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A STUDY OF LIQUIDITY, PROFITABILITY AND RISK ANALYSIS OF CEMENT INDUSTRY IN INDIA

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ABSTRACT

Liquidity and Profitability is a pre-requisite for the survival of every firm or company. The finance manager is always faced with the dilemma of Liquidity vs. profitability as these two concepts conflict in most of the financial decisions. So, the finance manager has to watch the relationship between operating risk and profitability of a company also. Hence in this article an attempt has been made to study the relationship between liquidity and profitability and between profitability & risk of selected cement companies in India. In this article, seven cement companies have been selected from BSE 500 Index on the basis of availability of data. The study has been carried out for five years period from 2003-04 to 2007-08.This study highlights that liquidity position of India cements Ltd. is the best of all companies under consideration.

KEY WORDS

DOL, Liquidity, Profitability, Risk, ROCE, ROI.

INTRODUCTION

Liquidity is a pre-requisite for the survival of every firm or company. Liquidity signifies firm's ability to meet its short-term commitments. In context of corporate business finance, liquidity refers to the length of time until assets are converted to cash. It is the ability to convert assets into cash with in a short period of time. Christy & Roden define Liquidity of an asset as "moneyness".Liquidity has two dimensions: (i) Time required to convert the Liquidity of assets into money and (ii) certainty of price realized .A firm's short-term liquidity means its ability to meet short-term obligations.The ability to convert assets into cash depends on the ability to generate profits from sale of products & services.Current ratio and Quick ratio are the two commonly used liquidity ratios of a company to judge its liquidity position..Liquidity ratios depict the relationship of a firm's current assets to its current liabilities & thus its ability to meet maturing debts.

Profitability refers to the firm's ability to generate earnings and earnings are must for its survival & growth .Various people like owners, shareholders, managers are interested in the firm's profitability position because profit is the source from which these groups receive their dues.So, the management uses profitability ratios as a measure of their performance. Profitability of a firm is the net result of a large number of policies & decisions .

The profitability ratios show the combined effects of liquidity, asset management and debt management policies on operating results. There are two types of profitability ratios .i.e. Profit Margin ratios and rate of return ratios. The most popular profit margin ratios are gross profit margin, operating profit margin and net profit margin. Rate of Return ratios reflect the relationship between profit & investment. The important ratios are return on assets, earning power, return on capital employed and return on equity etc.

Operating risk can be defined as the variability of EBIT (earnings before Interest & tax).The Internal & external environment in which a firm operates determines the variability of EBIT. Variability of sales and expenses are two main components of variability of EBIT. The variability of sales revenue is major determinant of operating risk. Sales of a company may fluctuate due to changes in general economic conditions, availability of raw material, technological changes, competitors, changes in consumer preferences etc. Given the variability of sales, the variability of EBIT is further affected by composition of fixed & variable expenses. Higher the proportion of fixed expenses relative to variable expenses, higher the degree of operating leverage. Operating leverage affects EBIT. High operating leverage leads to faster increase in EBIT when sales are increasing and vice versa. Hence the operating leverage causes wide fluctuations in EBIT with varying sales.

The finance manager is always faced with the dilemma of liquidity vs profitability as liquidity & profitability decisions conflict in most of the financial decisions. So finance manager has to strike a balance between two. He has to watch the relationship between operating risk & profitability of a company. So in this article an effort has been made to study the relationship between liquidity & profitability and between profitability & risk of selected cement companies.

CEMENT INDUSTRY IN INDIA

Indian Cement Industry is ranked second in the world after China with an installed capacity of 151.2 million tones per annum. The origin of Indian Cement Industry can be traced back to 1914 when the first unit was set up at Porbandar with a capacity of 1000 tonnes. Today, Cement Industry comprises of 125 large cement plants & more than 300 mini cement plants. Cement Industry in India has also made tremendous strides in technological up gradation & assimilation of latest technology. Presently 93% of total capacity in Industry is based on modern & environment friendly dry process technology. Indian Cement Industry has also acquired technical capability to produce different types of cement like ordinary Portland Cement (OPC), Portland Pozzolana Cement (PPC), Portland Blast Furnace slag Cement (PBFS), oil well cement, Rapid hardening Portland Cement, Sulphate Resisting Portland Cement, white cement etc. Some of major clusters of cement industry in India are Satna (Madhya Pradesh), Chandrapur (Maharashtra), Gulbarga (Karnataka), Yerrangunta (Andhra Pradesh), Nalgonda (Andhra Pradesh), Bilaspur (Chattisgarh) and Chandoria (Rajasthan).

The cement industry in India is dominated by around 20 companies which account for almost 70% of total cement production in India. In present year, Indian cement companies have produced 11 million tonne cement during April-Sept. 2009. It took the cement production in FY2009 to 231 million tonne. More growth in Indian cement industry is expected in coming years. It is also predicted that cement production in India would rise to 236.16 MT in FY 2011. It is also expected to rise to 262.61 MT in FY

2012. Acc, Gujarat Ambuja, Ultra tech, Grasim, India Cements, JK Group, Jaypee group, Century group, Madras Cements, Birla Corporation are the top ten cement companies of India.

LITERATURE REVIEW

A large number of studies have been done on the liquidity, profitability and risk of different industries. But here the review of studies on Cement Industry has been presented in chronological order to provide a glimpse of work done on cement Industry. Ghosh (1993) observed in his study of ten cement companies that time series pattern of Liquidity was not auto correlated. Liquidity characteristic was judged in terms of current ratio. It was observed in his study that in case of Industry firm relationship, positive auto correlation was noticed in six cases, in case of economy – firm relationship positive auto-correlation was noticed only in one case, where as in no case of relationship of Industry & economy combined and the firm, there was auto correlation. Sharma (2002) studied the financial performance of cement industry in India. Ten Cement companies were selected for the purpose of analysis. Financial analysis of the selected companies was done through various ratios such as profit margin ratio, return on capital employed, earning power ratio, capital gearing ratio & assets turnover ratio. It was recommended that cement companies should tighten their debt collection efforts & should reduce the funds tied up in receivables. Ghosh (2004) assessed the efficiency of working capital management of Indian cement companies during 1992-93 to 2001-02.To measure the efficiency of working capital management, three index values – performance Index, utilization Index & overall efficiency Index were calculated. It was found from the study that Indian Cement Industry did not perform remarkably well during the study period.

