

**Impact of Activity ratios on Profitability of the selected
Cement companies in Tamil Nadu**

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ABSTRACT

Cement being an important medium for construction, its demand is highly correlated with the overall performance of a country and the state of literacy rate. So, a study on cement industry is quite inevitable. Studies on working capital management acquire great significance in the context of growth in the developing economies. Therefore, the study of working capital management is considered an important job of an industry. Evidently, the present study on working capital management of the select cement industry would be of much interest, as it will bring out how effectively the working capital is employed. It also helps to identify those variables that are responsible for better management of working capital of the cement industry. The study has aimed at measuring the Liquidity analysis of the selected cement companies in India. The study has used stratified sampling techniques and two companies were selected. The data were collected from the respective companies annual financial statement during from 2005-06 to 2014-15. Several tools were developed to diagnose the financial strength of the company based on the Financial Statements.

Keywords: Cement Industry, Financial performance, Liquidity, Profitability.

Introduction

Funds are invested in various assets in business to sell products and earn profits. The efficiency with which the assets are managed directly affects the volume of sales. Better the management of assets, the larger the sales and the profits. In some cases, ratio analysis can predict future bankruptcy. Activity or asset turnover ratios indicate how efficiently the firm utilizes its assets.

Statement of the Problem

Cement industry is highly capital intensive. The rapidly changing economic, technological and regulatory environment has affected the growth of Indian cement industry due to the poor availability of raw materials; power, etc., have inherent drawbacks of limited and scattered availability of suitable technology for conversion into higher grade cement.

The energy scenario in the country is quite troubling and depressing. The cement industry is highly energy intensive and has remained technologically outdated. Poor profitability is one of the problems of cement industry. Under capacity utilization, higher costs of production, industrial disputes, and financial mismanagement are some of the reasons for the poor profitability of the cement industry. In view of the intensive drive for literacy and consequent rise in demand for cement in the coming years and high capital costs required for new investments, In this context, the researcher has undertaken this study to have an insight into the working capital management of the cement industry in Tamil Nadu

Need for the Study

The study of working capital management is considered an important job of an industry. The present study on working capital management of the selected cement industry would be of much interest, as it will bring out how effectively the working capital is employed. It also helps to identify those variables that are responsible for better management of working capital of the cement industry.

Objectives of the Study

The aim of the study is to make an objective assessment of the working capital management of the select cement industries in Tamil Nadu. The following are the broad objectives of the study:

1. To study the growth of the cement industry in India in general and Tamil Nadu in particular.
2. To examine the activity parameters of the select cement companies in Tamil Nadu.

Testing of Hypothesis

The study is based on the formulation of the following null hypotheses. The validity of them has been tested with the available data through appropriate analysis.

H₁: There is no significant difference in the activity ratios among the select cement companies in Tamil Nadu.

Scope of the Study

This study has been undertaken to assess the working capital management of the select cement companies. The present study is confined to only two cement companies, namely, India Cements Limited and Chettinad Cement. The study focuses its attention only on one vulnerable key areas of working capital management, namely, activity.

Period of the Study

The study covers a period of 10 years starting from 2005-06 to 2014-15. The period is considered sufficient to reveal the short and long-term fluctuations.

Methodology

The study is empirical in nature with a focus on assessing the working capital management of the cement industry from the point of view of liquidity and activity. As on 31.03.2015, there are 8 cement industries in operation in Tamil Nadu, of which there are only two large scale cement industry namely, India Cements Limited, and Chettinad Cement. The two large scale cement industry were selected only for the present study.

The study encompasses secondary data only. The secondary data were extracted from the published annual reports of the study units for a period of ten years. These reports are the financial statements, books of accounts, annual reports, and circulars. Literature relating to the study was gathered from published reports, journals, magazines, books, etc. In particular, the researcher has collected the secondary data from the Indian Institute of Management, Bangalore, Documentation Centre, Indian Council of Social Science Research, New Delhi, and School of Economics, Delhi University, New Delhi. The collected data were analyzed and interpreted as intelligibly as possible to highlight the divergent activities related to the working capital management of the select cement industry.

