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- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
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ONLINE RESOURCES

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A STUDY ON CAPITAL STRUCTURE AND PROFITABILITY OF SELECTED CEMENT INDUSTRIES IN INDIA

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ABSTRACT

The cement industry has played a significant role in the growth of the Indian economy during the post-independence period. The present study evaluated the capital structure and profitability of selected cement companies in India. This research article was based on secondary data collected from annual report of industries and profile of the industries. Financial analysis is a powerful tool which helps in determining the problems in the operation and financial position of the industries. Hence this study analyzed only the financial problem of the company. Study liquidity and profitability analysis of the cement companies based on their balance sheet and profit and loss a/c. The company should enrich its performance for meeting challenges and exploiting change in future and help the management to take financial decisions. This study also finds out the extents where the industries can expand the position of its asset and funds.

KEYWORDS

capital structure, profitability, cement industries in India.

INTRODUCTION

The prosperity of a country depends directly upon the development of agriculture and industry. For the last two centuries or more, industrial an agriculture revolution in England first and in other countries subsequently were accompanied by a revolution in transport and communications, the extensive use of coal and later oil, as a source of energy, tremendous expansions in banking, insurance and other financial institutions to finance production and trade, explosion of knowledge of science and technology, etc. The link between infrastructure and development is not a once for all affair. It is a continuous process and process in development has to be preceded, accompanied and followed by process in infrastructure, to fulfill the declared objectives of a self-accelerating process of economic development.

GROWTH AND PROSPECTS OF CEMENT INDUSTRY IN INDIA

The origin of cement industry can be traced back to 1914 when the first unit was set-up at Porbandar with a capacity of 1000 tons per year. India's cement industry comprises 131 large cement plant and 365 mini-cement plants, with an installed capacity of 165 million tons per annum. Large cement plant account for over 94 percent of the total installed capacity. At percent, the Indian cement industry produces 13 different varieties of cement employing three different process types, namely, ordinary Portland cement, Portland slag cement. The introduction of advanced technology has helped the industry immensely to conserve energy and fuel and to save material substantially. Presently, 93 per cent of the total capacity in the industry is based on modern and environment-friendly dry process technology.

The government of India has identified cement as a core industry, and therefore, its development has been an integral part of the national economics plants. The Indian cement industry is the fifth largest in the world with production of over 150 million tonnes per year next to china, Russia, Japan, and U.S.A. Though it is quite large in terms of total capacity, the industry is fragmented in its structure. The cement industry in India is poised to scale new heights thanks to liberalization policies of the government of India and with the adoption of-the art technology and a massive investment of Rs. 100 billion. In view of its vital importance for the national economy, the industry, for a very long time, was covered under the Essential Commodities Act, and was subject to various control at the states of mining or quarrying, acquisition of land, production, distributions, price, etc. these control are necessary because of the supply-side constraints like availability of funds, infrastructure bottlenecks in term of coal-power wagons and cost-effective technology. As a result, the "shortage" syndrome marked the industry till about the early eighties.

The cement companies have seen a net profit growth rate of 85 per cent. With this huge success, the cement industry in India has contributed almost 8 per cent to India's economic development. Nowadays, the cement industry is growing fast and to know, how the financial performance of the cement industry playing a vital role in India. For this, to analysis the production and sales, to measure the short term and the long term financial feasibility, to identify the factors that influence the profitability status of the selected cement companies in Tamil Nadu. The Indian cement industry has evolved significantly in the last two decades going through all the phases of typical growth process. With sound economic growth and infrastructure development, the demand for cement is on an upward trend, further addition to capacity is coming up to cater to the increasing demand for cement producer in the world after china with a total capacity of 151.2 million tonnes (MT), has got huge cement company. With the government of India giving boost to various infrastructure project, housing facilities and road net-work, the cement industry in India is currently growing at an enviable pace Cement is global commodity, manufactured at thousands of local plants. The cement industry in India dominated by around 20 companies, which account for almost 70 per cent of the total cement production in India. Because of its weight, cement supply via land transportation is expensive, and generally limited to an area within 300 km of any one plant site. The industry is consolidating globally, but large, international firms account for only 30 per cent of the market. China is the fastest growing market today. Because it is both global and local, the cement industry faces a unique set of issues, which attract attention from communities near the plant, at a national and an international level.

STATEMENT OF THE PROBLEM

The cement industry is one of the largest industries in world economy and Indian cement industry is second largest in the world. It is a vital role of its economy, providing employment to more than million people directly or indirectly, infrastructure and housing sector. Since it's has to emulate 1982, the Indian cement industry has attracted high investment both from Indian as well as foreign investors. Some of the recent government initiatives. Such as development of 98 smart cities expected to provide a major boost to the cement companies. India's Cement Industries with the share of around 7% of total world cement production being china on the top with share around 35% of total world cement production. Numerous studies have been carried out in this field but most of them belong to other parts of the world, and a few studies have been taken place in India. Most of the studies have used variable like long term fund, short-term fund to find relationship. In this context, the researcher has attempted to find the association among capital structure and profitability of selected cement companies in India.

