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MANAGEMENT OF WORKING CAPITAL IN INDIAN CEMENT INDUSTRY

Dr. Ombir Singh
Assistant Professor,
Govt. College AmbalaCantt. (Haryana)

Abstract

Efficientmanagement of working capital means management of various components of working capital in such a way that an adequate amount of working capital is maintained for smooth running of a firm and for fulfillment of twin objectives of liquidity and profitability. While inadequate amount of working capital impairs the firm's liquidity, holding of excess working capital results in the reduction of the profitability. But the proper estimation of working capital actually required, is a difficult task for the management because the amount of working capital varies across firms over the periods depending upon the nature of business, scale of operation, production cycle, credit policy, availability of raw materials, etc. the present paper analyses the working capital position in Indian cement industry.

Keywords: working capital, liquidity, profitability.

Introduction

Efficient management of working capital is one of the pre-conditions for the success of an enterprise. Efficientmanagement of working capital means management of various components of working capital in such a way that an adequate amount of working capital is maintained for smooth running of a firm and for fulfillment of twin objectives of liquidity and profitability. While inadequate amount of working capital impairs the firm's liquidity, holding of excess working capital results in the reduction of the profitability. But the proper estimation of working capital actually required, is a difficult task for the management because the amount of working capital varies across firms over the periods depending upon the nature of business, scale of operation, production cycle, credit policy, availability of raw materials, etc. For this significant amount of funds is necessary to invest permanently in the form of various current assets. For instance, due to time lag between sale of goods and their actual realisation in cash, adequate amount of working capital is always required to be made available for maintaining the desired level of sales. Empirical results show that ineffective management of working capital is one of the important factors causing industrial sickness (Yadav, 1986). Modern Financial management aims at reducing the level of current assets without ignoring the risk of stock outs

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(Bhattacharya, 1997). Efficient management of working capital is, thus, an important indicator of sound health of an organisation which requires reduction of unnecessary blocking of capital in order to bring down the cost of financing.In the light of the above, an attempt is made in this study to examine the efficiency of working capital management practices of the selected firms in cement industry.

A significant portion of financial research is concerned with the management of working capital. This issue has been extensively investigated at both conceptual and empirical levels. Prasad (2001) conducted a research study on the working capital management in paper industry. His sample consisted of 21 paper mills from large, medium and small scale for a period of 10 years. He reported that the chief executives properly recognized the role of efficient use of working capital in liquidity and profitability, but in practice they could not achieve it. The study also revealed that fifty percent of the executives followed budgetary method in planning working capital and working capital management was inefficient due to sub-optimum utilisation of working capital. Sarvanan (2001) made a study on working capital management in ten selected non-banking financial companies. For this he employed several statistical tools on different ratios to examine the effective management of working capital. He concluded that the sample firms had placed more importance upon the liquidity aspect compared to that of the profitability. Dulta (2001) observed that the various components of working capital of HPMC had not been used efficiently and net working capital position had worsened continuously during the period of study (1991 to 1998). Chundawat&Bhanawat (2000) analysed the working capital management practices in IDBI assisted tube and tyre companies for the period 1994-1998 by using some relevant ratios and concluded that the working capital management of IDBI assisted companies was more effective than the industry as a whole. Srivastav&Yadav (1986) developed a multiple discriminant model in determining the effectiveness of working capital management using four ratios and a sample test of 40 textile companies, of which 20 'not effective' (sick) and 20 'effective' (healthy), they empirically found that their model correctly classified 95 percent of the companies in the sample.

Though accounting ratios played a very important role in most of the above studies, but a choice of ratios or group of ratios is often a difficult task due to the absence of a propertheory of ratio analysis (Bhattacharya, 1997). To overcome this problem Bhattacharya (1997) developed an alternative ratio model for the measurement and monitoring the efficiency of working Capital Management.

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Methodology

The present study is based on a sample of 20 large cement companies operating in India. These companies constitute a large part of the cement industry in terms of market sharing within the country. The relevant secondary data have been collected from the 'PROWESS' database for a period of 10 years from ***2007-08 to 2016 -2017***. Of the total companies available in the 'PROWESS' database, only those companies have been selected for which data for this study period are available.

For measuring the overall efficiency of working capital management (WCM), first the 'Performance Index of Working Capital Management' (PRI_{WCM}), suggested by Bhattacharya (1997), has been calculated by applying the following model :

$$PRI_{wcm} = \frac{I_s \sum_{i=1}^{n} \frac{W_{i(t-1)}}{W_{it}}}{N} \text{----------(1)}$$

Where,

I_s = Sales index defined as :$\frac{S_t}{S_{t-1}}$

Wi = Individual group of currentassets.