Luther (2007) conducted the liquidity, profitability and risk analysis of Madras cements Ltd.He suggested in his study that firm should take into consideration the short term liquidity also along with long-term investment decisions as if the illiquidity remains continuously, it can affect the profitability & in long run it can endanger the solvency of the firm especially during the times of financial distress.Vijaya Kumar (2002) concluded in his study that efficiency in investment management and current assets are important to improve profitability.

OBJECTIVES OF STUDY

The following are the objectives of the study:-

(i) To assess the liquidity, profitability and risk level of selected companies.
(ii) To find out the relationship between liquidity & profitability.
(iii) To find out the relationship between profitability & risk.

SCOPE OF STUDY

Cement industry is a seasonal Industry. So liquidity, profitability & operating risk are very volatile in such an industry. The scope of the study includes two liquidity ratios i.e. current ratio and quick ratio to calculate the liquidity of the companies. In order to calculate the profitability of companies, return on Investment (ROI) and return on capital employed (ROCE) have been used. The degree of operating (DOL) has been used to calculate the operating risk of selected companies.

LIMITATIONS OF THE STUDY

(i) The study is limited to five years (2003-04 to 2007-08) performance of the company.

(ii) The data used in this study have been taken from published annual reports of cement companies. The data might have suffered from some limitations that are inherent in these statements.

SAMPLE DESIGN

The sample design consisted of total of seven companies from BSE 500 index. The companies have been selected on the basis of availability of data. The selected companies are Birla Corporation Ltd., The India Cements Ltd., Madras Cements Ltd., Dalmia Cement (Bharat Ltd.), Prism Cement Ltd, Shree Cements Ltd, Binani Cement Ltd.

SOURCES OF DATA

The data of seven cement companies for the period from 2003-04 to 2007-08 used in this study have been taken from the secondary sources i.e. published annual reports of companies and various websites such as moneycontrol.com, outlookmoney.com and moneyrediff.com.

METHODOLOGY OF STUDY

Analysis & Interpretation of financial statements was done to study the various components of liquidity, profitability and operating risk of selected companies; which helped in studying the relationship between liquidity and profitability and between profitability & risk. To study the company wise relationship between liquidity and profitability, correlation between current ratio and return on investment (ROI) and between quick ratio and return on investment (ROI) was calculated. To study the company wise relationship between profitability and operating risk of selected companies, correlation between return on capital employed (ROCE) and degree of operating leverage (DOL) was calculated. Chi square test have been applied to study the relationship between Liquidity and profitability and between profitability & risk on overall basis.

FINDINGS AND ANALYSIS

I. Determining the Liquidity, profitability and risk level of selected companies: To determine the liquidity level of selected companies, two ratios related to liquidity, namely, current ratio and quick ratio were used. Profitability levels of selected companies were determined by using two measures related to profitability, namely, return on investment (ROI) and return on capital employed (ROCE).Degree of operating leverage (DOL), which is a measure of operating risk, was used to determine the risk level of selected companies. Following is the company wise analysis of liquidity, profitability and risk level of selected companies:

1.) Birla Corporation Ltd.: The Company was incorporated in 1919 at Calcutta. Major operations of the company are in West Bengal where the company has three cement plants. Two plants of the company are in Maharashtara.During the year 2007, the company embarked upon expansion projects at Santa and Chanderia, which effectively enhanced the cement capacity by 1.70 million tones. Credit Analysis and Research Limited (CARE) has assigned CARE AA (Double A) rating to the company for Long Term Borrowing Programme.Auhorized equity share capital of the company is Rs. 90 crores. For the year ended March 31, 2008 the total paid up share capital of the company was Rs. 77.01 crores.The net sales of the company during the same year were Rs. 1566.55 crores.Table 1.1 shows the performance indicators of Birla Corporation Ltd.

Table 1.1 Performance indicators of Birla Corporation Ltd.

Ratios / Years	Current Ratio	Quick Ratio	Return on investment (ROI) in %	Return on capital employed (ROCE) in %	Degree of operating leverage (DOL)
2003-04	1.07	0.42	1.78	7.31	9.95
2004-05	1.00	0.45	16.14	41.28	11.02
2005-06	0.92	0.52	27.77	52.54	8.13
2006-07	0.76	0.48	32.73	72.15	5.66
2007-08	0.89	0.61	49.00	100.70	7.16

The above table shows that the current ratio of the company for all the years under consideration is below the standard norm of 2:1 (Sharma,2002).The current assets of the company are not sufficient enough to pay for the current liabilities of the company. For the period under consideration, the current ratio of the company was the least in the year 2006-07 when it came down to 0.76.The quick ratio of the company is also not satisfactory. The ratio has been below the standard norm of 1:1 (Sharma, 2002) for all the years under consideration which shows that quick assets of the company are not sufficient to pay for the current liabilities. The quick ratio increased to 0.45 in 2004-05 from 0.42 in 2003-04.In 2005-06, it went further up to 0.52.It was due to significant increase in sundry debtors. Similarly, the increase in quick ratio from 0.48 in 2006-07 to 0.61 in 2007-08 was due to a significant increase in the amount of loans and advances which showed an increase of nearly Rs. 160 crores in 2007-08 over that of the year 2006-07.