OBJECTIVES

1. To analyze the capital structure of sample cements company in India.
2. To examine the profitability of sample cement companies in India.
3. To measure the growth of financial variables sample cement companies in India.

SCOPE OF THE STUDY

- The study would help to know the capital structure of selected cement companies in India.
- The study would light throw on the profitability of sample cement companies in India.
- The study would help the policy maker to take appropriate decision in solving the crisis in cement companies.

LIMITATION OF THE STUDY

- The study was secondary data in nature. Its fact was based on the published in information.
- The period of study covered only five years. Therefore, its result would not be applicable for other years.

REVIEW OF LITERATURE

Hiral shah and Heinz Telser (2006) revealed that the Indian cement plants, which are technical, advanced, manned by skilled personal, and supported by an increasing consumption, are operating at close to the maximum rated capacities. Furthermore, the annual growth figures of seven to eight percent are expected to prevail in the coming years. In view of the enormous growth potential for domestic consumption, India will be a strategic target for international cement companies.

L.G.Burange and shruti Yamini (2008) in their study computed the Annual compound Growth Rates (ACGS) as per semi log method for 37 years from 1970-71 to 2006-07. According to the study the performance of primary indicators in the Indian cement industry has been very impressive during the period 1970-71 to 2006-07

Rajamohan s. and vijayaragavan T. (2008) have conducted a study on production performance of Madras cement Limited. In order to analysis the comparative production performance of Madras Cements Limited and all cement units in India; Mann-Whitney U-test was applied. It was concluded that the production performance of selected unit was equal to production performance of all other cement units in India.

Ajan Ghost, sabyasachi Majumbar, rohit Inamdar, and Anil Gupta (2010) evaluated CAGR between the periods 2004-09. The finding reveal that CAGR for the period 2004-09 was 9.35 and the capacity addition of cement CAGR was 5.6%. Even during the economy slowdown, the cement demand remained healthy at 8.4% (2008-09). This was due to the government programmers like NREG, low cost housing schemes, Indira Aawas Yojana etc.

S.chanrakumarmangalam and P. Govindasamy (2010) investigate the relationship between the leverage (financial leverage, operating leverage and combined leverage) and the earning per share, and this study also explains the relationship between the dept equity ratio and earnings per share and how effectively the firm be able dept financing the result suggest that the leverage and profitability and grown are related and the leverage is having impact on the profitability of the firm.

Chakraborty (2010) employed two performance measures, including ratio of profit before interest, tax and depreciation to total assets and ratio of cash flow to total assets and two leverage measure, including radio of liability and equity, and reported a negative relation between these ones.

Mistry Dharmendra S (2011) found that Liquidity is closely related with the profitability of the Indian cement industry as compared to the Total Assets, Inventory turnover Ratio, Debt-Equity Ratio and operating Expenses Radio.

Haijhassani (2012) presented a comparison of financial performance in cement sector in Rran. This study presents comparison of financial performance for the period 2006-2009 by using financial ratio and measures of cement companies working in Iran. Financial ratios are divided into three main categories and measures including two indicators. This work concludes that the performance of cement companies on the basis of profitability ratio is different than on the basis of liquidity ratio, leverage financial.

Time trick Report (2012) the world wide concrete and cement market was worth USD 449.4 bn in 2012 posting a CAGR of just over 4% during 2008-2012 however, growth was subdued by an 11.8% decline in 2009 on the black of a slowdown in construction activity. Over the next five year, the global concrete and cement market is expected to record nearly 8.5% CAGR, supported by the Growing construction industry worldwide the moderation of the economy slump in Europe, and infrastructure development project in emerging countries.

METHODOLOGY

The chapter deals with the methodology adopted for the study which contains the following steps:

NATURE OF THE RESEARCH DESIGN

As the study aimed at study the capital structure and profitability of the cement industry by using various accenting relationship. The methodology adopted was analytical in nature.

NATURE OF DATA

The study depended on secondary data only.

PERIOD OF STUDY

The data were collected for five years i.e. from 2009-10 to 2013-14

SOURCE OF DATA COLLECTION

The relevant data were collected from the official directory of the Bombay stock exchange for 10 companies, for which the data were available 5 years from 2009-10 to 2013-14 centre for monitoring Indian economy (CMIA), CRISIL sector Review, Executive summary of CRISIL Bombay, ICRA industry watch series(various issues) ICRA, Bombay, Annual survey of industries (ASI) New Delhi Information has been source from books, Newspaper, Trade Journals, White papers, Industry portal Government agencies, Trade Associates, Industry news and development, though access to paid databases and websites.

The following are the companies studied.