N = Number of current assets group.

andi = 1,2,3, ... N.

In this study total current assets have been divided into eight components: Raw materials inventory, work-in-progress inventory, Finished goods inventory, stores & spares inventory, Debtors, cash, Loans & advances and other current assets.

Next, calculations of the 'Working Capital Utilisation Index'(UI_{WCM}) have been done with the help of following model:

$$UI_{WCM} = \frac{A_{t-1}}{A_t} \text{ .....(II)}$$

Where, A = current assets/sales.

And finally, the 'Efficiency Index of Working Capital Management' (EI_{WCM}) has been calculated by multiplying the overall performance index of working capital management with the working capital utilisation index.

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Thus, $EI_{WCM} = PI_{WCM} \times UI_{WCM}$ .....(III)

In order to measure the firm's efficiency in achieving the targeted level of efficiency during the study period following OLS model has been used:

$$\hat{Y}_i = \hat{a} + \hat{\beta} X_i + e_i \quad \text{.....(IV)}$$

Where, $Y_i = Z_t - Z_{t-1}$ and $X_i = Z^*_t - Z_{t-1}$.

Z_t= Index at time 't' for the firm

Z^*_t = Average index of theindustry at t–1.

The estimated beta value represents the speed of the individual firm in improving its efficiency in achieving the industry norms in thisregard, $\hat{\beta} = 1$for a firm indicates that the degree of firms efficiency in the matter of managing working capital is equal to the average efficiency level of the industry as a whole.Similarly,$\hat{\beta} < 1$ speaks for the need of further improvements by the firms in this regards.

Following Robert Morris Associates' Annual statement studies (1975) and Dun &Brodstreet's Key Business Ratio (1975) calculations, medium value has been taken as the target industry norms for the present purpose. Equal-weighted mean or value-weighted mean could also be used in place of median. However, these have not been considered in the present study.

Performance Index of WCM

Performance index of WCM represents average performance index of the various components of current assets. A firm may be said to have managed its working capital efficiently if the proportionate rise in sales is more than the proportionate rise in current assets during a particular period. Numerically overall performance index more than 1 indicates efficient management of working capital. Average performance index of the industry as a whole (Table-3) shows that performance index was more than 1 in 8 periods out of 10. Thus, the performance of the industry as whole was mostly efficient during the period of study. A year, wise comparison reveals that the number of efficient firms varied between 9 to 20 during the period of study (Table-2). During the year 2008-09, all the 20 firms, as per their average index of performance, had managed their current assets efficiently. Among the other years, during 2012-13, 2013-14 and 2016-2017 respectively, 17, 15 and 15 firms performed well. 2007-08 and 2011-12 appeared to be the most unsuccessful years during which only 9 firms could maintain their average overall performance well in the matter of managing various components of current assets.

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Table- 1 : Maximum and Minimum values of respective index :

2007-08 to 2016 -2017.

Sl. No.	Name of companies	Performance Index		Utilisation Index		Efficiency Index	
		Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
1	Associated Cement Companies Ltd.	1.29 (2009-10)	.85 (2007-08)	1.25 (2010-11)	.86 (2007-08)	1.61 (2009-10)	.72 (2010-11)
2	Birla Corporation.	1.53 (2016-17)	.78 (2007-08)	1.23 (2009-10)	.73 (2007-08)	1.87 (2016-17)	.57 (2007-08)
3	Narmoda Cement Co. Ltd.	1.75 (2008-09)	.75 (2007-08)	1.87 (2014-15)	.69 (2013-14)	2.45 (2008-09)	.47 (2013-14)
4	Gujarat Sidhee Cement Ltd.	3.00 (2000-02)	.93 (2009-10)	1.44 (2010-11)	.85 (2009-10)	3.52 (2016-17)	.79 (2009-10)
5 Fr4	Dalmia Cement (Bharat) Ltd.	1.68 (2009-10)	.88 (2010-11)	1.33 (2009-10)	.86 (2008-09)	2.24 (2009-10)	.77 (2010-11)
6	KCP Ltd.	2.02 (2013-14)	.83 (2014-15)	1.28 (2007-08)	.80 (2011-12)	3.86 (2013-14)	.70 (2014-15)
7	Madras Cement Ltd.	1.57 (2013-14)	.86 (2011-12)	1.35 (2013-14)	.81 (2014-15)	2.11 (98-00)	.77 (2012-13)
8	India Cement Ltd.	1.30 (2013-14)	.84 (2011-12)	1.19 (2013-14)	.58 (2012-13)	1.54 (2013-14)	.54 (2012-13)
9	Andra Cement Ltd.	10.67 (2007-08)	.98 (2012-13)	3.95 (2010-11)	.25 (2008-09)	10.38 (2010-11)	.90 (2013-14)
10	Himadri Cement Ltd.	21.15 (2015-16)	.97 (2009-10)	1.33 (2008-09)	.10 (2015-16)	15.00 (2008-09)	.97 (2009-10)
11	Kakatiya Cements Sugar & Industries	1.50 (2008-09)	.66 (2007-08)	1.40 (2014-15)	.51 (2009-10)	1.68 (2008-09)	.36 (2009-10)