The company is showing a very good growth in profits over the years therefore profitability position of the company is satisfactory. Both of the profitability measures used .i.e., return on investment (ROI) and return on capital employed (ROCE) are showing continuous increase. In 2003-04, ROCE was 7.31 per cent which showed significant improvement and increased to 41.28 per cent in 2004-05.In 2006-07 it went further up to 72.15 per cent. In 2007-08 also ROCE showed a significant improvement over the previous year and it went up to 100.7 per cent. Similarly, ROI increased significantly from 1.78 per cent to 16.14 per cent in 2004-05.It went further up to 27.77 per cent in 2005-06.In the year 2006-07 also, ROI of the company increased to 32.73 per cent. In 2007-08,it became 49.00 percent. The main reason for significant increase in the company's profitability over the years was continuous growth in sales revenue.

The degree of operating leverage (DOL) of the company is very high over the years thereby indicating a very high level of operating risk.DOL should either be 1 or equal to 1 but the company is having a DOL of more than 5 in all the years under study.DOL was 9.95 in the year 2003-04 when EBIT decreased by 15.03 percent as a result of 1.51 per cent decrease in sales. During the year, EBIT increased by 105.04 per cent whereas increase in sales was 9.53 per cent. It was because the increase in sales was more than increase in expenses which led to increase in company's operating profits and thereby increase in EBIT. Though DOL came down to 8.13 in 2005-06 and further down to 5.66 in 2006-07 but it rose to 7.16 in 2007-08 when EBIT increased by 204.54 per cent whereas sales increased by 28.57 per cent.

2.)Dalmia Cement (Bharat) Ltd.: Dalmia Cement Ltd. was incorporated in Tamil Nadu in 1951.The cement plants of the company rank amongst the most efficient cement plants in India. The Company's cement operations, located in Dalmiapuram, Tamil Nadu saw a significant ramp-up during 2007-08.Its brands such as Dalmia Superoof and Vajram are the preferred brands in the market and command premium over other brands. The company is a market leader in the manufacturing of cement for construction of walls of on-shore and off-shore oil wells. Oil well cement manufactured by Dalmia Cement was the first in India to receive the prestigious American Petroleum Institute (API) certification. During the year 2007-08, the company implemented the technology for manufacturing of Oil Well Cement with improved additive response. Dalmia Cement also continues to maintain its leadership position in the manufacture of high grade cement for railway sleepers, introduced in India by the company. The future plan of action for the company includes the use of alternative non conventional energy sources. For the year ended March 31, 2008 net sales of the company were Rs. 984.40 crores while the company had equity share capital of Rs. 8.55 crores. Table 2.1 shows the indicators of Dalmia Cement (Bharat) Ltd.

Table 1.2 Performance indicators of Dalmia Cement (Bharat) Ltd.

Ratios / Years	Current Ratio	Quick Ratio	Return on investment (ROI) in %	Return on capital employed (ROCE) in %	Degree of operating leverage (DOL)
2003-04	1.63	0.57	5.82	9.98	-3.24

2004-05	1.75	0.69	7.24	11.07	-2.09
2005-06	1.72	0.81	8.58	8.29	-0.98
2006-07	1.47	0.84	19.81	13.55	6.93
2007-08	1.07	0.71	30.38	24.94	2.31

Current ratio was above 1.5 from the year 2003-04 to 2005-06 but thereafter it went down to 1.47 in the year 2006-07 and further down to 1.07 in 2007-08.In the year 2006-07 the current ratio came down to 1.47 from 1.72 in 2005-06.It showed that increase in current ratio of the company was the least in 2007-08 when it came down to 1.07.

The quick ratio of the company is also below the standard quick ratio of 1:1 for all the years under consideration. Though the ratio was consistently increasing from 2003-04 to 2006-07 when it increased from 0.57 to 0.84 respectively but it went down to 0.71 in 2007-08.Though the liquid assets of the company showed an increase in 2007-08 but the increase in current liabilities was more than the increase in quick assets therefore, causing a decline in quick ratio of the company.

The profitability position of the company has been showing an improvement over the years as both ROI and ROCE are showing an increase over the previous years. Though ROCE showed a decline in 2005-06 when it came down to 8.29 percent from 11.07 percent in 2004-05.The main reason for the decrease in ROCE in 2005-06 was the decrease in GP ratio of the company which came down to 0.324 over that of 2006-07 when it was 0.375.ROCE increased to 13.55 per cent in 2006-07 and further to 24.94 per cent 2007-08 due to nearly 76 per cent growth in sales during 2006-07 and 121 per cent growth in sales during 2007-08.Similarly,ROI increased from 5.82 per cent in 2003-04 to 7.24 per cent in 2004-05.It became 8.58 per cent in 2005-06.In 2006-07,ROI was 19.81 per cent which went further up to 30.38 per cent in 2007-08.

The company is having a negative degree of operating leverage (DOL) from the years 2003-04 to 2005-06 which thereafter became positive. In the year 2003-04, DOL was -3.24 when EBIT decreased by 17.42 per cent whereas sales increased by 5.38 per cent. In 2004-05, DOL became -2.09.During the year, sales decreased by 4.42 per cent but EBIT increased by 9.23 per cent. It was due to increase in stock adjustments during the year which became Rs. 27.44 crores in 2003-04 over those of -40.00 crores in 2003-04.This resulted in increase in total income of the company which was more than increase in expenses. Thus, it led to increase in company's EBIT.In 2005-06, DOL came down to -0.98 but it rose to 6.93 in 2006-07 indicating an increase in operating risk of the company. In 2007-08, DOL came down to 2.31.During the year, BIT increased by 165.54 per cent whereas sales of the company went up by 71.7 per cent.

3.) Binani Cement Ltd.: Binani Cement Ltd. (BCL) is the flagship company of the Binani group which has diverse manufacturing interests in cement, zinc and glass Fibre.The Company was incorporated in Kolkata, West Bengal on January 15, 1996 as Dynasty Dealer Private Limited. The name of the company was changed to Binani Cement Private Limited.Subsequently, the company was converted into a public company and the name was changed to Binani Cement Limited in 1998.The Company's cement plant is in Pindwara, District Sirohi,Rajasthan.The company is also setting up two additional captive power plants having capacity of 22.3 MW each in 2 phases at its existing location at Binanigram.The paid up share capital of the company for the year ended March 31,2007 was Rs. 203.10 crores which consisted of equity capital only.Net sales of the company for the same year were Rs. 678.44 crores.Table 3.1 shows performance indicators of Binani Cement Ltd.