- J.P. cement
- Rambo cement
- Shree cement
- Dalmia cement
- Ambuja cement
- Acc cement
- Ultra tech cement
- Indian cement
- J.K cement

TOOLS USED FOR DATA ANALYSIS

The statistical technique like ratio analysis mean. SD., correlation were used for the study.

Formula for debt equity Ratio

D/E $Ratio = \frac{\text{Debt}}{\text{Equity}}$

Formula for debt to Total fund

$$= \frac{\text{Debt}}{\text{Total fund}}$$

Gross profit Radio

$$GRP = \frac{\text{Gross Profit}}{\text{Net sales}} \times 100$$

Employee Return on capital

$$ROCE = \frac{\text{Net Profit after tax}}{\text{Total capital employee}}$$

RESULT AND DISCUSSION

The first selection of result and discussion discuss about the individual company's performance during the period of study.

TABLE 1: DEBT EQUITY RATIO (FIGURES IN TIMES)

Company name	2013-14	2012-14	2011-12	2010-11	2009-10	Mean	SD
JP Cement	1.28	1.21	1.15	1.33	2.87	1.57	0.73
Ramco cement	0.9	0.84	1.03	1.61	1.65	1.21	0.39
Prism cement	1.56	1.18	0.9	0.97	0.69	1.06	0.33
Jk cement	1.24	0.67	0.84	1.15	0.94	0.97	0.23
India cement	0.69	0.67	0.56	0.69	0.6	0.64	0.06
Shree cement	0.23	0.25	0.35	0.93	1.09	0.57	0.41
Birla cement	0.43	0.48	0.5	0.46	0.36	0.45	0.05
Ultra tech cement	0.52	0.43	0.57	0.33	0.3	0.43	0.12
Acc cement	-	-	0.01	0.07	0.08	0.05	0.04
Ambuja cement	-	-	-	0.01	0.01	0.01	0

Debt equity radio is given in the table it revealed that among all the cement companies JP cement, Ramco cement and prism cement are highly leveraged companies having highest debt to equity radio i.e. 1.57, 1.21 and 1.06 respectively. On the other side companies like ACC cement, Ambuja cement and Ultratech cement are low leveraged with lowest debt to equity ratio with the mean score of 0.05, 0.01 and 0.43 respectively.

CHART 1: DEBT EQUITY RATIO (FIGURES IN TIMES)

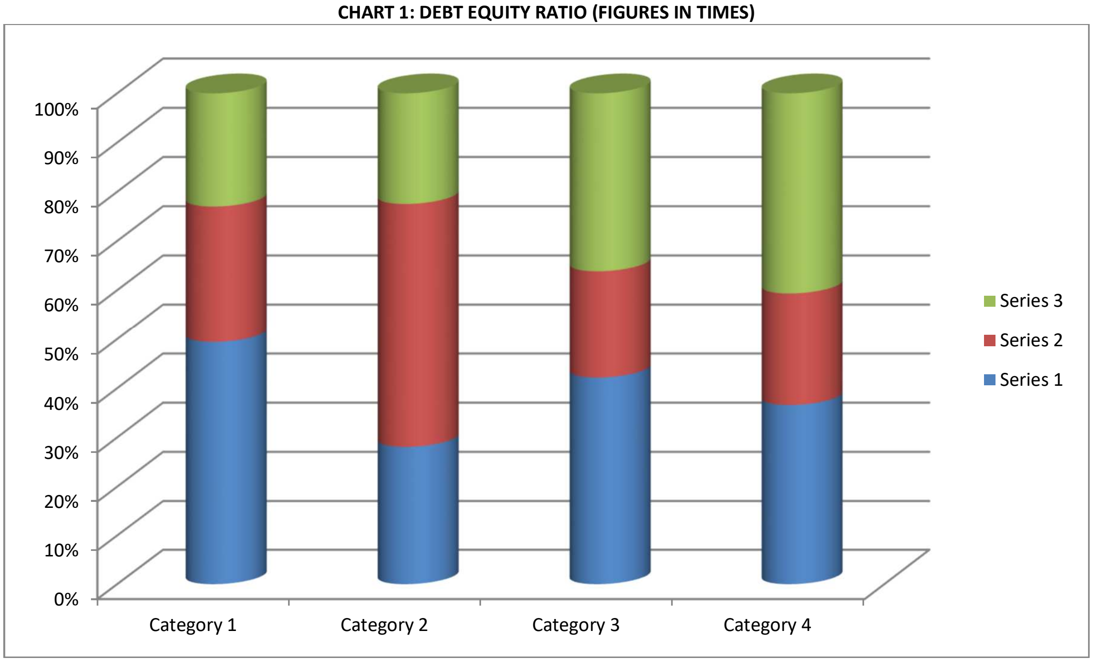


TABLE 2: DEBT TO TOTAL FUND (FIGURES IN TIMES)