Framework of Analysis

The data have been analyzed with the help of different accounting and statistical techniques such as ratios, inter-correlation analysis and multiple regression analysis. The ratio analysis has been employed to find out the activity positions of the cement industry. The multiple regression analysis has been used to find out the impact of the activity ratios on the profitability ratios of the cement companies. For the purpose of carrying out the analysis, the data available in the financial statements have been regrouped and rearranged.

Limitations of the Study

As stated earlier, a period of ten years from 2005-06 to 2014-15 has been selected for this study. Because of the constraints of time, two cement companies alone have been selected and studied. Hence, the conclusion drawn is specific and cannot be universalized. This study is also restricted only to the working capital management aspects of these select cement companies.

Review of Literature

Ghosh and Maji (2004) in their study measured that the efficiency of working capital management practice and ability to improve their efficiency up to the industrial average in 20 large cement companies operating in India. The period of the study was the ten years from 1992-93 to 2001-02. They reported that the Indian cement industry did not perform remarkably well during this period. Some of the sample firms had successfully improved their efficiency during these years.

Das (2006) examined the Dividend practices in selected Cement Industries Ltd during 85 - 86 to 2004 -2005. He found that the company followed conservative dividend policy during the study period. There was significant increase in profitability due to earnings per share and capital employed current ratio was in decaling trend.

Kulansizoglu (2007) concluded that the cement industry has gradually become more competitive over time since the sign of parameter of time trend in their supply equation is negative and the parameter itself, although small in absolute value, is statistically significant. The competition Authority dummy turned out to be statistically in-significant even when they assume

that it might have a logged impact. These results are contrary to priority expectations and show that the introduction of competition policy has not made the cement industry more competitive despite all the investigations and monetary penalties.

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

Ramachandran and Janakiraman (2009) analyzed the relationship between working capital management efficiency and earnings before interest and tax of the paper industry in India. The study revealed that cash conversion cycle and inventory days had negative correlation with earnings before interest and tax. While accounts payable days and accounts receivable days related positively with earnings before interest and tax.

Aruna Saini and Dhan Saini (2010) conducted an important study on analysis of liquidity management and tradeoff between liquidity, risk and profitability. It was an empirical study. The period of the study was from 1999-00 to 2008-09. Their purposes of the study were to measure and evaluate the efficiency of liquidity management by using ratio analysis and to assess the tradeoff between profitability and risk of Infosys Technologies Limited. They suggested investment in current assets should be controlled through skillful liquidity management.

Singh (2011) analyzed working capital management efficiency of the firms from cement industry in India. They found that day's payable outstanding was negatively related to profitability. Correlation coefficient for sales to total asset ratio was 0.427 and which means that sales to total asset ratio is positively related to profitability at 1% significant level.

Pasupathi (2012) carried out a study on Operational Adequacy of Working Capital Management of Selected Indian Automobile Industry - A Bivariate Discriminant Analysis where it was concluded that in the years 1992-93 to 2006-07 Ashok Leyland Ltd in commercial vehicles sector, Mahindra and Mahindra Ltd in passenger cars and multi-utility vehicles sector and Bajaj Auto Ltd in two and three wheelers sector units maintained adequate size of the working capital throughout the period under study.

Nyamao et al., (2012) conducted a study to investigate the effects of working capital management practices on the financial performance of small-scale enterprises (SSEs) in Kisii South District, Kenya. The study, which adopted a cross-sectional survey research design, found that working capital management practices were low amongst SSEs as majority of them had not adopted formal working capital management routines. Similarly, their financial performance was on a low average. The study concluded that working capital management practices influence the financial performance of small scale enterprise. The study relied on primary qualitative data to measure the working capital management practices, but the present study measured working capital management in terms of aggressiveness / conservatism using secondary quantitative data. The findings of the study also required validation in other areas of the country and among companies listed in the NSE.

Muhammad U. (2012) research on food sector of (KSE) Karachi Stock Exchange the finding reveals that ratio of financial asset to total asset is positively correlated and accurately significant which means that as the ratio of financial asset to total asset increased firm's profitability will raise.