Table 1.3 Performance Indicators of Binani Cement Ltd.

Ratios / Years	Current Ratio	Quick Ratio	Return on investment (ROI) in %	Return on capital employed (ROCE) in %	Degree of operating leverage (DOL)
2003-04	1.63	1.05	0.47	10.32	1.37
2004-05	2.03	1.43	1.87	10.57	2.29
2005-06	3.09	2.7	2.75	9.09	0.42
2006-07	2.95	2.61	20.92	12.65	4.05
2007-08	0.94	0.61	31.74	18.59	2.66

Table 1.3 reveals that the current ratio of the company is satisfactory except the year 2007-08 when it came down to 0.94.For the year 2003-04,current ratio of the company was 1.63.Thereafter it increased to 2.03 in the year 2004-05.This increase was mainly on account of increase in loans and advances which increased from Rs. 57.17 crores in 2003-04 to Rs. 86.18 crores in 2004-05.The current ratio further increased to 3.09 in the year 2005-06.Loans and advances again showed an increase of nearly Rs. 136 crores over the previous year. For the year 2006-07, current ratio of the company was 2.95 which came down to 0.94 in 2007-08.It was due to increase in current liabilities, loans and advances from Rs. 78.64 crores in 2006-07 to Rs. 241.37 crores in 2007-08.The quick ratio of the company has been above the standard ratio of 1:1 for the four years period from 2003-04 to 2006-07.In the year 2007-08 it came down to 0.61.

The profitability of the company has been showing an improvement over the years as both ROI and ROCE have been showing an increase over the previous years. The only exception was the year 2005-06 when ROCE decreased to 9.09 per cent over that of 10.57 per cent in the year 2004-05.ROI was 0.47 per cent in 2003-04 which increased to 1.87 per cent in 2004-05 and to 2.75 per cent in 2005-06.In 2006-07 and 2007-08, ROI showed a significant improvement when it rose to 20.92 per cent and 31.74 per cent respectively. The improvement in profitability was due to continuous increase in sales and significant decrease in manufacturing expenses in the later years. It can be seen from the table that increase in ROI has been much more significant than increase in ROCE over the years. It is due to the reason that shareholders' funds did not increase as much as net capital employed did but the net profits of the company increased significantly during the period under consideration.

The degree of operating leverage (DOL) of the company has remained from low to moderate over the years, whereas in the year 2006-07, it increased to 4.05 which was its highest level for the period under consideration.DOL was 1.37 in 2003-04 when EBIT increased by 12.31 per cent as a result of 9.02 per cent increase in sales of the company. In 2004-05, DOL increased to 2.29.In 2005-06, it decreased to 0.42 thereby indicating a low operating risk. In the next year i.e, in 2006-07, DOL increased to 4.05.During the year, the increase in EBIT was 47.46 per cent and sales increased by 11.73 per cent. In 2007-08, DOL came down to 2.66.

4.) The India Cements Limited: The India Cements Limited (ICL) was incorporated in 1946 at Chennai. All the factories and plants of the company are located in Andhra Pradesh. In the year 2000, the company entered into an agreement with Panyam Cement and Mineral Industries Ltd. for distribution and marketing of cement. The company has taken up various projects on hand for up gradation/expansion of its cement capacity and also to optimize energy consumption levels. The cement production for the financial year 2007-08 of the company was at 84.24 lakh tones, representing a capacity utilization of 99% as compared to 72.62 lakh tones in the previous year. For the year ended March 31, 2007 share capital of the company was Rs. 220.37 crores which comprised only of equity share capital.Net sales of the company during the same year were Rs. 2255.21.Table 4.1 shows performance indicators of The India Cements Limited.

Table 1.4 Performance indicators of The India cements Limited

Ratios / Years	Current Ratio	Quick Ratio	Return on investment (ROI) in %	Return on capital employed (ROCE) in %	Degree of operating leverage (DOL)
2003-04	2.13	1.64	-46.13	4.39	7.49
2004-05	3.34	2.53	-07.05	2.19	14.14
2005-06	2.88	2.16	0.35	5.04	9.18
2006-07	3.20	2.62	2.58	6.97	1.29
2007-08	3.51	2.97	21.68	16.67	4.74

Table 1.4 shows that the liquidity position of the company is satisfactory since current ratio of the company is above the standard current ratio of 2:1 for all the years under consideration,. Current ratio was 2.13 in 2003-04 which increased to 3.34 in 2004-05. This was due to the reason that current liabilities of the company fell from Rs. 707.26 crores in 2003-04 to Rs. 452.85 crores in 2004-05.Current ratio for the year 2005-06 was 2.88 which increased to 3.2 in 2006-07 and further increased to 3.51 for 2007-08.The main reason for increase in current ratio in 2007-08 was the increase in sales due to which cash and bank balance increased from 2.80 crores in 2006-07 to Rs. 216.15 crores in 2007-08.Quick ratio of the company has also been above the standard quick ratio for all the years under study. It increased

from 1.64 in 2003-04 to 2.53 in 2004-05.This increase was due to the increased in sundry debtors and decrease in current liabilities over the previous year. Quick ratio became 2.16 in 2005-06 which increased to 2.62 in 2006-07 and further up to 2.97 in 2007-08.