Company name	2O13-14	2012-13	2011-12	2010-11	2009-10	Mean	SD
JP cement	1.28	1.21	1.15	1.33	2.87	1.57	0.73
Ramco cement	0.9	0.84	1.03	1.61	1.65	1.21	0.39
Prism cement	1.56	1.18	0.9	0.97	0.69	1.06	0.33
Shree cement	0.23	0.25	0.35	0.93	1.09	0.57	0.41
Birla cement	0.43	0.48	0.5	0.46	0.36	0.45	0.05
Ambuja cement	0.28	0.29	0.3	0.25	0.35	0.29	0.04
Acc cement	-	-	0.01	0.07	0.08	0.05	0.04
Ultra Tech cement	0	0	0	0.01	0.01	0.00	0.01
India cement	0.76	0.75	0.63	0.52	0.6	0.65	0.10
JK cement	1.42	0.78	0.84	0.98	0.94	0.99	0.25

Source: Author compilation from Annual Report of the companies

Table 2 reveals that debt to total fund radio is also higher in case of JP cement, JK cement and prism cement with the mean score of 1.57, 1.27, and 1.06 times respectively. On other hand Ultra Tech cement have minimum debt to total fund radio with score 0.004 which shows that company have very less burden of dept. In addition to this company is having very low level of standard deviation with the mean score of 0.05 as compared to other companies in study. It is also clear from table that JP cement have relatively higher standard deviation as compared to other companies in study.

CHART 2: DEBT TO TOTAL FUND (FIGURES IN TIMES)

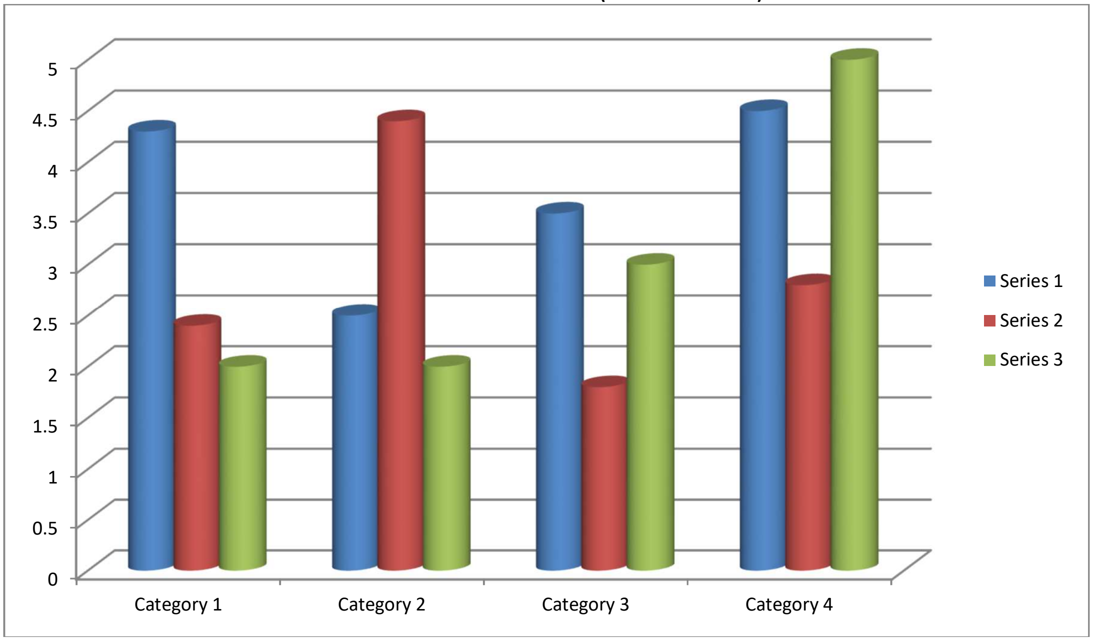


TABLE 3: GROSS PROFIT RATIO (FIGURES IN PERCENT)

Company name	2013-14	2012-13	2011-12	2010-11	2009-10	Mean	SD
JP cement	38.6	44.64	52.2	64.95	89.89	58.06	20.3
Ramco cement	6.69	18.93	21.77	15.69	23.9	17.45	6.62
Ultra Tech cement	13.63	18.48	17.71	14.27	22.56	17.33	3.6
Ambuja cement	14.22	12.64	19.6	17.9	19.93	16.86	3.26
Shree cement	14.26	20.12	13.1	6.09	25.73	15.85	7.75
Birla cement	4.1	11.08	14.78	17.86	30.94	15.71	9.84
Acc cement	8.09	9.44	14.41	14.96	16.29	12.64	3.63
JK cement	8.61	14.82	15.46	6.53	17.38	12.56	4.71
India cement	5.15	11.77	15.51	3.11	14.22	9.952	5.53
Prism cement	-0.72	2.1	2.93	6.24	14.61	5.032	5.9

Source: Author Compilation from Annual Report of the Companies

The above table 3 depicts that JP cement have highest gross profit radio with the mean score of 58.05 and implies that this company is very efficient in producing products and have efficient resource to pay for cost required to run and grow their business. On other hand companies like prism cement, India cement are having low gross profit radio with mean score 5.03 and 9.9 respectively as compare to other companies in the study. This shows that companies are inefficient in producing product.

