be equal to the rate of return on a project, which is necessary to maintain the current market price of the company's share (Srivastava, 1997). The cost of capital is playing significant role for determining the capital structure of multi National Corporation also. The multi national corporation is assumed to finance its foreign subsidiaries in such a way as to minimize its incremental weighted cost of capital (Bhalla, 2000). The firms are mainly concerned about financial flexibility and credit ratings when issuing debt and per share dilution and recent stock appreciation when issuing equity. The most firms have target debt-equity and issue-equity to maintain a target-debt ratio (Graham and Harvey, 2001). A project that requires highly specific assets would initially be financed by equity. However, as the debt to equity ratio decreases in line with agency theory, the demand for debt falls and equity rises (Vialasuso and Minkler, 2001). Cost of capital is a central concept in financial management linking both investment and financing decision. The Indian companies faced a high relative cost of capital as compared to their international counterparts (Chadha, 2003).

In most of the studies, it is been seen, no serious and systematic efforts have been made by the researcher in regard to relationship between cost of capital and companies financial performance.

III. Research Methodology

To attain the aforesaid objectives top 500 companies selected on the basis of rank of market capitalization as on March 2007. Finally, on the basis of availability of data, 151 companies were incorporated in the study and classified under 13 industrial groups. The study covers for the period of 6years from the year 2003 to 2008. For the analyses of data financial tools and statistical tools has been used. The financial tools like ratio analysis and statistical tools such as average, ANOVA, correlation coefficient and multiple regressions were used. Since, the study is based on secondary data therefore; the result has been statistically tested by using t-test, F-test. The data are collected from the Capitalline database 2007.

IV. Methodology of Computation Cost of Capital:

Following are the steps that are used in evaluating the Cost of Capital (WACC) for the companies taken for study

Estimation of the cost of the specific sources of funds. Due to the non availability of data Earning Price method is applied to evaluate cost of equity.

Cost of Equity (K_e) = (EPS/ MPS)+Growth of EPS

Where, EPS= Earning per Share, MPS= Market price per share

The Cost of Equity of both sample companies and the industry as a whole pertaining to individual year has been calculated at first and then simple average of the same has been taken. Cost of debt is calculated in the following way.

Cost of Debt (K_d) = r (1-t)

Where, t= tax rate of the firm and r= interest payable.

Where discounts or premium and flotation are involved, the cost of debt capital is to be computed as under, K_d= (C/I) (1-t)

Where, C= fixed interest cost, I = net processed of the issue, t =applicable tax rate of the firm

Then, their respective proportions in the capital structure are multiplied by these costs of sources. The book value weight of each source of finance used in calculating WACC because in practice ,the firm are using book value weight due to the book values are readily availability from the published records of the firm. (Khan& Jain,2004) *KrKdKe* **VRVDVEðð** Weighted Average Cost of Capital (WACC)= $\frac{E}{V} Ke \quad \frac{D}{V} Kd \quad \frac{R}{V} + \leq$

Where, V= (equity capital+ debt capital+ retained earnings), K_e= cost of equity, K_d= Cost of debt capital, K_r= cost of retained earnings, E= equity capital, D= debt capital R= retained earnings.

V. Conceptual Framework (Variables of measuring companies' performance)

Financial Leverage: Financial leverage is usually measured by the ratio of long term debt to the long term capital. The debt equity ratio is calculated to measure the extent to which debt financing has been used in business. Geometric Mean of debt-equity ratio calculated for the study period.

Growth (G) – Growth of companies measures the rate at which a firm is growing. It is one of the determinants of financial performance of the company. Due to the non availability of data, growth of profit after tax (RPAT) is used for measuring growth of companies. The rate of growth is the simple annual growth rate over the previous year of profit after tax. Geometric Mean of the ratio calculated for study period.

Size: The "capital employed" at the balance sheet value is used as a measure of the firm size. Capital employed comprises share capital plus reserves and surplus, long term debt, plus short-term loans. This measure is preferred over other measures of size, viz total assets, fixed assets, or employment and also, its magnitude indicates the confidence and attitude of investors towards the firm in providing financial resources. In other words, a firm can grow only when investors to provide finance to it. For study purpose average value of the capital employed for the period considered.

Profitability: Profitability implies profit-making ability of business unit. Howard (1961) articulated that the term profitability is a combination of two ward profits and ability. Profitability may be defined as the ability of a given investment to earn a return from its use. The ratio of Return on Net worth (RNW) is considered as determinants of profitability and Geometric Mean of the ratio considered for study period.

Liquidity: Liquidity refers to the ability of a concern to meet its current obligation as and when these become due. Therefore to account for the short-term risk of the firms, liquidity ratio has been included in the models. It is calculated by dividing current assets by current liabilities. Geometric Mean of the current ratio calculated for the study period.

Dividend pay out ratio: - It measures the relationship between the earnings belonging to the ordinary shareholders and the dividend paid to them. Dividend pay out ratio is calculated by using the following formula. DPR= (Equity Dividend/ Adjusted Profit after Tax – Preference Dividend – Dividend Tax) × 100. Geometric Mean of the ratio calculated for the period 2004-2008.