The return on investment (ROI) was -46.13 per cent in 2003-04 which shows that the profitability position of the company was very bad at that time. It was due to the reason that operating profit of the company was only Rs. 39.85 crores and it was not sufficient to provide for interest and depreciation charge.ROI became -07.05 per cent in 2004-05.In the year 2005-06, ROI was 0.35 per cent. Thereafter it became 2.58 per cent in 2006-07 but it showed good improvement in 2007-08 when it increased to 21.68 per cent. This can be due to increase in sales from Rs. 1829.44 crores in 2006-07 to Rs. 2610.75 crores in 2007-08 showing an increase of nearly 43 per cent. Return on capital employed (ROCE) is also increasing over the years. It went down to 2.19 per cent in 2004-05 from 4.39 per cent in 2003-04 but increased to 5.04 per cent in 2005-06.In the year 2006-07, ROCE became 6.97 per cent and in 2007-08 it increased to 16.67 per cent. Increase in ROI of the company has been very significant as compared to increase in ROCE because the profitability of the company increased significantly whereas the increase in shareholders' funds was lesser than the increase in net capital employed.

The company is having a very high degree of operating leverage (DOL) indicating that the level of operating risk is very high. Ideally, the ratio should be near to 1 but it has remained at high levels over the years. The year 2006-07 was an exception when DOL came down to 1.29.In 2003-04, it was 7.49 when decrease in sales by 15.75 per cent led to decrease in EBIT by 118.02 per cent. In 2004-05, DOL increased to 14.14.During this year, 19.41 per cent increase in sales led to 274.44 per cent increase in EBIT of the company. It was due to the reason that proportionate increase in total expenses was less than proportionate increase in sales which accounted for the increase in gross profit (GP) ratio of the company and also in EBIT. In 2005-06, DOL was 9.18 in 2006-07, it went further down to 1.29.During the year, sales increased by 32.66 per cent which increased the EBIT by 42.08 per cent. In 2007-08, DOL rose again and became 4.74.

5.) Madras Cement Ltd.: Madras Cement Ltd. (MCL) is the flagship company of the Ramco group. It was incorporated in 1957 and commenced production on its first cement plant in Tamil Nadu in 1961.The plant had a capacity of 200 tpd and operated on wet process technology.MCL has incurred considerable capital expenditure on modernization. In 1986,the company seized on the opportunity of putting up a plant at Jayantipuram, Andhra Pradesh, which was close to limestone reserves at Singareni Collieries. Its third cement plant went on stream at Alathiyur Tamil Nadu in 1997.The Company is establishing additional clinkering facility at Jayanthipuram by installing a 4000 tpd kiln. The clinkering process will be integrated with the existing production facilities,leading to an increase of cement manufacturing capacity by 2 million TPA. For the year ended March 31,2008, the company was having equity share capital of Rs. 12.08 crores and net sales of the company were Rs. 2567.37 crores.Table 5.1 shows the performance indicators of Madras Cements Ltd.

Table 1.5 Performance indicators of Madras Cements Ltd.

Ratios / Years	Current Ratio	Quick Ratio	Return on investment (ROI) in %	Return on capital employed (ROCE) in %	Degree of operating leverage (DOL)
2003-04	0.76	0.53	4.81	12.07	2.06
2004-05	0.70	0.55	11.41	15.02	1.27
2005-06	0.88	0.51	16.70	13.94	-1.44
2006-07	0.77	0.53	20.09	20.19	1.51
2007-08	0.99	0.78	46.22	46.11	4.01

Table 1.5 shows that the current ratio of the company for all the years under consideration is below the standard norm of 2:1. The current assets of the company are not sufficient enough to pay for the current liabilities of the company. It shows that the liquidity position of the company is not satisfactory. The current ratio decreased from 0.76 in 2003-04 to 0.7 in 2004-05.Current assets increased by 4.16% in 2004-05 over the previous year but current liabilities showed an increase of 12.26%.The current ratio of the company went up in 2005-06 and became 0.88.It was due to increase in inventories which increased to Rs. 131.13 crores in 2005-06 over those of Rs. 52.74 crores in 2004-05.Thereafter current ratio decreased to 0.77 in 2006-07 but it went up to 0.99 in 2007-08.Quick ratio also remained below the standard norm of 1:1 for all the years under consideration. Quick ratio was in the range of 0.5 to 0.55 for the years 2003-04 to 2006-07 but it increased to 0.78 in 2007-08.It was due to increase in the amount of sundry debtors and cash and bank balance during this period.

The company is having a good profitability position as both return on investment (ROI) and return on capital employed (ROCE) have been showing a consistent increase over the years.ROI was 4.81 per cent in 2003-04 which increased to Rs. 46.22 per cent in 2007-08.It was due to increase in sales revenue which increased from Rs. 750.68 crores in 2003-04 to Rs. 1803.54 crores in 2007-08 showing an increase of 140 per cent over the years. ROCE also increased from 15.02 per cent in 2004-05 to 46.11 per cent in 2007-08.Though ROCE decreased in 2005-06 to 13.94 per cent over that of 15.02 per cent in 2004-05 because of increase in sales being less than increase in expenses which led to decrease in operating profit to Rs. 150.35 crores in 2005-06 over that of Rs. 166.13 crores in 2004-05 but later, ROCE increased to 20.19 per cent in 2006-07 and further up to 46.11 per cent in 2007-08.

The degree of operating leverage (DOL) of the company has remained from low to moderate over the years except the year 2007-08 when it rose to 4.01.In 2003-04,DOL of the company was 2.06 indicating that 1 per cent change in sales could lead to 2.06 per cent change in EBIT of the company.In 2004-05, it decreased to 1.27 since increase in sales by 11.02 per cent led to increase in EBIT by 13.99 percent.In 2005-06,DOL came down and it became negative at -1.44.It was due to the reason that sales increased by 5.17 per cent but EBIT decreased by 7.46 per cent.The reason for decrease in EBIT was that total expenses increased proportionately more than increase in sales which led to decline in operating profit over the previous year resulting in decline in EBIT.In 2007-08,DOL increased further and became 4.01.In this year, sales increased by 56.06 per cent whereas EBIT increased by 224.97 per cent thereby increasing the DOL.

