

## Working Capital Management Trend in Indian Cement Companies: A Case Study

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**Abstract:** Working capital management is as important in cement industry as it is in all other manufacturing industry. Efficient working capital management implies balanced trade-off between liquidity and profitability. Analysis of efficiency of short-term fund management helps to take corrective measure in case any deficiency is found in the system. The paper attempts to present an analysis of the relation between the different working capital ratios and profitability ratios in order to anticipate the present working capital condition in the industry.

**Keywords:** Cement industry, correlation, manufacturing industry, profitability ratios, working capital management.

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### I. INTRODUCTION

Working capital management is a part of financial management and its proper use is essential for any organisation's survival, specially, manufacturing organisation, where, significant portion of funds are invested in raw materials and work-in-progress and finished goods waiting for being converted into cash. Cement industry sector holds an important share in the manufacturing sector. Production in India increased to 282.79 million metric ton from 2007 to 2016 at a CAGR of 6.44%. During the global economic recession, the sector experienced growth at 7.9% in 2008-09 and 12.7% in 2009-10, as stated by Chandrabai, et. al, [1]. According to IBEF,[2], present cement production capacity of India is 390 mmt, per annum. The target is to reach 407 mmt by 2017. At present it accounts for 6.7% of world's cement output. India ranks second in the world in yearly cement production. It produced 280 mmt in 2014, next to China (producing 2500 mmt in 2014). Private sector plays the major role in the sector. Out of the total capacity, private sector holds 98% and top 20 companies produce around 70% of the total production, as noted by IBEF,[2]. There are so many research papers on working capital management efficiency in India. But, no study is yet found after 2014. This paper attempts to present a case study of a cement manufacturing company regarding its working capital management in the recent period encompassing the critical phase of demonetization. With this purpose, the paper analyses the case of the company selected for the study; in the third part, the paper presents a brief literature review to light on the work done relevant to the study; in the fourth part, it presents the analysis of the company's data; in the fifth and last part the paper concludes with the significant findings

#### 2. 1. Short profile of Ambuja

According to IBEF, [2], there are 188 large cement plants in India. 97% of the installed capacity is assumed by them. 365 small plants hold the rest. 83 of the total large 188 plants are located in four main cement producing states- Andhra Pradesh, Rajasthan and Tamil Nadu and Gujarat. Ambuja is located in Gujarat. Ambuja Cement Ltd is a part of the global conglomerate LafargeHolcim and one of the leading cement companies in India. It has a cement manufacturing capacity of 29.65 million tonnes over 5 integrated cement manufacturing plants across the country, according to Ambuja Cement,[3]. It is one of the largest producers of cement in India. Ambuja Cements Limited is the third largest cement manufacturing company in India in terms of market capitalization (Rs. 37105.87 Crores, 10<sup>th</sup> July, 2015), next to Ultratech Cement and Shree Cement, as summarized in Business Maps of India,[4].

#### 2.2. Prospect of the Industry in India:

The cement industry in India has great financial expectations. India is second largest in the world in cement production. It has a turnover around 30 thousand crores and the second largest contributor to the exchequer in the country. A growth of 6-7 percent in demand for cement is expected in 2017-18 owing to Government's focus on infrastructure development, the key factor of cement demand, as mentioned in The Economic Times, [5]. This projected trend in demand growth is more than the current and the expected GDP

growth rate. GDP growth in the first quarter of 2017-18 was lower than 6.1% of the preceding one and 7.9% in the same period last fiscal, as mentioned in The Economic Times, [6].

**2.3. Ambuja specific to indicate to the existence of problems**

TABLE 1 shows the calculation of growth in profit. Comparing profit with sales growth facilitates judging the financial management efficiency. It shows significant fluctuations in the increase in profit over the previous year, though the figure of Dec-2016 includes accounts for 18 months.

**Table 1: Growth of Profit**

Year	Profit/Loss for the period	Growth (%)
Jun-04	336.79	
Jun-05	468.29	39.05
Dec-06	1,503.25	221.01
Dec-07	1,769.10	17.69
Dec-08	1,402.27	-20.74
Dec-09	1,218.37	-13.11
Dec-10	1,263.61	3.71
Dec-11	1,228.86	-2.75
Dec-12	1,297.06	5.55
Dec-13	1,294.57	-0.19
Dec-14	1,496.36	15.59
Dec-15	807.56	-46.03
Dec-16	970.09	20.13

Source: Annual Report of Ambuja Cement

Current Assets to Long Term Funds or Capital Employed ratio indicate the extent of long-term funds being used for financing current assets. Lower the ratio, greater is the solvency and lesser dependence over the outsiders` funds. High ratio indicates less margin of safety to the creditors. For the Current Assets to Fixed Assets ratio, higher ratio is the signal of overtrading. Low ratio indicates less efficiency in managing and fully utilising current assets. The second column of TABLE 2 indicates acute under trading in some years and some years they are closer to the ideal ratio. In the third column we see, from 2011 to 2015, company`s utilisation of more long-term funds for working capital has increased significantly.