VI. Analysis and Findings

A. Interrelationship between WACC (Cost of Capital) and variables determining companies' performance

From the earlier literature reviewed, it has been emerged that the financial performance of the company is measured by different financial parameters like *size, growth, liquidity, profitability, leverage and growth of dividend of the companies*. In this respect, the financial tools such as *capital employed, growth of profit after tax, current ratio, return on net worth, debt equity ratio and dividend payout ratio* are considered to represent companies size, growth, liquidity, profitability, leverage and growth of dividend of the companies respectively. However, management endeavor relates to have optimal capital structure to some extent to achieve the goal of wealth maximization through better financial performance. It is worth mentioning in this respect that the financial cost of capital plays vital role in the level of earnings as well overall financial performance of the firms. This warrants studying the impact of WACC on financial performance of the company or vice-versa. Analysis of *correlation coefficient* between WACC and other variables measuring financial performance is necessary. The following table exhibits the results.

Table 1 Correlation Coefficient: WACC Vs Other Variables

Industry	Size	leverage	liquidity	growth	dividend	Profit.
Aggregate	.366*	-.320*	-.090	.004	.030	-.355*
	(.042)	(.042)	(.272)	(.595)	(.716)	(.034)
Energy	-.107	-.447*	-.522*	-.186	.478	-.516*
	(.742)	(.024)	(.042)	(.564)	((.116)	(.036)
IT	.169	-.528*	-.090	-.231	-.137	.361
	(.599)	((.048)	(.782)	(.470)	(.315)	(.240)
Construction	.385	-.066	-.086	-.080	-.186	.295
	(.217)	(.840)	(.791)	(.805)	(.562)	(.354)
Pharmaceutical	.088	-.508*	-.157	.116	.251	-.065
	(.745)	(.045)	(.560)	(.668)	(.347)	(.812)
Cement	-.049	-.591*	-.538*	-.289	-.191	.267
	(.892)	(.042)	(.039)	(.417)	(.597)	(.455)
Electricity	-.270	-.123	.387	-.166	-.360	-.596*
	(.395)	(.704)	(.214)	(.606)	(.250)	(.041)
Engineering	.197	.115	.125	-.540	-.138	-.446*
	(.586)	(.752)	(.731)	(.107)	(.702)	(.026)
Steel	-.032	.074	-.029	-.186	-.213	-.001
	(.900)	(.792)	(.918)	(.506)	(.446)	(.998)
Auto	.018	-.425*	.010	.101	-.286	.004
	(.954)	(.038)	(.975)	(.742)	(.343)	(.991)
Chemical	-.366	-.419*	-.195	-.019	.492	-.405*
	(.268)	(.041)	(.567)	(.955)	(.125)	(.001)
Personal care	.232	-.075	-.070	-.530	.651	.003
	(.580)	(.859)	(.870)	(.177)	(.080)	(.994)
Finance & Inv.	-.228	.489	.119	.347	.529*	.058
	(.527)	(.151)	(.744)	(.326)	(.016)	(.873)
Diversified	.389	-.205*	.428	-.511*	.221	-.186
	(.237)	(.048)	(.189)	(.012)	(.514)	(.585)

Figures in bracketsindicate p value

The table exhibited that there is a linear relationship between *size and WACC* and *leverage and WACC*. The sample of 151 companies as a group representing Indian industry shows that the correlation coefficient between *size and WACC* is 0.366 and *leverage and WACC* is -.320, and *WACC and profitability* is -.355, which are statistically significant at 5% level. This implies that size, leverage and profitability are affected by overall Cost of capital of the companies. The value of correlation coefficient between the variables revealed that with the increase of size of the organization the over all cost of capital is also increasing and vice-versa. The leverage is indirectly associated with WACC. One significant result obtained from the aforesaid correlation analysis that positive "r" against the "a priori", profitability and WACC are inversely related in the sector like IT, Construction Cement, Auto, personal Care and Finance & Investment. The reasons of such positive relationship can be attributed to the growth of EBIT of the companies irrespective of growth of capital structure. Moreover, these companies have efficiently used their capital and attempted to expedite their bottom-line. Thus, growing firms and firms with perennial demand do not bother much about WACC; rather they concentrate on expanding the business opportunities.

Now to study whether performance of the company has any impact on the cost of capital we have fitted regression line taking WACC as dependent variable. Following table exhibits the result.

Table 2 Regression Result: Weighted Average Cost of Capital (WACC) as dependent variable