6.) Prism Cement Ltd. : Prism Cement Limited is the flagship company of Raheja group. The company was incorporated in 1992 under the name of Karan Cement Limited by Dr. B.V. Raju and his associates. The name of the company was subsequently changed to Prism Cement Limited in 1994.The company was started to cater mainly to north and central India. It started its south Indian operations in 2002.The Company increased its share of PPC production from 72 per cent during the year 2006-07 to 87 per cent during the year 2007-08.The continuous emphasis on efficient fund management coupled with the stable operations and growth in cement demand during the past couple of years has enabled the company to wipe out the balance accumulated losses of Rs. 44.90 crores and repay its entire outstanding debt of Rs. 107.93 crores during 2007-08.For the year 2007-08,sales of the company were Rs. 767.92 crores while the company had the share capital of Rs. 298.25 crores which comprised of equity capital only. Table 1.6 shows the performance indicators of the company.

Table 1.6 Performance indicators of Prism Cement Ltd.

Ratios / Years	Current Ratio	Quick Ratio	Return on investment (ROI) in %	Return on capital employed (ROCE) in %	Degree of operating leverage (DOL)
2003-04	1.41	0.31	-18.21	7.14	2.49
2004-05	1.33	0.31	-3.59	12.00	7.62
2005-06	1.23	0.29	13.49	22.71	2.66
2006-07	1.01	0.32	24.50	57.63	1.91
2007-08	0.60	0.24	46.87	115.95	4.58

Table 1.6 reveals that the company is not having a good short term liquidity position as current ratio of the company is below the standard norm of 2:1 for all the years under consideration. It shows that current assets are not sufficient to pay for the current liabilities. Current ratio is consistently declining over the years. In 2003-04,current ratio was 1.41 which went down to 1.33 in 2004-05.The decrease was due to a decrease in the amount of sundry debtors and loans and advances over the previous year. In 2005-06, the current ratio went further down to 1.23 while in 2006-07 it became 1.01.The decline shows that current liabilities increased more than current assets. The current ratio of the company was the least in 2007-08 when it came down to 0.6.The reason for decrease was a significant decrease in the amount of loans and advances which came down to Rs. 45.85 crores over those of Rs. 119.31 crores in 2006-07.The liquidity position of the company as reflected by the current ratio, is not satisfactory. Like

current ratio, quick ratio of the company has also been below the standard quick ratio of 1:1.During the years under consideration, quick ratio has been in the range of 0.24 to 0.32.Quick ratio in 2004-05 was the same as that of 2003-04 which stood at 0.31.In the year 2005-06 it declined to 0.29 as a result of decrease in sundry debtors and cash and bank balance. In 2006-07, it increased to 0.32 because of increase in the amount of sundry debtors to Rs. 14.55 crores over that of Rs. 12.89 crores during previous year and increase in cash and bank balance to Rs. 16.80 crores over that of Rs. 7.03 crores in 2005-06.In 2007-08,quick ratio declined to 0.24.

Like other companies under study, profitability position of the company has been showing improvement over the years. Though ROI was negative in 2003-04 and 2004-05 but later it increased to 13.49 per cent in 2005-06 and further to 46.87 per cent in 2007-08.Smilarly,ROCE also increased from 7.14 per cent in 2003-04 to 115.95 per cent in 2007-08.The significant increase in profitability has been possible because of a consistent increase in sales revenue of the company which went up from Rs. 325.72 crores in 2003-04 to Rs. 767.92 crores in 2007-08.Though it led to increase in expense also but proportionate increase in sales was higher than the proportionate increase in expenses which led to significant increase in the company's profitability.

The company is maintaining a moderate to high degree of operating leverage (DOL) over the years thereby having a moderate to high level of operating risk.DOL was 2.49 in 2003-04 when EBIT decreased by 19.55 per cent as a result of decrease in sales by 7.84 per cent.DOL became 7.62 in 2004-05 but came down to 2.66 in 2005-06.During the year 2005-06 percentage change in EBIT was 41.87 while it was 130.23 in the year 2004-05 but percentage change in sales was 15.75 in 2005-06 as compared to 17.08 in 2004-05.Therefore, it accounted for the decrease in the degree of operating leverage. For the year 2006-07,DOL was 1.91 but it increased to 4.58 in 2007-08 due to percentage change in EBIT being 155.98 which was much higher than percentage change in sales which stood at 34.09.

7.) Shree Cements Ltd.: Shree Cements Ltd. was promoted by the Bangur Group in 1979.Headquatered in Kolkata; the company presently has plants located at Bewar and Ras in Rajasthan. Shree Cements Ltd. serves prime markets in North India. The company's multi-brand portfolio consists of both Ordinary Portland Cement (OPC),and Portland Pozzolana Cement (PPC).OPC and PPC offers like Shree Ultra Ordinary Portland Cement, Shree Ultra Jung Rodhak, Bangur Cement and the newly introduced Tuff Cemento 3556.Impressive turnover growth has followed the company's capacity buildup. The capacity utilization was more in 2007-08 than 2006-07.Increase in research and development expenditure has led to significant increase in company's profitability and revenues. The company made very huge transfers to reserves in the year 2007-08 which led to increase in the revenues and profitability of the cement industry as a whole and same was true for Shree Cements also. Shree Cements Ltd. is India's second fastest mid-sized growing company. At the end of the financial year 2007-08, the company had sales of Rs. 1403.04 crores whereas the share capital of the company was Rs. 34.84 crores comprising equity capital only.Table 7.1 shows performance indicators of Shree Cements Ltd.

Table 1.7 Performance indicators of Shree Cements Ltd.