**Table 2: Comparative Ratios over the years**

Year	CA/FA	CA to Long term Funds or Capital Employed
	(Ideal is 1:1)	
Dec-16	0.21	0.21
Dec 15	0.86	0.60
Dec-14	0.76	0.58
Dec-13	0.75	0.55
Dec-12	0.74	0.56
Dec-11	0.59	0.49
Dec-10	0.43	0.39
Dec-09	0.29	0.28
Dec-08	0.42	0.37
Dec-07	0.32	0.29
Dec 06	0.28	0.25
Jun-05	0.17	0.16
Jun-04	0.14	0.14

Source: Annual Report of Ambuja Cement

So, there are deficiencies in the management of the short-term funds in the company. The study attempts to find out the causes of the same.

**II. LITERATURE REVIEW**

Indian literatures relevant to this paper, studied to find out the research gap and to have idea of the past work in the field, are presented below. Venkata Janardan, et. al,[1], examined the inventory, cash balance and debtors` management and relationship between working capital efficiency and profitability, profitability and market ratios of ACC, a reputed Indian cement manufacturing company for a period of 5 years from 2004-05 to

2009-2010. They found that the working capital was managed in the company satisfactorily with good liquidity position owing to standard stock turnover ratios and high debtor's turnover ratio. As a result, the company had satisfactory business growth reflected by increasing market prices of shares every year.

Sureshchandra Kantilal Trivedi, [7], studied 6 big cement companies of Gujarat for the period from 2000-01 to 2008-09. The working capital management and efficiencies and its current assets and liabilities components was analysed and commented on the trend of the components of working capital on the basis of ratios calculated for those six companies. Ashok Kumar Panigrahi, [8], studied the inventory management practices and its impact on working capital efficiency in Indian cement companies. Top Indian companies data from 2001 to 2010 were used. Research findings indicated normal inverse relationship between inventory conversion period and firms' profitability. He also found Gross Operating Profit to have negative relationship with financial debt ratio. The relationship between the firm size and GOP was positive and that between GOP and CA was negative.

Sanjay J Bhayani's, [9], study covered all Indian cement companies that are listed for the period from 2001 to 2008. Liquidity, age of the firm, interest rate, operating profit ratio and inflation rate were found to be the determinant of profitability of the Indian cement companies. Ashok Kumar Panigrahi, [10], selected five cement companies, listed in BSE, for the study from the period of 2000-01 to 2009-10. He found that companies generated good profit with negative working capital and also that companies with positive working capital were not able to generate good profit.

Santosh Agarwal, [11], studied Grasim and Ultratech cement companies of Chhattisgarh state for 5 years from 1999-00 to 2003-04. The author noticed reduction of capital structure, raw material, finished goods and falling trend of debtors from 00-01 to 03-04; working capital was reduced by about 60% in the year 99-00. He commented on the trends of different working capital ratios. Mukti Barot, [12], studies a cement company from 2005 to 2014. Ratios of components of working capital were computed and comments on the trend of increase or decrease in those performance indicators were made. R. Swaminathan, et.al, [13], examined 7 Indian cement companies comparatively for the period of 10 years from 2001-02 to 2010-11. He used three regression models for analysis. The study suggested for improvement in inventory management. K. Bhagyalakshmi, et.al, [14], examined financing policy working capital in 6 cement companies for 5 years from 2008-09 to 2012-13 and commented that trade payables, other current liabilities and short-term provisions were short sources for financing working capital. Venkata Ramana, et.al, [15], studied 4 cement companies from 2001 to 2010 on effect of receivable management on profitability and working capital. The study revealed significant of receivables management on working capital and profitability. Mohan Kumar, et.al, [16], studied three Indian large cement companies from 2005 to 2010 and indicated positive relationship between negative working capital and profitability and noticed positive in EPS and Equity dividend rate. It is seen that no literature is available regarding study of the companies' working capital management after the year 2014. But, it could be interesting to watch the trend in it till the previous year 2016, the year of recent demonetisation. So, the present study attempts to reflect the change in the current trends with a case study of a cement producing company. To construct the base of the research work, company's balance sheet was analysed and several fluctuations were noticed through the ratio analysis. To find out the causes of this, the present study was undertaken.