Industry	size	leverage	liquidity	growth	dividend	profitability	R^2	F
Aggregate	3.65* (1.970) [.041]	-.108* (-1.227) [.024]	-.069 (-.810) [.419]	.034 (.418) [.677]	.029 (.346) [.730]	-.490* (-1.061) [.041]	.45 2	1.334 * [.024]
Energy	-.557 (-2.57) [.052]	-.677* (-2.993) [.030]	-.614* (-2.717) [.042]	-.342 (-1.46) [.202]	.121 (.551) [.605]	-.267* (-1.263) [.039]	.83 4	4.195 * [.049]
IT	-.193 (-.504) [.636]	-.786* (-1.748) [.041]	-.127 (-.406) [.701]	.444 (.869) [.424]	-.581* (-1.798) [.032]	.382 (1.240) [.270]	.61 6	1.334 * [.049]
Construction	.543 (1.634) [.163]	-.603 (-1.656) [.159]	-.154 (-.424) [.690]	-1.041 (-1.97) [.105]	-.545 (-1.522) [.189]	1.134 (2.235) [.076]	.41 3	1.320 [.449]
Pharmaceutical	.188 (.543) [.600]	-.910* (-2.952) [.016]	-.761 (-2.226) [.053]	.494 (1.530) [.160]	-.148 (-.393) [.704]	.391 (1.275) [.234]	.59 3	2.189 * [.040]
Cement	-.095 (-.287) [.793]	-.701* (-1.791) [.045]	-.408* (-.883) [.042]	-.244 (-.720) [.524]	-.424 (-.806) [.479]	-.129 (-.228) [.834]	.74 6	1.466 * [.036]
Electricity	-.096 (-.332) [.753]	-.082 (-.286) [.788]	.463 (1.491) [.196]	-.094 (-.299) [.777]	.034 (.103) [.922]	-.669* (1.996) [.048]	.61 7	1.343 * [.049]
Engineering	-.116 (-.333) [.761]	-.107 (-.207) [.849]	.462 (1.260) [.297]	-.878 (-2.26) [.108]	-.388 (-.833) [.466]	-.443* (1.438) [.046]	.33 2	1.492 * [.049]
Steel	-.119 (-.356) [.731]	.549 (1.008) [.343]	-.524 (-1.024) [.336]	-.430 (-1.15) [.281]	-.380 (-1.110) [.299]	-.067 (-.174) [.866]	.22 1	1.379 [.749]
Auto	-.105 (-.310) [.767]	-.535 (-1.736) [.133]	-.577 (-1.277) [.249]	.039 (.101) [.923]	-1.040 (-1.904) [.106]	.417 (.949) [.379]	.52 3	.997 [.649]
Chemical	.020 (.122) [.909]	-.296* (-1.451) [.042]	-.197 (-1.393) [.236]	-.097 (-.429) [.690]	.271 (1.175) [.305]	-.987** (4.740) [.009]	.73 2	9.096 * [.025]
Personal care	-.519 (-.545) [.682]	-.488 (.722) [.602]	-1.307 (-.586) [.662]	-1.482 (-.769) [.583]	.076 (.056) [.964]	-.255 (-.450) [.731]	.34 3	.559 [.844]
Finance & Inv.	-.476 (-.563) [.613]	.134 (.296) [.786]	.396 (.392) [.721]	.251 (.292) [.789]	.601* (1.505) [.048]	.080 (.142) [.896]	.42 1	1.284 * [.047]
Diversified	.507 (1.948) [.123]	-.700* (-1.129) [.037]	.985 (1.530) [.201]	-.576* (-2.05) [.039]	-.161 (-.481) [.656]	-.257 (-.861) [.438]	.54 2	2.395 * [.044]

Figures in **first** indicate t value and figures in **third bracket** indicate value at $\mathbf{t_{.05}}$ **or** $\mathbf{t_{.01}}$

The econometric analysis reveals that, leverage becomes one of the major influential factors of the cost of capital. Except Construction, Electricity, Engineering, Steel, Auto, Personal Care and Financial Service, it has been seen that leverage is negatively related to the cost of capital and statistically significant. It signifies the cost of capital has declined with significant increase of debt capital in the capital structure. The sectors like Construction, Electricity, Steel, Auto group are found to be highly geared company even in some case debts in form of borrowed capital are double to equity capital in the capital structure. Where as the sector like Engineering and personal care are maintaining low level of borrowed capital in the capital structure resulting into no affect on cost of capital. It implies capital structure decision plays an important role for minimizing overall cost of capital of the companies. But the companies must have to maintain optimum level of capital structure (debt-equity mix) based on its nature and risk zone where it operates. The statistically significant value of "F" at 5% level of significance indicates the regression equation is significant. While, value of R^2 indicates the extents or influence of independent variables on dependent variable, WACC. In aggregate term, it is observed that regression is significant. However, independent variables explain variation only 45% (R^2 = .452) of dependent variable. Thus, WACC is not significantly affected by financial performance of the firms as far as sample is concerned. Only, size (β =3.65) has positive while leverage (β = -0.108) and profitability (β = -0.490) has negative impact on WACC. However, such interpretation differs in case of individual sector. Thus, WACC is firms specific. The factors mainly qualitative are; business risk, financial risk, management risks appetite and fiscal policy as a whole. Similar views were expressed by (K.B. Hari: 2006) that Indian large firms are not using resources effectively in comparison to their smaller counterparts even not taking advantage of cheaper funds available over the years.

It is evident from the above table that a few, not all variables were detected as explanatory for the WACC across industrial sectors. Much of this is accountable to the nature of the industry.

B. Study of effect of change of Cost of Capital on financial performance of sample companies (Micro Level Analysis)

To know the effect of change of cost of capital on financial performance of Sample Company over the years, we calculated correlation coefficient of cost of Capital with different intervening variable. The correlation matrix results are exhibited in the following table.