Ratios / Years	Current Ratio	Quick Ratio	Return on investment (ROI) in %	Return on capital employed (ROCE) in %	Degree of operating leverage (DOL)
2003-04	1.23	0.70	1.97	7.32	-1.72
2004-05	1.42	0.93	3.83	9.60	18.89
2005-06	1.01	0.52	8.24	10.30	-0.75
2006-07	0.88	0.42	5.24	7.16	0.82
2007-08	2.30	1.82	35.13	18.11	2.02

Table 1.7 shows that the current ratio of the company has been less for all the years under consideration except the year 2007-08 when it was 2.3.The liquidity position of the company is not satisfactory for all the years except the year2007-08.Current ratio was 1.23 in 2003-04 which rose to 1.42 in 2004-05 as a result of increase in loans and advances which became Rs. 75.64 crores in 2004-05 over those of Rs. 42.46 crores in 2003-04.In 2005-06, current ratio declined to 1.01 due to a significant decrease in the amount of loans and advances. .Quick ratio of the company has also been low for most of the period. It was more than the standard ratio of 1:1 only once during the period under study. Quick ratio increased to 0.93 in 2004-05 from 0.7 in 2003-04 but in 2005-06 it went down to 0.52.Thereafter in 2006-07 also it went further down to 0.42 but in 2006-07 it increased to 1.82 as a result of significant increase in quick assets.

The company is having a good profitability position in the later years of the period under study. The profitability has been showing a consistent increase over the years. Return on investment (ROI) was 1.97 per cent in 2003-04 but it increased to 35.13 per cent in 2007-08.Similarly return on capital employed (ROCE) also increased from 7.32 per cent in 2003-04 to 18.11 per cent in 2007-08.Increase in profitability was due to increase in sales of the company which increased significantly from Rs. 582.43 crores in 2003-04 to Rs. 1613.14 crores in 2007-08 showing an increase of 176.97 per cent over the years. The degree of operating leverage (DOL) of the company has been very inconsistent over the period.DOL was -1.72 in 2003-04 because sales increased by 8.9 per cent but EBIT declined by 15.31 per cent. In 2004-05,DOL went very high when it became 18.89 indicating a very high level of operating risk. It showed that 1 per cent decline in sales could lead to 18.89 per cent decline in EBIT. During 2004-05, sales increased by 2.07 per cent whereas EBIT increased by 39.12 per cent. It was due to the reason that power and fuel cost went down significantly from Rs. 119.40 crores in 2003-04 to Rs. 89.78 crores in 2004-05.It led to decrease in total expenses which increased the EBIT.DOL rose in 2006-07 and became 0.82.In 2007-08,it went further up to 2.02.During the year, sales increased by 101.93 per cent whereas EBIT increased by 205.76 per cent.

II. (a)Relationship Between Liquidity and Profitability (Company wise): Company wise relationship between liquidity and profitability was determined by calculating the correlation between current ratio and return on investment (ROI) and between quick ratio and return on investment (ROI).Thereafter,t-test was applied to check the significance of the correlation coefficient at 5% level of significance and 3 degrees of freedom with the null hypothesis being that there is no significant correlation between respective variables i.e., the variables are uncorrelated in the population.

Correlation Analysis: Correlation Analysis is a statistical tool used to describe the degree to which one variable is related to another. The co-efficient of correlation ® measures the degree of relationship between two series. Following is the formula to calculate coefficient of correlation:

r = N ∑XY –(∑X) (∑Y)/√N∑X2 – (∑X)2][N ∑Y2 – (∑Y)2

Where N= Number of variables

X = Liquidity variable or operating risk variable

Y = Profitability variable

Sign of r indicates the direction of the relationship between variables. The value of r ranges from -1 to +1. If r=-1, there is inverse relationship between the variables and if r = + 1, there is a direct relationship between variables.

Testing the significance of correlation coefficient:

To test the hypothesis that the correlation coefficient of the population is zero.i.e, the variables in the population are uncorrelated, the following test was applied:

T =(r/√1-r2) .√n-2

Here t is based on (n-2) degrees of freedom. If the calculated value of t exceeds t0.05 for (n-2) degrees of freedom, the value of r is said to be significant at 5% level of significance. If t< t0.05, the data are consistent with the hypothesis of an uncorrelated population (Gupta,2005).

Table 2.1 shows Coefficients of Correlation between current ratio and return on investment (ROI) and between quick ratio and return on investment (ROI)

S. No.	Name of Company	Correlation Between Current Ratio and Return on Investment(ROI)	Correlation Between Quick ratio and Return on Investment (ROI)
1.	Birla corporation ltd.	-0.74*	0.93*
2.	Dalmia Cement	-0.96*	0.33

	(bharat) ltd.		
3.	Binani cement ltd.	-0.36	-0.24
4.	The India cements ltd.	-0.91*	0.92*
5.	Madras cement Ltd.	-0.85*	0.91*
6.	Prism Cement Ltd.	-0.96*	-0.71*
7.	Shree Cement Ltd.	0.88*	0.89*

*Significant at 5% level of significance.

(b) Relationship between profitability and risk (Company wise) : Company wise relationship between profitability and operating risk was determined by calculating the correlation between return on capital employed (ROCE) and degree of operating leverage (DOL) of the selected companies. Thereafter, t-test was applied to check the significance of the correlation coefficient at 5% level of significance and 3 degrees of freedom with the null hypothesis being that there is no significant correlation between DOL and ROCE. Following table shows the coefficients of correlation between DOL and ROCE of selected companies.

Table2.2 shows Coefficients of correlation between degree of operating leverage (DOL) and return on capital employed (ROCE)

S.No.	Name of Company	Correlation btw (DOL) and (ROCE)
1	Birla corporation Ltd.	-0.71*
2	Dalmia corporation (bharat)	0.44
3	Binani cement ltd.	0.52*
4	The Indian cement ltd.	-0.57*
5	Madras cement ltd.	0.73*
6	Prism cement ltd.	-0.05
7	Shree cement ltd.	0.008

* Significant at 5% level of significance

(III)Relationship between Liquidity and Profitability (Overall):

Chi square test: Chi square test has been applied to check the relationship between liquidity and profitability and between profitability and operating risk on overall basis. To study the relationship between current ratio and return on investment and between quick ratio and return on investment, all 35 values of respective variables for all the companies and for all the years were first arranged in ascending order and thereafter median value was found. After finding the median value all 35 values were assigned 'high' or 'low' indicators by comparing them with the median value. Thereafter, a table was prepared showing association between the variables to study the relationship between respective variables. Chi square test was applied on that table with the null hypothesis being that there is no significant relationship between respective variables. Alternate hypothesis was that there is significant relationship between the variables. Following formula was used for calculating Chi square:

$$\text{Chi square} = \sum_{i=1}^{n}[(O_i-E_i)2 / E_i]$$

With (r-1) (c-1)= degrees of freedom

Where Oi = Observed frequency

Ei= Expected frequency

r=number of rows

c= number of columns

Chi square test has been applied to study the overall relationship between liquidity and profitability. Association of both of the liquidity measures with ROI have been tested separately.