Firm size was also accurately significant and positively affecting firm's profit which means that firm with greater sales volume are more profitable in this sector. Whereas average collection period is also significant but negatively correlated which means that as the firm's collection period increase firm will bear loss so firms in this sector should try to reduce their collection period.

DATA PRESENTATION

Activity or asset turnover ratios indicate how efficiently the firm utilizes its assets. They sometimes are referred to as efficiency ratios, asset utilization ratios, or asset management ratios. Activity ratios measure the effectiveness with which a firm manages its resources. These ratios are also called 'turnover ratios' because they indicate the speed with which the assets are turned over into sales. For example, inventory turnover ratio indicates the rate at which the funds invested in inventories are converted into sales. In order to measure the efficiency of the cement industries, various financial and statistical analyses such as ratio analysis, growth rates, inter-correlation analysis and multiple regression analysis have been employed.

Table 1: Profitability Ratios of the Cement Companies

Year	STOCK TURNOVER RATIO		DEBTORS TURNOVER RATIOS		CREDITORS TURNOVER RATIO		WORKING CAPITAL TURNOVER RATIO	
	ICL	CC	ICL	CC	ICL	CC	ICL	CC
2005-06	4.39	7.71	4.10	8.28	13.95	1.00	2.70	7.39
2006-07	5.83	6.58	6.15	8.95	10.89	1.56	4.52	6.01
2007-08	5.97	8.12	5.45	8.31	9.39	1.71	3.32	6.89
2008-09	5.44	11.97	5.05	8.15	6.58	2.15	5.08	5.58
2009-10	5.80	10.48	6.35	8.86	4.71	2.89	5.29	7.99
2010-11	5.92	8.53	6.47	8.83	11.00	2.93	4.36	7.67
2011-12	6.55	8.65	6.51	9.52	17.21	2.79	4.81	8.03
2012-13	6.36	8.72	7.57	9.56	19.16	3.10	8.07	6.10
2013-14	6.40	7.90	9.53	9.81	1.77	2.87	11.86	7.17
2014-15	6.41	7.61	8.21	10.68	1.02	2.50	5.35	5.61
Mean Score	5.91	8.63	6.54	9.10	9.57	2.35	5.54	6.84

Table 2: Profitability Ratios of the Cement Companies

Year	CASH TURNOVER RATIO		AVERAGE COLLECTION PERIOD		AVERAGE PAYMENT PERIOD	
	ICL	CC	ICL	CC	ICL	CC
2005-06	0.02	0.05	75.00	43.00	4.10	8.28
2006-07	0.05	0.05	59.00	40.00	6.15	8.95
2007-08	0.07	0.07	66.00	43.00	5.45	8.31
2008-09	0.02	0.13	71.00	44.00	5.05	8.15
2009-10	0.02	0.12	57.00	41.00	6.35	8.86
2010-11	0.02	0.15	56.00	41.00	6.47	8.83
2011-12	0.02	0.14	55.00	38.00	6.51	9.52
2012-13	0.02	0.15	48.00	38.00	7.57	9.56
2013-14	0.02	0.16	38.00	37.00	9.53	9.81
2014-15	0.02	0.12	44.00	34.00	8.21	10.68
Mean Score	0.03	0.11	56.90	39.90	6.54	9.10

Table 3: Impact of Activity Ratios on the Profitability Ratios

	GROSS PROFIT RATIO					NET PROFIT RATIO			
	LV	B	Std. Error	T		B	Std. Error	t	
ICL	X	-0.589	9.111	-	-	-6.922	10.59	-	-
	STR	5.432	2.824	1.924	Ns	3.369	3.282	1.027	Ns
	DTR.	-2.246	1.839	-1.22	Ns	-1.119	2.137	-0.524	Ns
	CTR	-0.309	0.17	-1.82	Ns	-0.1	0.198	-0.507	Ns
	WCTR	1.098	0.69	1.592	Ns	0.709	0.802	0.884	Ns
	CTR	23.248	55.531	0.419	Ns	4.546	64.545	0.07	Ns
CC	X	-24.048	37.736	-	-	-5.746	33.289	-	-
	STR	0.877	1.37	0.64	Ns	0.161	1.209	0.133	Ns
	DTR.	2.695	3.043	0.886	Ns	0.573	2.684	0.214	Ns
	CTR	-4.443	5.38	-0.83	Ns	-1.103	4.746	-0.232	Ns
	WCTR	0.647	1.602	0.404	Ns	-5.876	1.413	-0.042	Ns
	CTR	69.064	87.223	0.792	Ns	55.99	76.945	0.728	Ns