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12	Panyam Cement & Minerals Industries	1.49 (2012-13)	.90 (2010-11)	1.24 (2009-10)	.73 (2014-15)	1.53 (2012-13)	.68 (2015-16)
13	Kanoria Industries Ltd.	1.72 (2009-10)	.74 (2007-08)	1.42 (2009-10)	.55 (2014-15)	2.45 (2009-10)	.68 (92.93)
14	Chettinad Cement Corporation Ltd.	1.14 (2014-15)	.78 (2015-16)	1.19 (2009-10)	.67 (2015-16)	1.22 (2012-13)	.52 (2015-16)
15	Priyadarsani Cement Ltd.	1.33 (2016-17)	.74 (2013-14)	1.15 (2009-10)	.82 (2013-14)	1.36 (2016-17)	.61 (2013-14)
16	Sagar Cement Ltd.	1.39 (2010-11)	.79 (2014-15)	1.22 (2015-16)	.77 (2007-08)	1.96 (2010-11)	.50 (2007-08)
17	Decan Cement Ltd.	1.60 (2009-10)	.61 (2007-08)	1.47 (2008-09)	.58 (2007-08)	1.89 (2008-09)	.35 (2007-08)
18	Gujarat Ambuja Cement Ltd.	29.54 (2015-16)	.59 (2007-08)	1.37 (2014-15)	.50 (2007-08)	32.30 (2015-16)	.29 (2007-08)
19	Ambuja Cement Eastern Ltd.	1.48 (2014-15)	.69 (2012-13)	1.39 (2014-15)	.78 (2012-13)	2.05 (2014-15)	.53 (2012-13)
20	NCL Industries Ltd.	1.97 (2011-12)	.74 (2012-13)	1.59 (2011-12)	.67 (2012-13)	3.13 (2011-12)	.49 (2012-13)

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Table — 2: No. of Efficient Firms (Index Value >1)

Index	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Performance Index	9	20	14	10	9	12	17	15	14	15
Utilisation Index	5	15	12	9	7	7	11	9	12	14
Efficiency Index	8	17	15	8	9	10	13	12	11	14

Table-3 Industry average 2007-08 to 2016-17

	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Performance index of WCM	0.97	1.22	1.13	1.01	.96	1.01	1.13	1.07	1.15	1.07
Utilisation Index	.91	1.13	1.07	.99	.90	.95	1.01	.99	1.02	1.03
Efficiency Index	.90	1.30	1.13	.94	.89	.98	1.06	1.01	1.20	1.06

In fact, the year 2011-12 proved to be the worst year for the Indian Cement Industry as a whole. From table-3, it is clear that in this year the Industry average index values of all the three measures were least and less than 1. Table -2 also reveals almost the same picture. The least number of successful firms (i.e., firms having index value > 1) for all the three measures are found in the year 2007-08. On the other hand, maximum number of successful firms for these three measures are found in the year 2008-09.

Firm specific analysis reveals that the performance index varied between 29 . 54 to .59 (Gujarat Ambuja Cement). The reason behind such a very high value of performance index was that compared to the other years the company has been able to enhance its sales during this year

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using a very negligible amount as loans & advances. This may be viewed as an indication that if the available scopes were utilised properly, the firm could improve its overall performance significantly. However, during the remaining part of the study period, the company showed a very satisfactory performance in this matter, (not reported here). In this connection, mention may be made about the overall performance of Andhra Cement (10.67 in 2007-08) and Himadri Cement (21.15 in 2015-2016). The reasons behind such surprisingly extreme values for performance index of both the companies lie in the sudden improvement of efficiency inmanaging their respective inventories during the concerned years only. These values again indicate that adequate attention to the management of inventory could be of much help for the firms belonging to this industry in achieving a very high level of efficiency in current assets management.