Following table shows the association between current ratio and ROI:

Table 3 (a) shows Association between current ratio and ROI

ROI / Current Ratio	HIGH	LOW	TOTAL
High	6	13	19
Low	12	4	16
Total	18	17	35

The calculated value of chi square for above table has been found to be 6.55 which is more than the table value of 3.84 at 5% level of significance. It has led to the rejection of null hypothesis and it has been considered that there is significant relationship between current ratio and ROI on overall basis. Following table shows the association between quick ratio and ROI:

Table3 (b) Association between quick ratio and ROI

ROI / Quick Ratio	HIGH	LOW	TOTAL
High	9	10	19
Low	9	7	16
Total	18	17	35

The calculated value of chi square for table 3(b) has been found to be 0.266 which was less than its table value of 3.84 at 5% level of significance. Therefore, null hypothesis has been accepted and it has been concluded that there is no significant relationship between quick ratio and ROI on overall basis. It can be seen from the table 3(b) that ROI and quick ratio have not been following a consistent co-movement which led to the conclusion that the relationship between the two variables is not significant.

Relationship between Profitability and Risk (Overall) : To study the overall relationship between profitability and operating and operating risk, following table shows, the association between return on capital employed (ROCE) and degree of operating leverage (DOL):

Table3 (c) Association between ROCE and DOL

ROCE / DOL	HIGH	LOW	TOTAL
High	13	6	19
Low	8	8	16

Total	21	14	35

The calculated value of chi square for the table 3(c) has been found to be 1.22 which is less than its table value of 3.84 at 5% level of significance. Therefore, null hypothesis has been accepted and it has been concluded that overall there is no significant relationship between profitability and risk.

The correlation between current ratio and return on investment was found to be significant in case of six out of seven companies under consideration. The correlation between the two variables was found to be non significant for Binani Cement Ltd. which showed a correlation of – 0.36 between current ratio and return on investment whereas it was found to be significant in other five companies. Dalmia Cement Ltd. and Binani Cement Ltd. were having a non significant correlation between quick ratio and return on investment. The correlation between return on capital employed and degree of operating risk was the highest for Madras Cements Ltd. which was having a correlation of 0.73 between profitability and risk whereas Prism Cement Ltd. was having correlation of -0.05 between operating risk and profitability.

The overall relationship between current ratio and return on investment was found to be significant at 5% level of significance. It has led to the conclusion that there is a consistent co-movement between current ratio and return on investment .The relationship between return on capital employed and degree of operating leverage was also found to be non significant on overall basis.

CONCLUSION

The boom in the infrastructure sector in the last few years has accounted for a significant increase in the profits of cement companies. The profitability position of all the companies has been showing improvement over the previous years. It has been possible due to a considerable increase in sales revenues of all the companies over the period under consideration. Of all the companies under considerations, liquidity position of The India Cements Ltd. was the best since both of the liquidity ratios used were above their respective standards. Current ratio and quick ratio of Madras Cements Ltd. were below their standard levels for all the years under consideration. Degree of operating leverage (DOL) was high in case of Birla Corporation Ltd. and The India Cements Ltd. thereby indicating a high level of operating risk with these companies. Binani Cement Ltd. was having a moderate amount of operating risk.

The correlation between liquidity and profitability was the highest in case of The India Cements Ltd. which was having a high degree of positive correlation between current ratio and ROI as well as quick ratio and ROI and the values of correlation in both cases were found to be significant at 5% level of significance. It showed that liquidity is positively affecting the profitability of the company. The correlation between current ratio and ROI and between quick ratio and ROI was the lowest in case of Binani Cement Ltd. as both of the correlation coefficients were showing negative correlation between liquidity and profitability. Also, both the correlation coefficients were found to be non significant at 5% level of significance.

The correlation between profitability and risk was found to be highest in case of Madras Cements Ltd. which was having a correlation of 0.73 between DOL and ROCE. The value of correlation coefficient was found to be significant at 5% level of significance which showed that increase in operating risk is leading to increase in the company's profitability. The value of correlation coefficient was the lowest in case of Prism Cement Ltd. which was having a correlation of -0.05 between DOL and ROCE and value of correlation was found to be non significant at 5% level of significance. It led to the conclusion that operating risk and profitability were uncorrelated in case of Prism Cement Ltd.

The overall relationship between current ratio and ROI was found to be significant at 5% level of significance whereas it was found that the overall relationship between quick ratio and ROI was not significant at 5% level of significance. It has been observed from study that some companies like Birla Corporation Ltd. and Dalmia Cement (Bharat) Ltd. are having negative correlation between current ratio and ROI but positive correlation between quick ratio and ROI which shows that non quick assets are adversely affecting the profitability of these companies. It is, therefore suggested that these companies should manage their inventories effectively.

The liquidity ratios of some companies like Madras Cements Ltd. are very low. This can endanger the short term solvency of the company. The company should take the required measures to improve its liquidity position and to maintain a stable liquidity position. The level of operating risk is very high in case of Birla Corporation Ltd. and India Cements Ltd.. This need to be checked as a high degree of operating leverage is good when revenues are rising but at the times when revenue is falling, high degree of operating leverage can adversely affect the profitability of the company.

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