Table 3 Correlation Coefficient Results: WACC Vs Intervening Variables

Sector	Name of the companies	Lever	Size	Growth	Profit	Liq	Dividend
ENERGY	Reliance Industries Ltd	-.775*	-.014	.798*	.291	-.241	-.258
	Oil & Natural Gas Corporation Ltd	.219	-.251	.236	.177	.136	.273
	Indian Oil Corporation Ltd	-.480	-.218	-.290	-.238	.514	.172
	Bharat Petroleum Corporation Ltd	-.731*	-.365	-.232	-.666*	.710**	.863**
	Hindustan Petroleum Corporation Ltd	-.772*	-.493	-.704*	-.245	.124	-.188
	Mangalore Refinery And Petrochemicals Ltd	-.771*	-.711*	.291	-.333	-.341	-.033
	Chennai Petroleum Corporation Ltd	.288	-.548	-.225	-.325	-.433	.293
	Bongaigaon Refinery & Petrochemicals ltd	-.330	-.011	.442	.442	.062	.220
	Sterlite Industries (india) Ltd	.492	-.257	.288	-.565	-.510	-.893*
	Hindustan Zinc Ltd	-.898*	.662*	.310	.084	.006	.045
	Sesa Goa Ltd	-.452	.387	.362	-.164	-.781*	-.795*
COMPUTER	Gujrat Mineral Development Corporation Ltd	.305	.472	.682*	-.376	-.500	.266
	Wipro ltd	-.363	-.467	.078	-.300	.058	-.288
	HCL Technologies Ltd	-.256	.165	-.158	-.805*	-.234	.350
	Moser Baer (India) Ltd	.449	-.454	-.257	-.772*	-.812*	-.799*
	Rolta India Ltd	.240	.259	-.225	-.402	.048	-.419
	HCL Infosystems Ltd	-.370	.439	.242	.315	-.532	.129
	Cranes Software International Ltd	.272	-.090	-.279	-.111	-.188	.297
	KPIT Cummins Infosystems Ltd	-.122	-.277	-.130	.216	.411	-.305
	IGATE Global Solutions Ltd	.251	.411	.243	-.364	-.491	-.685*
	Zensar Technologies Ltd	.145	.121	.670*	.059	.489	-.322
	Geometric Ltd	-.484	-.254	-.223	.330	-.768*	.204
	CMC Ltd	.338	.223	-.890**	-.406	-.012	.415
	3i Infotech Ltd	.441	.446	.251	.699*	.262	.280
CONST	DLF Ltd	-.892*	-.678*	-.140	-.656*	-.525	-.696*
	Unitech Ltd	.484	.689*	.699*	.797*	.795*	-.245

Continued…….

Sector	Name of the companies	Leverage	Size	Growth	Profit	Liqui	Dividend
CEUTICAL	Wockhardt Ltd	.223	-.115	.276	.378	-.160	.163
	AurobindoPharma Ltd	-.698*	-.362	-.205	-.253	-.680*	.276
	Panacea Biotec ltd	.395	.248	.174	.173	.218	-.374
	Dishman Pharmaceuticals and Chemicals Ltd	.245	-.379	.252	.599*	-.507	-.683*
	Pfizer Ltd	-.339	-.420	.264	-.244	.681*	.169
	Torrent Pharmaceuticals Ltd	-.179	-.056	-.199	-.320	-.534	.298
	Ipca Laboratories ltd	-.177	.182	-.696*	.239	.081	-.002
CEMENT	Ambuja Cements Ltd	-.318	.166	.295	.241	-.696*	-.357
	ACC Ltd	-.681*	.475	.477	.686**	.695*	-.791*
	Shree Cement Ltd	-.276	-.452	-.249	-.425	-.593	.674*
	Madras Cements Ltd	-.418	-.431	-.284	-.426	-.436	.880*
	Birla Corporation Ltd	-.336	.770*	-.166	.368	-.687*	-.320
	Dalmia Cement (Bharat) Ltd	.245	.788*	.272	.340	.114	-.112
	Chettinad Cement Corporation Ltd	.026	.406	.128	.424	-.199	-.314
	JK Lakshmi Cement Ltd	-.784*	.354	.263	.799*	.513	-.445
	OCL India Ltd	.176	.435	-.117	.358	-.461	.373
	Ultratech Cement Ltd	.245	.534	.381	.697*	-.282	-.378
ELECTRICITY	Bharat Heavy Electricals Ltd	-.344	.448	.323	.427	-.697*	.342
	ABB Ltd	.205	.820*	.205	.496*	-.522	-.883*
	Siemens Ltd	-.305	-.101	-.228	-.217	.457	.122
	Bharat Electronics Ltd	-.316	-.102	.288	.353	-.218	-.493
	Videocon Industries Ltd	-.821*	.357	.282	-.246	.261	.242
	Crompton Greves Ltd	.361	.346	.303	-.324	-.231	.408
	Areva T & D India Ltd	-.117	.432	.366	.221	-.428	-.324
	Asian Electronics Ltd	-.488	-.211	.331	-.205	.192	.339
	Bharat Bijlee Ltd	-.080	.172	.253	.126	.306	-.678*
	EMCO Ltd	-.236	.382	.275	.175	.382	.129
	Voltamp Transformers Ltd	-.319	-.315	-.361	-.378	.677*	-.380
	Havells India Ltd	-.176	.042	.005	-.065	-.687*	.457
ENGINEERING	Cummins India Ltd	-.130	.449	.880*	.476	.496	-.698*
	Alstom Projects India Ltd	-.481	.556	.766*	.233	.306	.224
	BEML Ltd	-.130	.439	.268	.682*	.347	-.880*
	Kirloskar Oil Engines Ltd	-.179	.327	-.891*	.259	-.763*	.166
	Alfa-Laval (India) Ltd	-.250	.044	.423	.335	.761*	-.329
	Texmaco Ltd	-.006	.430	.770*	.015	-.574	.268
	Reliance Industrial Infrastructure Ltd	-.032	.893**	-.204	-.799*	.093	.386
	Sanghvi Movers Ltd	.128	.371	.178	.257	.512	-.442
	Walchandnagar Industries Ltd	.247	.599	.368	.231	-.655*	-.434
	Kennametal India Ltd	-.318	.415	.444	.343	-.344	-.383