### **III. OBJECTIVES OF THE STUDY**

3.1 The present study was made with the following objectives in view:

1. To evaluate the working capital efficiency for the period from 2004 to 2016,
2. To analyse the relationship between different component ratios of working capital ratios and profitability ratios,
3. To find out the relationship between working capital efficiency and profitability,
4. To examine relationship between profitability and Market ratios.

### **IV. METHODOLOGY**

Extensive review of theories of working capital management and survey of the related research studies was made to set the base of the research work. For pursuing the objective of the study the horizontal analysis of the balance sheets over the years of Ambuja Cement (listed in Nifty Fifty NSE index) was carried out. The secondary data were collected from company's website and moneycontrol.com for thirteen years and statistical analysis was done in Excel.

**V. DATA ANALYSIS**

The following ratios were calculated and their abbreviations were used to calculate the relationships between the four propositions: Current Ratio (CR), Quick Ratio (QR), Gross Profit Margin (GPM), Net Operating Profit Margin (NOPM), Return on Total Assets (ROTA), Return on Equity (ROE), Earning Per Share (EPS), Dividend Yield (DY), Market to Book Ratio (M/B), Pay-out Ratio (PR), Dividend Per Share (DPS), Sales to Total Assets (S/TA), Sales to Fixed Assets (S/FA), Inventory Turnover Ratio (ITR), Average Collection Period (ACP), Price Earnings Ratio (PER). company's website and www.money control.

**Table 1** Correlation between Working Capital Efficiency and Profitability

	CR	QR	GPM	NOPM	ROTA	ROE
CR	1	0.79	0.51	-0.23	-0.02	-0.07
QR		1.00	0.67	-0.29	-0.28	-0.31
GPM			1.00	-0.49	-0.28	-0.44
NOPM				1.00	0.70	0.89
ROTA					1.00	0.91
ROE						1

Source: Annual reports of the company downloaded from

CR and QR are found to be negatively related with NOPM, ROTA, and ROE, but, positively related with GPM in the TABLE 1. There is significant correlation between ROTA & ROE and NOPM & ROE. The relationship of CR and QR with GPM is not statistically significant.

**Table 2** Correlation between Market ratio and Profitability

	GPM	NOPM	ROTA	ROE	EPS	DY	M/B	PR	DPS
GPM	1	-0.49	-0.28	-0.44	-0.27	-0.48	-0.14	0.71	0.06
NOPM		1.00	0.70	0.89	0.26	0.70	0.36	-0.86	-0.19
ROTA			1.00	0.91	0.17	0.33	0.77	-0.51	-0.10
				1.00	0.31	0.60	0.66	-0.72	-0.07
EPS					1.00	0.41	0.08	-0.25	0.87
DY						1.00	-0.09	-0.79	0.02
M/B							1.00	-0.06	0.05
PR								1.00	0.24
DPS									1.00

Source: Annual reports of the company downloaded from company's website and www. money control.

TABLE 2 shows GPM has positive relation with PR but negatively related with other market ratios. NOPM has negative relation with PR and DPS. Relationship between profitability ratios and market ratios are not statistically significant.

**Table 3:** Correlation between efficiency ratio and profitability ratio

	GPM	NOPM	ROTA	ROE	S/TA	S/FA	ITR	ACP
GPM	1	-0.49	-0.28	-0.44	-0.14	0.51	-0.57	0.40
NOPM		1.00	0.70	0.89	0.74	0.27	0.70	-0.43
ROTA			1.00	0.91	0.75	0.57	0.78	-0.41
ROE				1.00	0.79	0.38	0.77	-0.55
S/TA					1.00	0.60	0.69	-0.65
S/FA						1.00	0.28	0.04
ITR							1.00	-0.43
ACP								1

Source: Annual reports of the company downloaded from company's website and www.money control.

TABLE 3 shows that NOPM, ROTA, and ROE have high positive relationship to S/TA. NOPM, ROTA, and ROE have high positive relationship with ITR. ACP is negatively related with all the profitability ratios except GPM. But, these relationships are not statistically significant company's website and www.money control.