The standard deviation of gross profit radio of JP Cement. Birla cement and spree cement is maximum (20.3, 9.8 and 7.4 respectively). It means that these companies are not consistent in generating profit. On other hand companies like Ambuja cement, Ultra tech cement and ACC cement have minimum standard deviation (i.e.3.2, 3.60 and 3.63 respectively) which implies that companies are enjoying gross profit at constant rate

CHART 3: GROSS PROFIT RATIO (FIGURES IN PERCENT)

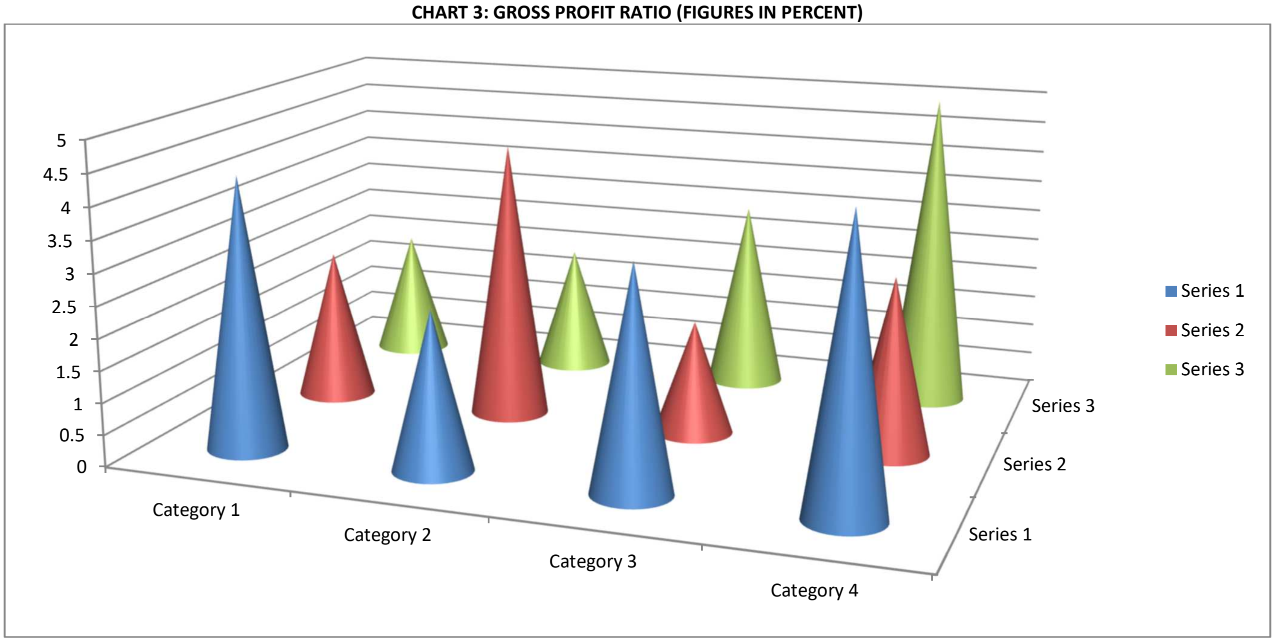


TABLE 4: RETURN ON CAPITAL EMPLOYED (FIGURES IN PERCENT)

Company name	2013-14	2012-13	2011-12	2010-11	2009-10	Mean	SD
Shree cement	17.7	27.24	25.31	7.57	25.91	20.75	8.25
Ambuja cement	18.25	16.33	25.52	21.93	21.6	20.73	3.56
Ultra tech cement	14.08	20.48	21.69	15.45	27.22	19.78	5.26
Acc cement	14.78	16.34	25.46	21.26	20.75	19.72	4.25
Birla cement	6.9	11.46	12.88	16.06	30.35	15.53	8.92
Ramco cement	7.24	17.62	17.44	9.6	16.53	13.69	4.9
JK cement	7.32	16.92	18.59	7.25	17.86	13.59	5.78
JP cement	9.35	10.83	13.36	16.44	7.62	11.52	3.46
Prism cement	4.03	4.45	6.25	9.97	21.85	9.31	7.39
India cement	4.87	8.18	10.59	3.37	10.9	7.582	3.37

Source: Author compilation form Annual of the companies

It can be observed from table 4 that return on capital employment radio is maximum in case of Shree cement, Ambuja cement, and Ultra Tech cement having the mean value of 20.7,20.78 and 19.7 times respectively as compare to other companies in the study. It implies that these companies are using their funds efficiency and are also among the preferred choice among investors. On other side the companies like India cement, Prism cement and JP cement have lowest return on capital with mean score of 7.5, 9.3 and 11.5 respectively. Birla cement and shree cement have shown inconsistency in their earning as refracted by high standard deviation. On the other companies like JP cement, Ambuja cement and ACC cement have minimum standard deviation which implies that there is a minor fluctuation in their return.