Utilisation Index

While performance index represents the average overall performance in managing the components of current assets, utilisation index indicates the ability of the firm in utilising its current assets as a whole for the purpose of generating sales. If an increase in total current assets is coupled with more than proportionate rise in sales, the degree of utilisation of these assets with respect to sales is said to have improved and vice versa. This ultimately reflects the operating cycle of the firm . This can be shortened by means of increasing the degree of utilisation. Thus, a value of utilisation index grater than one is desired. A cursory look into the table -3 reveals that the Cement industry as a whole did not performed well. Because, of the ten years, the industry average for five years only were greater than one. 2011-12 appeared to be the worst year as before and 2008-09 proved to be the most successful year as per table -3.

This index values varied between 3.95 (Andhra Cement in 2010-11) and 0.10 (Himadry Cement in 2015-2016). Though compared to the performance index the range is short, the large gap between the two extreme values clearly points out the inefficiency of the firms belonging to this industry in the matter of utilisation of current assets. In fact, excepting the extreme value of 3.95, the degree of utilisation (maximum values) varried between 1 . 87 (Narmada Cement in 2014-2015) and 1.15 (Priyadarshini Cement in 2009-10). This indicates that all the firms included in the sample possess the ability to utilise the current assets properly. But the range of minimum values (from .86 to .10), particularly the lower point, clearly brings out the extent of inefficiency on the part of these Indian Companies in this matter. Compared to the lowest industry average of .90, at least seven firms performed very badly (UI_{WCM}<0.60) and show high degree of inconsistency in this issue during this study period.

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Table-4 Regression Results (Performance index)

Sr no.	Name of company	constant	Beta	R2
1	Associated Cement Co.	0.044 (.949)	.899* (5.46)	.81
2.	Birla Corp. ltd.	0.074 (1.093)	.592 (1.945)	.35
3.	Narmada cement Co. Ltd.	.144 (.899)	.834* (3.99)	.69
4.	Gujarat Sidhee Cement Co.	.375 (1.422)	.538 (1.687)	.28
5.	Dalmia Cement Ltd.	.037 (.522)	.819* (3.77)	.67
6.	KCP Ltd.	.094 (.571)	.727** (2.80)	.53
7.	Madras Cements Ltd.	.03 (.394)	.851* (4.28)	.72
8.	India Cement Ltd.	-.053 (-1.024)	.822* (3.822)	.676
9.	Andhra Cement Ltd.	.028 (.047)	.827* (3.60)	.68
10.	Himadry Cements Ltd.	4.77 (1.579)	.593 (1.80)	.352
11.	Kakatiya Cements Sugar & Ind.	.004 (.034)	.787** (3.12)	.62
12.	Panyam Cements & Minerals ltd.	.079 (.782)	.721** (2.55)	.52
13.	Kanoriaind. Ltd.	.168 (1.463)	.843* (3.84)	.711
14.	Chettinad cement Corp. Ltd.	-.053 (-.758)	.291 (.806)	.08

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15.	Priyadarshni Cement Ltd.	-.028 (-.309)	.496 (1.51)	.24
16.	Sagar Cements Ltd	-.072 (-1.072)	.877* (4.83)	.77
17.	Decan Cements ltd	.057 (.735)	.767* (3.161)	.588
18.	Gujarat Ambuja Cements Ltd.	3.66 (1.030)	.75 (3.005)	.563
19.	Ambuja Cements eastern Ltd.	.088 (1.414)	.897* (5.35)	.80
20.	NCL Ind. Ltd	.086 (.668)	.839* (4.09)	.70

(t -values are shown in parentheses)
* Significant at 1% level, ** Significant at 5% level.