Continued…….

Sector	Name of the companies	Leverage	Size	Growth	Profit	Liqui	Dividend
STEEL	Steel Authority of India ltd	-.446	.780*	.277	-.175	.668*	.465
	Tata Steel Ltd	-.436	.101	-.425	.227	-.112	-.337
	Jindal Steel & Power Ltd	-.449	.118	.522	.301	-.058	-.291
	Maharashtra Seamless Ltd	.284	.411	.034	-.219	.290	.206
	Easar Steel Ltd	-.117	.322	.266	.390	.495	.147
	WelspunGujrat Stahl Rohren Ltd	.299	.028	.395	-.261	-.594	-.331
	Jindal Saw Ltd	-.376	-.474	.360	-.380	.258	-.230
	Bhushan Steel Ltd	.186	.475	.265	.899*	.366	.111
	Jindal Stainless Ltd	.224	-.354	.206	.245	-.694*	.028
	Kalyani Steels Ltd	-.129	.279	-.278	.391	-.487	-.354
	Usha Martin Ltd	-.875*	.734*	-.276	.137	-.494	.080
	PSL Ltd	-.891*	-.259	-.880*	-.694*	.682*	.570*
	Monnet Ispat Energy Ltd	.247	.080	.437	.799*	.131	.020
	Ratnamani Metals & Tubes Ltd	.270	.345	-.389	.276	.665*	-.203
	Man Industries (India) Ltd	-.176	.468	.227	-.341	.466	-.336
AUTO	Motor Industries Company Ltd	-.338	-.223	.763*	-.389	-.799*	.364
	Amtek Auto Ltd	-.286	-.336	-.310	.311	-.512	.239
	Exide Industries Ltd	-.436	.422	.445	.356	.799*	-.373
	MothersonSumi Systems Ltd	-.200	.369	.098	.248	630	-.187
	Tata Motors Ltd	-.169	-.167	.161	.222	-.359	.042
	Maruti Suzuki India Ltd	.402	-.382	.096	-.796*	-.467	.245
	Bajaj Auto Ltd	-.156	-.282	-.478	-.234	.200	-.104
	Mahindra & Mahindra Ltd	-.176	-.337	-.340	.319	-.797*	-.311
	Hero Honda Motors Ltd	.201	-.214	.264	.180	-.795*	.046
	Amtek India Ltd	-.435	-.440	-.253	-.299	-.779*	.145
	Sundaram Clayton Ltd	.089	-.163	-.440	-.010	-.791*	-.312
	TVS Motor Company Ltd	-.132	-.175	.899*	.684*	.209	-.426
	Bosch Ltd	.138	-.109	.216	.698*	-.590	-.008
CHEMICAL	Godej Industries Ltd	.381	-.332	-.262	.202	.698*	-.190
	United Phosphorus Ltd	-.446	.003	.039	.235	.455	.137
	Tata Chemicals Ltd	-.327	.899*	.342	.382	.539	.682**
	Jubilant Organosys Ltd	-.121	-.408	.407	.240	-.438	.156
	Sterling Biotech Ltd	-.192	-.575	.233	.236	-.630	-.333
	Pidlite Industries Ltd	.211	.280	.076	-.133	-.538	.208
	Castrol India Ltd	.212	-.669*	.481	.310	-.799*	.354
	Rashtriya Chemicals &	.109	.488	-.185	-.308	-.040	-.101

Continued…….