CHART 4: RETURN ON CAPITAL EMPLOYED (FIGURES IN PERCENT)

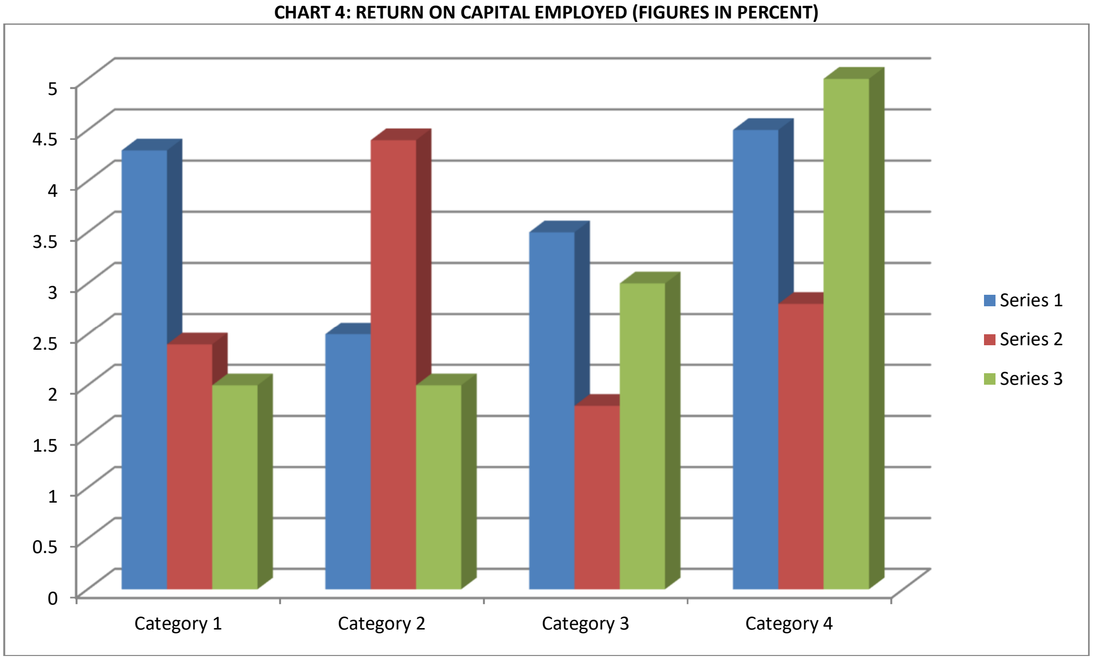


TABLE 5: RETURN ON EQUITY (FIGURES IN PERCENT)

Company name	2013-14	2012-13	2011-12	2010-11	2009-10	Mean	SD
Shree cement	16.71	26.12	22.62	10.55	36.88	22.58	9.95
JP cement	4.94	11.23	22.32	30.12	24.82	18.69	10.3
Ultra tech cement	12.54	17.43	19.12	13.16	23.73	17.18	4.58
Acc cement	14.18	14	14.37	18.42	17.31	15.66	2.06
Ramco cement	5.54	17.02	18.78	12.36	23.01	15.34	6.68
Ambuja cement	14.81	13.64	14.73	15.22	17.24	15.13	1.32
Birla cement	5.13	11.01	10.69	15.6	31.24	14.73	9.95
JK cement	5.51	13.75	13.75	5.62	20.81	11.89	6.45
India cement	-4.21	3.99	7.2	1.92	10.04	3.788	5.44
Prism cement	-8.09	-5.45	-2.61	7.93	21.46	2.648	12.1

The Return on equity ratio given in table 5 is case of Shree cement, JP cement, and Ultra tech cement with the Mean score of 22.58, 18.69 and 17.18 respectively during study period as compare to the other cement companies. It shows that these companies are more profitable as compare to other companies in the study. So these companies may be the preferred choice among investors. On the other side prism cement and India cement have lowest return on equity with mean score of 2.6 and 3.7 respectively.

The standard deviation of prism cement and JP cement is maximum with the mean score of 12.1 and 10.3 respectively. It shows that there is a Hugh fluctuation in their returns, Ambuja cement and ACC cement shows small deviation in their returns.