**Table 4:** Correlation between liquidity and market ratio

	QR	CR	EPS	PER	DY	M/B	PR	DPS
QR	1	0.79	-0.27	0.21	-0.19	-0.11	0.45	-0.04
CR		1.00	-0.27	0.13	-0.01	0.15	0.41	-0.07
EPS			1.00	-0.44	0.41	0.08	-0.25	0.87
PER				1.00	-0.89	-0.15	0.88	-0.03

DY					1.00	-0.09	-0.79	0.02
M/B						1.00	-0.06	0.05
PR							1.00	0.24
DPS								1

Source: Annual reports of the company downloaded from

Table 4 shows that QR has positive relationship with PER and PR, but negative relationship with all other market ratios. CR is positively related to PER, M/B and PR. But these relationships are not statistically significant.

## VI. FINDINGS

1. Company has balanced its liquidity position efficiently since 2011 up to 2015 with slightly fall in efficiency in 2016. But, it maintained its capabilities to meet its immediate liabilities well since 2010 and in 2016 also. Its taking risk in liquidity is disclosed in its CR and GPM positive relationship.
2. Negative correlation coefficient between GPM and NOPM denotes instability in items charged against gross profit over the years. NOPM has positive impact on all market ratios, such as, EPS, DY and M/B; but negative relation on PR and DPS-implies good profit has not always resulted into good dividend declaration.
3. The higher the efficiency, the more is the profitability. Hence, S/TA, S/FA and ITR have naturally the positive relationship with all the profitability ratios, except GPM. Low ACP means tight credit policy and less investment in debtors implying an effect on gross sale; hence, it normally has negative relation with the profitability ratios, such as, NOPM, ROTA, and ROE. In spite of that ACP has a positive, though small, relation with GPM. This implies, the company maintained good customers' relation throughout.
4. Company maintained good liquidity position all throughout. Both CR and QR have positive relation with Price-Earnings Ratio (PER). This implies companies' healthy liquidity position has reflected on its reputation to increase the market price of its shares.

## VII. CONCLUSION

Firstly, the causes of negative correlation coefficient of CR and QR with ROTA and ROE are fluctuating financial cost, so far as ROE is concerned, and underutilisation of non-current assets. Beside this, yearly fluctuation in depreciation/amortisation amount has caused negative relation between (CR,QR) and NOPM. Secondly, GPM has not positively reflected on EPS, DY owing to fluctuating net operating profit caused by fluctuation in depreciation/amortisation. Negative relation between NOPM and (PR, DPS) reflects retained earnings and fluctuating tax deductions. Thirdly, the correlation coefficient between NOPM and S/TA is 0.74, which is only 0.27 with S/FA. This implies portion of current assets in total asset is high. And the company utilises its current assets well and is efficient in working capital management. Strict credit policy have effect on the company's profitability which is reflected by negative relationship of ACP with the efficiency ratios. Lastly, the company has well balanced and efficiently managed liquidity position. These are reflected on the positive relation of the liquidity ratios-CR, QR with the market ratios PER and PR.

## REFERENCES

- [1]. T. Chandrabai, K. Venkata Janardan Rao, Working Capital Management in Cement Company: A study, ISSN:2330-9519, 2011,IJMB, Vol. 1, Issue 3, September 2011. [Online] Available from <http://www.ijmbs.com/13/tchandra.pdf> [Accessed: 17th Sept. 2017]
- [2]. IBEF, Indian Cement Industry Analysis, 2017, [Online] Available from <https://www.ibef.org/industry/cement-presentation> [Accessed: 17th September, 2-17]
- [3]. Ambuja Cement, Ambuja Cement at a glance, (n.d.), [Online] Available from <http://www.ambujacement.com/about-ambuja/ambuja-at-a-glance> [Accessed: 1st Sept., 2017]
- [4]. Business Maps of India. (n.d.). Top cement companies in India. [Online] Available from <https://business.mapsofindia.com/cement/top-10-cement-companies.html> [Accessed: 31st August, 2017]
- [5]. The Economic Times, Cement industry to grow at 7 per cent in FY17: Heidelberg Cement India, 2017, [Online] Available from <http://economictimes.indiatimes.com/industry/indl-goods/svs/cement/cement-industry-to-grow-at-about-7-per-cent-in-fy17-heidelberg-cement-india/articleshow/58998845.cms> [Accessed: 28th August, 2017]
- [6]. The Economic Times, GDP growth at 5% under old series; analyst cut FY18 estimates, 2017, [Online] Available from <http://economictimes.indiatimes.com/news/economy/policy/gdp-growth-at-5-under-old-series-analysts-cut-fy18-estimates/articleshow/60325432.cms> [Accessed: 15th August, 2017]
- [7]. S. K. Trivedi, An appraisal of working capital management in cement industry of gujrat state. n.d., [Online] Available from <http://shodhganga.inflibnet.ac.in/handle/10603/4864> [Accessed : 18th Sept. 2017]
- [8]. A. K. Panigrahi, Relationship between inventory management and Profitability: an empirical analysis of Indian cement Companies Asia Pacific Journal of Marketing & Management Review-ISSN 2319-2836 Vol.2 (7), 2013, [Online] Available from [https://s3.amazonaws.com/academia.edu.documents/40817503/impact\\_of\\_inventory\\_management3.pdf?AWSAccessKeyId=AKIAI](https://s3.amazonaws.com/academia.edu.documents/40817503/impact_of_inventory_management3.pdf?AWSAccessKeyId=AKIAI)