Sector	Name of the companies	Leverage	Size	Growth	Profit	Liqui	Dividend
	Emani Ltd	.057	.472	-.009	-.389	-.639	-.162
	Gillette Company Ltd	-.223	-.793*	.413	-.794*	-.518	.696*
FIN & INV	IL & FS Investment Managers Ltd	-.216	-.446	.410	.461	-.539	-.872**
	Cholamandalam DBS Finance Ltd	.012	-.432	.486	.448	-.299	-.896**
	Geojit Financial Services Ltd	-.392	-.277	-.491	-.462	-.330	-.782*
	Shriram City Union Finance Ltd	.169	-.880**	-.684*	.113	.225	.193
	SREI Inffrastructure Finance Ltd	-.361	.187	-.140	-.436	.241	.091
	Sundaram Finance Ltd	-.240	-.363	.798*	.156	.460	.131
	Bajaj Auto Finance Ltd	.331	-.459	.294	.476*	.507	-.102
	Reliance Capital Ltd	.245	-.431	-.396	-.401	.882*	.130
	Infrastructure Development Finance Company Ltd	.088	-.121	.160	.241	-.284	-.127
	Shriram Transport Finance Company Ltd	-.269	-.374	-.866*	.278	-.233	.105
DIVERSIFIED	Grasim Industries Ltd	-.332	-.166	-.257	.030	-.281	-.228
	Century Textile & Industries Ltd	-.251	.203	.882**	.195	-.428	-.168
	Voltas Ltd	.252	.304	.779**	.195	-.428	-.168
	Sintex Industries Ltd	-.213	-.171	.439	-.013	-.535	.423
	Kesoram Industries Ltd	.183	.491	.450	.245	.678*	-.359
	Nava Bharat Ventures Ltd	-.451	.386	.257	.233	.466	.290
	NESCO Ltd	.169	-.798*	.069	.379	-.429	.353
	BalmarLawrie& Company Ltd	-.678*	-.330	.465	.821*	-.598	.204
	Prakash Industries Ltd	-.217	-.296	-.502	.249	-.443	-.351
	DCM Shriram Consolidated Ltd	-.339	-.378	-.026	-.258	.443	-.339

** indicates 'r' is significant at 1% level and * indicates 'r' is significant at 5% level

Findings

(i) In all most all cases it is seen that there is a negative relationship between cost of capital and leverage but in few cases the value of correlation is statistically significant. Negative relationship implies with the increase of leverage cost of capital decreasing and statistically not significant suggesting that the value of debt capital is moderately increasing.

(ii) In general, with the increase of volume of capital over the years, cost of capital tends to decrease because of the expansion of the business. But a positive relationship is seen in case of companies like Hindustan Zinc Ltd (.622), Unitech Ltd (.689), Birla Corporation Ltd (.788), ABB Ltd (.820), Reliance Industrial Infrastructure Ltd (.893), Steel Authority of India Ltd (.780), Usha Martin Ltd (.734), Tata Chemicals Ltd (.899), Gujrat Narmada Valley Fertilizers Company Ltd (.766) which signifies that with the increase volume of capital over the years the companies' cost of capital also increasing. The reason of positive correlation is attributed to companies' inability to mobilize the funds from proper sources leading to minimizing the cost of capital.

(iii) A significant negative relationship between growths of profit and cost of capital is seen in the case of companies like Ipca Laboratories Ltd (-.696), Kirloskar Oil Engines Ltd (-.891), PSL Ltd (-.880), Shriram City Union Finance Ltd (-.684), Sriram Transport Company Ltd (-.866). The negative relationship is established that growth of the profit is significant factor for minimizing the cost of capital of the companies. On the other hand a significant positive relationship is observed in case of the companies like Cummins India Ltd (.880), Alstom Projects India Ltd (.766), Texmaco Ltd (.770), Motor Industries Company Ltd (.763), TVS Motor Company Ltd (.899), Bombay Dying and Manufacturing Ltd (.671), Sundaram Finance Ltd (.798), Century Textile and Industries Ltd (.882), Voltas Ltd (.779). This implies that although over the years the growth of profit was increasing but companies are unable to take the advantage of the factors related to the positive growth rate in mobilizing the fund from the market. This signifies that particularly for these companies; the growth factor is not influencing to reduce the cost of capital.

(iv) Statistically significant and positive correlation between cost of capital and Profitability is found in case of sample companies; 3i Infotech Ltd (.699), Unitech Ltd (.797), Dishman Pharmaceuticals and Chemicals Ltd (.599), ACC Ltd (.686), JK Laxhmi Cement Ltd (.799), Ultra (.697), ABB Ltd (.496), BEML Ltd (.682), Bajaj Auto Finance Ltd (.476), BalmerLawrie& Company Ltd (.682), Bhushan Steel Ltd (,899), Monnet Ispat Energy Ltd (.799), TVS Motor Company Ltd (.684), Bosch Ltd (.689), Gulf Oil Corporation Ltd (.688), Marico Ltd (.677), Procter and Gamble Hygine& Health Care Ltd (.698). It implies either with the increase of cost of capital, companies' profitability is increasing or with the decrease of cost of capital over the years profitability is decreasing. In case of increase of cost of capital with the growth of profitability, the companies are not in a position to take due advantages of

profitability at the time of raising the capital from different source of finance. Where as, decrease of cost of capital with the fall of profitability implies that companies' effort towards minimizing the cost of capital does not help to improve the pace of profitability. In other words, there are other qualitative and quantitative factors besides cost of capital for strengthening the profitability position of the companies.

On the other hand, significant negative relationship between the profitability and cost of capital observed in case of Bharat petroleum Corporation Ltd (-.666), HCL Technologies Ltd (-.805), Moser Baer (India) Ltd (-.772), DLF Ltd (-.656), Jaiprakash Associates Ltd (-.822), Reliance Industrial Infrastructure Ltd (-.7990, PSL Ltd (-.694), Maruti Suzuki India Ltd (-.796), Gillette Company Ltd (-.794). Negative relationship suggests that increase in cost of capital is associated with the decrease of profitability or vice-versa signifying that either because of increasing cost of capital, profitability of the companies decreasing or decrease of cost of capital improves the profitability position of the company.