CHART 5: RETURN ON EQUITY (FIGURES IN PERCENT)

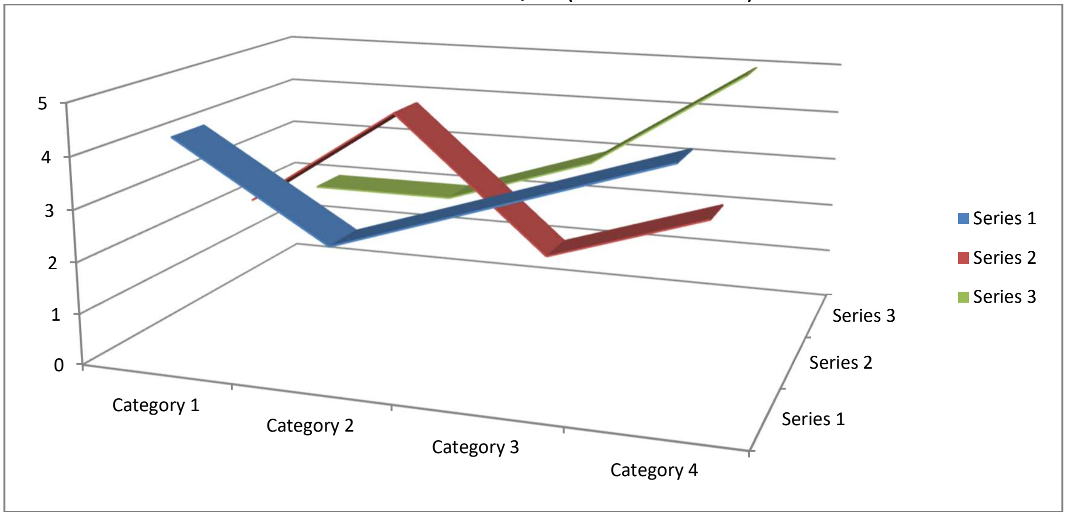


TABLE 6: DESCRIPTIVE STATISTICS

	Range	Minimum	Maximum	Mean
Debt to equity	2.87	.01	2.87	.6926
Debt to total fund	2.87	.01	2.87	.6824
Gross profit radio	90.61	.72	89.89	18.1450
Return on capital employed	26.98	3.37	30.35	15.2190
Return on equity	44.97	-8.09	36.88	13.7628

Source: Author compilation form Annual Report of the companies

The overall descriptive statistics given in table 6 shows that the debt equity ratio of the sample companies is 0.692 times and debt to total fund radio is 0.682. It means that cement companies are not using the optimum capital structure and are not in good position as far as far as capital structure and are not in good position as far as capital gearing is concerned. Further, the minimum and maximum level of profitability variable ---GRP, ROCE and ROE depict that the returns of the companies are highly fluctuated.

CHART 6: DESCRIPTIVE STATISTICS

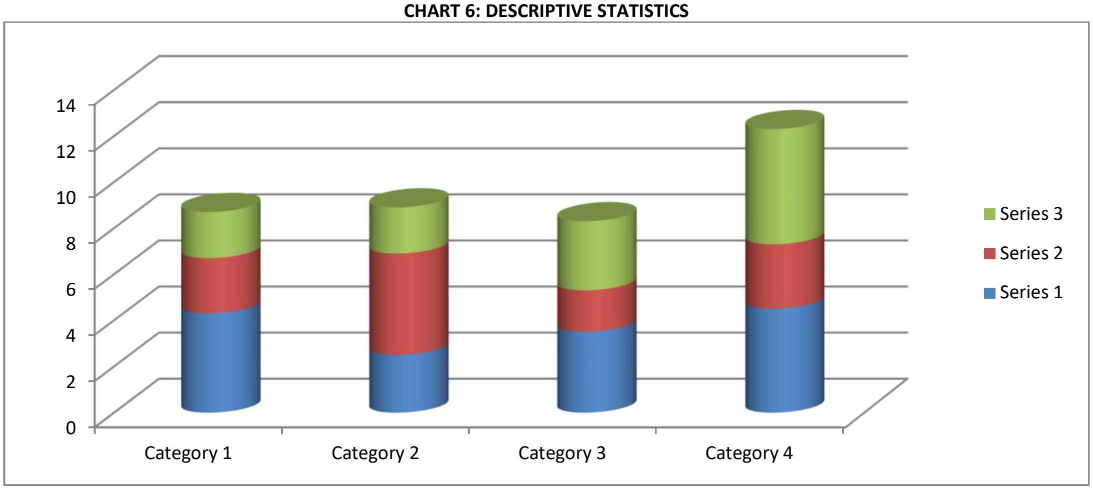


TABLE 7: CORRELATION MATRIX FOR CAPITAL STRUCTURE AND PROFITABILITY

		R/E	ROCE	GPR	**DTR**	**D/E**
R/E	Pearson correlation	1				
	sig.(2tailed)					
	N	50				
ROCK	Pearson correlation	790	1			
	Sig.(2tailed)	.000				
	N	50	50			
GP radio	Pearson correlation	563	.163	1		
	Sig.(2tailed)	.000	.258			
	N	50	50	50		
D/T fund radio	Pearson correlation	-091	-.507	.486	1	
	Sig (2-tailed)	.530	.000	.000		
	N	50	50	50	50	
D/F	Pearson correlation	-072	-.514	.491	.953	1
	sig(2tailed)	-618	.000	.000	.000	
	N	50	50	50	50	50