Efficiency Index

This is the product of the performance index and the utilisation index and measures the ultimate efficiency in working capital management of a firm. Apart from the extreme high values (32.30 for Gujarat Ambuja Cement, 15 for Himadry Cement and 10.38 for Andhra Cement), this index varied between 3.86 (KCP Ltd.) and .29 (Gujarat Ambuja). This large gap between the maximum and the minimum values once again reveals the degree of inconsistency associated with the management of working capital by the Indian Cement companies during the study period. A comparison between the maximum and minimum values for the individual firms also brings out the same story. For example, the efficiency index (shown in table-1) of KCP Ltd. which was 3.86 in the year 2013-14, came down to the firm's lowest level (.70) of efficiency in the immediately subsequent year, i.e., in 2014-15. Similar incidents occurred in case of Associated Cement, Dalmia, Madras, India, Himadry, Kakatiya, Decan, Ambuja Eastern and NCL. These incidents of the occurrence of the most successful year followed by the most unsuccessful one and vice, versa may be considered to be the outcome of the firms' inefficiency in adopting a sound working capital management policy.

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Table-5 Regression Results (Efficiency index)

Sr no.	Name of company	constant	Beta	R2
1	Associated Cement Co.	0.112 (2.83)	.926* (6.46)	.85
2.	Birla Corp. ltd.	0.084 (2.093)	.892* (4.945)	.71
3.	Narmada cement Co. Ltd.	.044 (.328)	.734* (3.99)	.59
4.	Gujarat Sidhee Cement Co.	.075 (.922)	.853* (4.687)	.77
5.	Dalmia Cement Ltd.	.004 (.122)	.919* (7.77)	.87
6.	KCP Ltd.	.014 (.171)	.697* (2.80)	.53
7.	Madras Cements Ltd.	.019 (.294)	.785* (3.28)	.71
8.	India Cement Ltd.	-.153 (-2.024)	.892* (3.522)	.63
9.	Andhra Cement Ltd.	.328 (.847)	.727* (5.60)	.78
10.	Himadry Cements Ltd.	-.077 (-.257)	.259 (-.80)	.076
11.	Kakatiya Cements Sugar & Ind.	-.06 (.534)	.727** (2.12)	.52
12.	Panyam Cements & Minerals ltd.	-.037 (.582)	.1721 (.355)	.019
13.	Kanoriaind. Ltd.	.106 (.094)	.824* (3.584)	.671
14.	Chettinad cement Corp.	-.025 (-.378)	.629 (2.806)	.38

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	Ltd.			
15.	Priyadarshni Cement Ltd.	-.028 (-.309)	.496 (1.51)	.24
16.	Sagar Cements Ltd	.0172 (.572)	.877* (4.83)	.77
17.	Decan Cements ltd	.047 (.935)	.967* (9.161)	.928
18.	Gujarat Ambuja Cements Ltd.	.131 (2.030)	.875* (4.005)	.763
19.	Ambuja Cements eastern Ltd.	.038 (.644)	.634 (4.35)	.78
20.	NCL Ind. Ltd	.058 (.768)	.869* (4.79)	.76

Industry norms as target level of efficiency

In financial analysis, average performance of an industry is considered as the yardstick for performance evaluation of the firms belonging to that industry group. For calculating industry norm, any measure of central tendency, e.g. mean or median can be used .Following Robert Morris Associates and Dun & Bradstreet, media.values of each of the three indexes have been used as the industry norms for this study. One main advantages of using median as the industry norm is that the existence of any extreme value cannot affect the industry average (Table - 3 shows those industry values).

A cursory look into the table shows that the cement industry in India did not perform well in four out of ten-year study period. During 2007-08, 2009-10.2011-12 and 2012-13 the entire industry showed poor performance in working capital management. On the other hand, 2008-09 proved to be the most successful year in this regard.

As explained in section - II, equation (IV) has been used in the present study in order to measure the speed of the individual firms in improving efficiency in working capital management during the study period. The regression results have been shown in table 4 through 6.

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Table-6 Regression Results (Utilisation index)