(v) A positive and statistically significant relationship between liquidity and cost of capital is seen in case of Bharat Petroleum Corporation Ltd (.710), Unitech Ltd (.795), Mahindra Life Space Developers Ltd (.682), Dr. Reddy's Laboratories Ltd (.697), Pfizer Ltd (.681), ACC Ltd (.695), Voltamp Transformers Ltd (.677),Alfa-Labal (India) Ltd (.761),Steel Authority of India Ltd (.688), PSL Ltd (.682), Ratanmani Metals and Tubes Ltd (.665), Exide Industries Ltd (.799), Godrej Industries Ltd (.698), Reliance Capital Ltd (.882), Kesoram Industries Ltd (.678). This implies either with the increase of liquidity, cost of capital is increasing or with the decrease of liquidity cost of capital is decreasing. In other words, higher degree of solvency affects in increasing in cost of capital. The reverse case was noticed in case of company like Sesa Goa Ltd (-.781), Moser Baer (India) Ltd (-.812), Geometric Ltd (-.768), Gammon India Ltd (-.898), Hindustan Construction Company Ltd (-.654), Cipla Ltd (-.681), Glenmark Pharmaceuticals Ltd (.697), Lupin Ltd (-.693), AurobindoPharma Ltd (-.680), Amulya Cements Ltd (-.696), Birla Corporation Ltd (-.687), Bharat Heavy Electrical Ltd (-.697), Havells India Ltd (-.687), Kirloskar Oil Engine Ltd (-.763), Walchandnagar Industries Ltd (-.655), Jindal Stainless Ltd (-.694), Motor Industries Company Ltd (-.799), Mahindra & Mahindra Ltd (-.797), Hero Honda Motors Ltd (-.795), Amtek India Ltd (-.779), Sundaram Clayton Ltd (-.791), Castrol India Ltd (-.799), Gujrat Narmada Valley Fertilizers Company Ltd (-.698), Marico Ltd (-.795), Godrej Consumers product Ltd (-.880). Higher degree of liquidity means companies are less risky from the point of view of investors and such solvency enables the company to raise capital from the market at cheaper cost.

(vi) Dividend payout is significantly and positively related with the cost of capital and the relationship seen in case of Bharat Petroleum Corporation Ltd (.863), Shree Cements Ltd (.674), Madras Cement Ltd (.880), PSL Ltd (.570), Tata Chemicals Ltd (.682), Gillete Company Ltd (.696).On the other hand, a negative relationship observed in the companies like Sterlite Industries (India) Ltd (-.893), Sesa Goa Ltd (-.795), Moser Baer (India) Ltd (-.799), Igate Global Solutions Ltd (-.685), BLF Ltd (-.696), Dishman Pharmaceuticals Chemical Ltd (-.683), ACC Ltd (-.791), ABB Ltd (-.883), Bharat Bijlee Ltd (-.678), Cummins India Ltd (-.698), BEML Ltd (-.880), IL (-872), Cholamandalam DBS Finance Ltd (-.896), Geojit Financial Services Ltd (-.782). Thus, dividend pay out has no significant impact on the cost of capital.

Major Findings of the study

The correlation coefficient between *WACC* and size (0.366), *leverage* (-.320), and *profitability* (-.355), are found to be statistically significant at 5% level. This implies that *size, leverage and profitability* are affected by overall Cost of capital of the companies.

In IT, Construction, Cement, Auto, personal Care and Finance & Investment sector profitability is found to be positively related with *WACC*. The reasons of such relationship can be attributed to the growth of *EBIT* of the companies irrespective of growth of capital structure, efficient utilization of capital to expedite the pace of growth of bottom-line. Thus growing firms and firms with perennial demand do not bother much about WACC; rather they concentrate on expanding the business opportunities.

The econometric analysis reveals that, leverage becomes one of the major influential factors of the cost of capital. Except Construction, Electricity, Engineering, Steel, Auto, Personal Care and Financial Service, it has been seen that leverage is negatively related to the cost of capital and statistically significant. It signifies the cost of capital has declined with significant increase of debt capital in the capital structure. The sectors like Construction, Electricity, Steel, Auto group are found to be highly geared company even in some cases borrowed capital are double to equity capital in the capital structure. On the other hand, the sectors like Engineering and personal care are maintaining low level of borrowed capital in the capital structure showing no affect on cost of capital. It implies capital structure decision plays an important role for minimizing overall cost of capital of the companies. But the companies must have to maintain optimum level of capital structure (debt-equity mix) based on its nature and risk zone where it operates. The statistically significant value of "F" at 5% level of significance indicates the regression equation is significant. While, value of R^2 indicates the extents of influence of independent variables on dependent variables, WACC. In aggregate term, it is

observed that regression is significant. However, independent variables explain variation only 45% (R^2 = .452) of dependent variable. Thus WACC is not significantly affected by financial performance of the firms as far as sample is concerned. Only, size (β =3.65) has positive while leverage (β = -0.108) and profitability (β = -0.490) has negative impact on WACC. However, such interpretation differs in case of individual sector. Thus WACC is firms specific. The factors mainly qualitative are; business risk, financial risk, management risks appetite and fiscal policy as a whole. Similar views were expressed by (K.B. Hari: 2006) that Indian large firms are not using resources effectively in comparison to their smaller counterparts even not taking advantage of cheaper funds available over the years.