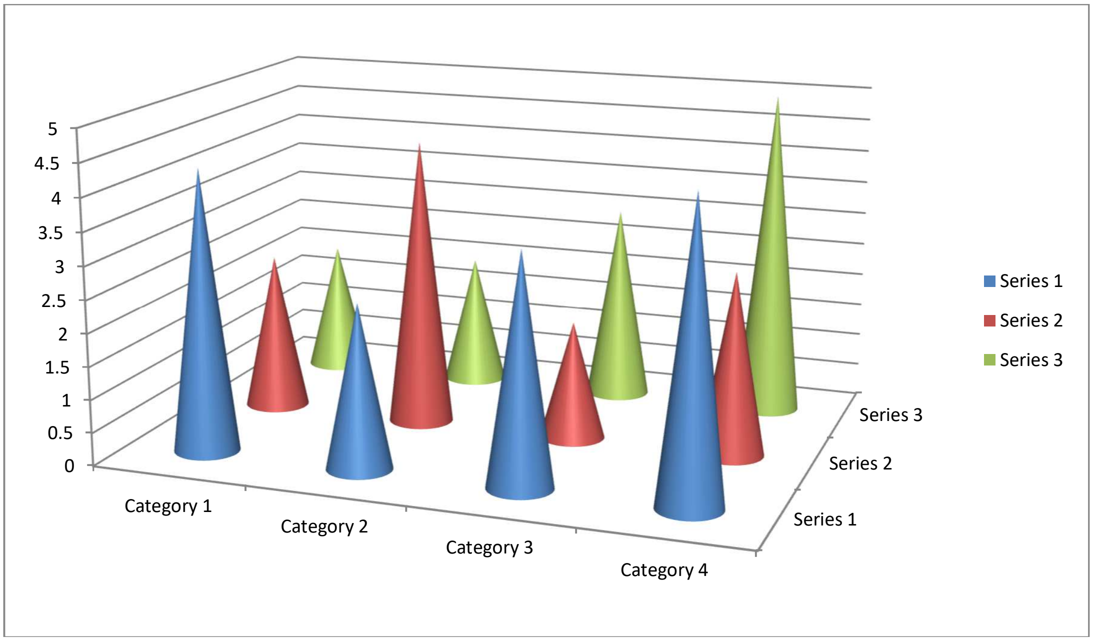
**Correlation is significant at the 0.01 level (2-tailed)

Return on equality (R/E) on capital employment (ROCE), Gross Profit Ratio (GRP), and Debt to Total Fund Ratio (DTR).Debt Equity Ratio (DER).

Correlation Analysis

Table 7: indicates that the relationship between selected capital structure and profitability negative. The negative association points toward unsuitable debt equity mix in the capital structure of the concerned companies thereby having a negative impact on the select profitability variables.

CHART 7: CORRELATION MATRIX FOR CAPITAL STRUCTURE AND PROFITABILITY



SUMMARY OF FINDINGS

From the data observed, the researcher has been made findings as follows

1. It was found that cement companies like ACC cement, Ambuja cement and Ultratech cement were low leveraged with lowest debt to equity ratio.
2. From the data observed; it was revealed that JP cement had relatively higher standard deviation as compared to other companies in the study.
3. It was found that cement companies like Ambuja cement, Ultra tech cement and ACC cement had minimum standard deviation (i.e.3.2, 3.60 and 3.63 respectively) which implies that companies were enjoying gross profit at constant rate.
4. It was showed that cement companies like JP cement, Ambuja cement and ACC cement had minimum standard deviation which implies that there was a minor fluctuation in their return.
5. It was showed that the steadily fluctuation in their returns in all the companies. But Ambuja cement and ACC cement showed small deviation in their returns.
6. It was found that the minimum and maximum level of profitability variable ---GRP, ROCE and ROE depict that the returns of the companies were highly fluctuated.
7. From the analysis, it was found that the negative association points toward unsuitable debt equity mix in the capital structure of the concerned companies thereby having a negative impact on the select profitability variables.

CONCLUSION

Cement companies contributed not only much more share of GDP to the industrial economy but also generate huge employment opportunities. From the research study, it was concluded that the major cement companies like ACC, AMBUJA, ULTRETECH, which were found higher profitability and capital structure throughout the study period. Government of India should provide the incentives to promote the other cement industries in order to attain the higher growth of the Indian economy.

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