- WOWYYGZ2Y53UL3A&Expires=1505150674&Signature=4u%2BWn21%2FhRwHM%2FrN2Sa9EK8%2FTDc%3D&response-content-disposition=inline%3B%20filename%3DImpact\_of\_inventory\_management3.pdf [Accessed: 18<sup>th</sup> Sept. 2017]
- [9]. S. J. Bhayani, Determinant of Profitability in Indian Cement Industry: An Economic Analysis. n.d., [Online] Available from <https://search.proquest.com/openview/b0251c43b3349f370d276b97b186686d/1?pq-origsite=gscholar&cbl=46967> [Accessed: 12<sup>th</sup> August, 2017]
- [10]. A. K. Panigrahi, Negative working capital and profitability: an empirical analysis of Indian cement Companies. International journal of research in commerce & management. Volume No. 4, Issue No. 06 (June), 2013, [Online] Available from <http://ijrcm.org.in/> [Accessed: 18<sup>th</sup> Sept. 2017]
- [11]. S. Agarwal, Working Capital management of cement plants in Chhattisgarh state, 2014, [Online] Available from <http://shodhganga.inflibnet.ac.in/handle/10603/31453> [Accessed: 17<sup>th</sup> Sept. 2017]
- [12]. M. Barot, Working capital management of Ambuja cement company. Journal of Commerce and Management. ISSN: 2279-225X, Continuous issue-15, 2015, [Online] Available from - [http://kcjournal.org/kcg/wp-content/uploads/commerce/issue15/Issue15\\_MuktiBarot](http://kcjournal.org/kcg/wp-content/uploads/commerce/issue15/Issue15_MuktiBarot) [Accessed: 19<sup>th</sup> Sept, 2017]
- [13]. R. Swaminathan, N. Rajesh, M. K. Jasim, Working Capital Management of Selected Cement Companies in India. International Journal Of Management And Development Studies 17 . Volume No. 2 , Issue No. 4 (April) Issn (Online): 2320-0685, 2013, [Online] Available from <http://ijmids.in/journalfile/Rswaminathan-716958.pdf> [Accessed: 20<sup>th</sup> Sept. 2017]
- [14]. K. Bhagyalakshmi, P. K. Chary, Financing of working capital in select cement companies- a policy perspective, n.d., [Online] Available from <http://data.conferenceworld.in/ICRTESM2/P180-191.pdf> [Accessed: 20<sup>th</sup> Sept. 2017]
- [15]. VENKATA RAMANA, K. RAMAKRISHNAIAH, P. CHENGALRAYULU, Impact of receivables management on working capital and profitability: a study on select cement companies in India n. International Journal of Marketing, Financial Services & Management Research. ISSN 2277-3622 Vol.2, No. 3, 2013, [Online] Available from <http://indianresearchjournals.com/pdf/IJMFMSR/2013/March/15.pdf> [Accessed: 21<sup>st</sup> Sept. 2017]
- [16]. M. S. Mohan Kumar, T. Aswathanarayana, An impact of negative working capital on profitability – A case study of selected cement companies in India. International Journal of Applied Research. 1(9), 2015, 170-173. [Online] Available from <http://www.allresearchjournal.com/archives/2015/vol1issue9/PartC/1-8-188.pdf> [Accessed: 21<sup>st</sup> September, 2017]

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