In aggregate terms, relationship between *size of the companies and WACC* (β = 3.65) indicates with the increase of size of the companies cost of capital is also increasing as far our sample is concerned. The statistical result shows that size of the companies is not significantly influenced the overall cost of capital of the companies while analyzing the *cause-effect* relationship within industrial group. The regression coefficient value of size of the companies under the sample industrial group excluding construction, pharmaceuticals, chemical and diversified signifies that with the increase of size the company's cost of capital are declining. Where as, in case of the industry like construction, pharmaceuticals, chemical and diversified group a positive relationship has been seen between WACC and size of the companies. This implies that the companies under these sectors do not give attention much on the increasing trend of WACC.

As far as sample is concerned no significant relationship has been observed between *WACC and growth* of the companies since the regression coefficient value of growth is not statistically significant.But, in the diversified sector, it is found that the correlation coefficient between growth and WACC is -.511and statistically also significant. Further, the beta value (-.576) found to be statistically significant implying, there is negative impact of growth of companies on WACC i,e with one unit of change of growth component the cost of capital (WACC) will be declined by .576 unit.

The regression analysis indicates that the beta value of dividend is negative in the case of IT (β = -0.581) and positive in case of financial service sector (β = .601). This implies that dividend has emerged as significant factor in the cost of capital.

The aggregate result suggests that there exists a relationship between WACC and profitability of the companies. The profitability of the companies (β = -0.490) has negative impact on overall cost of capital and the relationship is statistically significant at 5% level. Furthermore, the value of F = 1.334 statistically significant at 5% level implying that the regression equation is also significant. The relationship shows that as far as sample is concerned, with the increase of profitability of the companies, the overall cost of capital will automatically fall. The similar statistically significant and negative influence was observed between the cost of capital and profitability in case of energy (β = -0.267), electricity (β = -0.669) , engineering (β =-0 .443) and chemical (β = -0.987) respectively.

VII. Conclusion

The change of cost of capital affects the company's profitability position. Again, the higher cost of capital adversely affects the profitability position of the companies. The comparatively big companies should therefore give proper emphasize on this aspect while procuring the funds. There are insufficient evidences to deny the fact that the cost of capital has no relationship or no affect on companies' performance like companies growth, liquidity, dividend pay out although the relationship is industry specific. Similarly, cost of capital is not only influenced by only capital structure decision but also influenced by host of factors depending on nature of business as well business environment.

References:

1. A Barges (1963),The Effect of Capital Structure on the Cost of capital, Englewood Cliffs, N.J., Prentice-Hall, Inc, P-2.
2. Bhabatosh Banerjee (1984), Financial Policy and Management Accounting, The World Press, Pvt. Ltd, Calcutta.
3. C. James (1999), Financial Management and Policy: Prentice, Hall of India, New Delhi
4. G. Knot (1991), Financial Management, TheMacmillian Press Ltd.
5. Graham and Harvey (2001), "Practice of Corporate Finance: Evidences From The Field", *Journal Of Financial Economics*, Vol-21, No-3
6. I. M. Pandey (1999), Financial Management, Vikas Publishing House Pvt. Ltd., New Delhi.
7. J. Crockett. And I. Friend (1967), "Some Estimates of the Cost of capital to the Electric Utility Industry, 1954-1957: Comment," *American Economic Review*, Dec, pp-58-67.
8. M. Davenport (1971), Leverage and The Cost of capital, Some Test Using British Data, *Economica*, XXXVIII, May, pp-136-162.
9. M. R. Kishore (2002), Financial Management, Taxman Allied Services Pvt. Ltd., New Delhi.
10. M.K Garg and P.K.Jain (1997), Financial Management In Industrial Banks, Anmal Publications Pvt. Ltd., New Delhi.
11. Modigliani, Franco and Miller, Merton. H (1962), The Cost of capital, Corporate Finance and Theory Of Investment, *American Economic Review*, June
12. N. K. Kulshrestha (1996), Management Accounting Concepts and Cases, Tata Mc. Graw- Hill Publishing Company Ltd., New Delhi
13. P. Chandra (1975), Valuation of Equity Shares In India,: Sultan Chand and Sons, Delhi.
14. R. Bhat (1980), Determinants of financial Management: Some Further Evidence, *Chartered Accountant*, Vol-20, N0-4
15. R. Chadha (2003), "Cost of capital and Companies performance- an interrelationship study of selected Indian companies" *TASMAC Management Review*, Vol, 1. Issue (1st October 2003)
16. S.K Chakroborty (1977), Corporate and Cost of capital, ICWA, Calcutta
17. S.K. Bhattacharyya (1970), "A cost of capital Framework for Management Control," *Economic and Political Weekly*, Vol- 35, No-29.
18. Sarma and Hanumanta. Rao (1968), Leverage and The Value of The Firm, *Journal of Finance*, XXIV, pp-673-677.
19. V.K. Bhalla (2000), Contemporary issues in Finance, Anmal Publications, New Delhi
20. Vilasuso&Minkler (2001), " Agency and Transaction Cost Determinants of Corporate Finance: Synthesis", *Journal Of Economics Organization and Behavior*, Vol-12, No-3