Sr no.	Name of company	constant	Beta	R2
1	Associated Cement Co.	0.250 (3.283)	.946* (7.46)	.88
2.	Birla Corp. ltd.	0.234 (2.693)	.842* (4.245)	.72
3.	Narmada cement Co. Ltd.	.424 (1.328)	.794* (3.49)	.63
4.	Gujarat Sidhee Cement Co.	.532 (1.922)	.953* (5.687)	.81
5.	Dalmia Cement Ltd.	.118 (1.122)	.909* (5.77)	.84
6.	KCP Ltd.	.244 (.671)	.797* (2.90)	.54
7.	Madras Cements Ltd.	.149 (1.294)	.745* (2.88)	.74
8.	India Cement Ltd.	-.154 (-1.517)	.852* (4.522)	.73
9.	Andhra Cement Ltd.	1.638 (1.847)	.757** (2.60)	.578
10.	Himadry Cements Ltd.	2.55 (1.257)	.759** (2.88)	.576
11.	Kakatiya Cements Sugar & Ind.	.037 (.1534)	.777** (2.92)	.59
12.	Panyam Cements & Minerals ltd.	.073 (.502)	.617 (1.355)	.39
13.	Kanoriaind. Ltd.	.291 (1.094)	.864* (3.584)	.771
14.	Chettinad cement Corp. Ltd.	-.075 (-.778)	.529 (2.806)	.33
15.	PriyadarshniCement Ltd.	-.055 (-.059)	.596 (1.51)	.27
16.	Sagar Cements Ltd	.0872 (.672)	.847* (4.283)	.71
17.	Decan Cements ltd	.147 (1.935)	.867* (6.161)	.828
18.	Gujarat Ambuja Cements Ltd.	4.131 (1.030)	.775** (3.005)	.563
19.	Ambuja Cements eastern Ltd.	.178 1(.644)	.734* (3.35)	.57
20.	NCL Ind. Ltd	.258 (1.068)	.8269 (3.79)	.67

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Based on the beta (b) values, a rank list has been prepared (shown in table-7). From this table, it is apparent that Associated Cement was the most successful company among the sample firms which, given the industry norms, had been able to improve its efficiency significantly. Though the company had managedthe components of current assets well

($b^{\wedge}$ = .899) (Table-4), it failed to establish its superiority over all other firms in the matter of utilisation of current assets in generating sales ($b^{\wedge}$ = .926), (Table-5). In this issue, theDecan Cement ($b^{\wedge}$ = .961) was the most successful firm followed by the Dalmia Cement ($b^{\wedge}$ = .936). Both thecompanies, namely, Dalmia Cement and Decan Cement failed to manage the components of current assets efficiently. But their efficiency in utilising the current assets as a whole in generating sales was very high and as a result, these two companies occupied second and third ranks respectively in the matter of efficiency in working capital management . In so far as the performance index is concerned, these two firms occupied tenth and twelvth ranks respectively. Thus, a scope for further improvement in the matter of managing the components of current assets is formed.

Efficiency index is a measure of performance which reflects the combined effects of both the performance index and the utilisation index. Based on this index, Kanoria Industries is found to have occupied the fourth position in the matter of speed in achieving the targeted industry norm over the period. This firm had managed the individual components of current assets satisfactorily, but compared to the others it failed to improve the utilisation of the current assets for the purpose of generating sales. Similar incidence occurred in case of Madras Cement, Sagar Cement, Normada Cement, Ambuja Cement, etc. Very slow rate of improvement in the matter of current asset utilisation acted adversely in achieving the desired speed of improvement of working capital management efficiency.

On the other hand, India Cement and NCL are found to had performed better in the matter of utilisation of current assets than in managing the individual components of current assets.

Thus, on the whole, scope for the improvement in the matter of managing either the individual components of current assets or the current assets as a whole for generating increased sales revenue is found. A careful attention to this would help the firms in enhancing their efficiency in working capital Management. In the context of the present highly competitive market situation, these scopes should be properly utilised.

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SECTION -V Conclusion

An attempt has been made in the present study to investigate the efficiency of the Indian cement companies in the matter of manage-ment of working capital during 2007-08 to 2016-2017. Instead of using the common method of analysing different working capital management ratios, three index values representing the average performance of the components of current assets, the degree of utilisation of the total current assets in relation to sales and the efficiency in managing the working capital, have been computed for the selected firms over the ten- year study period. Using industry norm as target efficiency level of the individual firms, an evaluation has been made with regard to the speed of achieving that target level of efficiency by an individual firm during the study period.

From the present study it is observed that the Indian Cement industry did not perform remarkably well during this period. Industry average for efficiency index was greater than one in 6 years out of 10 years study period. Though some of the sample firms had successfully improved efficiency during these years, the existence of a very high degree of inconsistency in this matter clearly points out the need for adopting sound working capital management policies by these firms.

In the matter of achieving the target level (industry norm) of efficiency by the firms, Associated Cement and Dalmiawere the most successful firm followed by Decan, Kanoria& Madras. In view of the observed b values, once again it may not be unwise to conclude that firms under study should take necessary steps in order to improve efficiency in this regard. This is, in particular, important in the context of the present competitive situation of the market.

Present study also suggests that a further study may be helpful for identifying the forces that govern this chronic nature of inefficiency present in the Indian cement companies in the matter of working capital management.

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