Table 4: Impact of Activity Ratios on the Profitability Ratios

	RETURN ON CAPITAL EMPLOYED RATIO					RETURN ON SHAREHOLDERS' FUNDS RATIO			
	I.V	B	Std.	t		B	Std.	t	
ICL	X	-1.664	12.667	-	-	-16.308	11.762	-	-
	STR	1.161	3.926	0.296	Ns	5.296	3.645	1.453	Ns
	DTR.	0.972	2.557	0.38	Ns	-0.797	2.374	-0.336	Ns
	CTR	0.15	0.236	0.636	Ns	-0.114	0.22	-0.52	Ns
	WCTR	0.88	0.959	0.918	Ns	0.734	0.89	0.825	Ns
	CTR	72.834	77.208	0.943	Ns	-6.985	71.692	-0.097	Ns
CC	X	-26.67	85.397	-	-	-26.007	88.849	-	-
	STR	2.205	3.101	0.711	Ns	2.896	3.227	0.897	Ns
	DTR.	2.612	6.886	0.379	Ns	0.766	7.164	0.107	Ns
	CTR	-14.812	12.175	-1.217	Ns	1.655	12.667	0.131	Ns
	WCTR	4.204	3.625	1.16	Ns	-0.72	3.772	-0.191	Ns
	CTR	108.897	197.386	552	Ns	89.162	205.365	0.434	Ns

Table 5: Impact of Activity Ratios on the Profitability Ratios

	OPERATING PROFIT			
	B	Std. Error	t	
ICL	25.927	14.679	-	-
	0.527	4.549	0.116	Ns
	-0.994	2.962	-0.336	Ns
	-0.305	0.274	-1.112	Ns
	0.629	1.111	0.566	Ns
	74.68	89.466	0.835	Ns
CC	5.437	35.67	-	-
	0.704	1.295	0.543	Ns
	1.53	2.876	0.532	Ns
	-2.003	5.085	-0.394	Ns
	-0.552	1.514	-0.365	Ns
	-15.262	82.448	-0.185	Ns

Table 6: Inter-Relationship among the activity ratios

	Ratios	STR	DTR	CTR	WCTR	CTR	ACP	APP
ICL	STR	1	0.79	-0.105	0.54	0.008	-0.819	0.361
	DTR		1	-0.386	0.849	-0.266	-0.987	0.647
	CTR			1	-0.284	0.032	0.302	-0.764
	WCTR				1	-0.34	-0.786	0.377
	CTR					1	0.282	-0.233
	ACP						1	-0.609
	APP							1

Table 7: Inter-Relationship among the activity ratios

	Ratios	STR	DTR	CTR	WCTR	CTR	ACP	APP
CC	STR	1	-0.379	0.303	-0.002	0.407	0.433	-0.326
	DTR		1	0.541	-0.178	0.465	-0.997	-0.513
	CTR			1	0.195	0.926	-0.52	-0.979
	WCTR				1	0.123	0.157	-0.143
	CTR					1	-0.435	-0.885
	ACP						1	0.492
	APP							1

Table 8: Trend Value of the Working Capital

Year	ICL		CC	
	Net working capital (Rs. in Crores)	Trend value	Net working capital (Rs. in Crores)	Trend value
2005-06	182.29	148.98	21.45	29.15
2006-07	133.02	147.5	38.46	35.07
2007-08	173.83	146.01	47.54	40.99
2008-09	106.24	144.52	63.13	46.92
2009-10	110.21	143.04	46.8	52.84
2010-11	153.77	141.55	50.21	58.76
2011-12	166.62	140.07	52.16	64.69
2012-13	109.58	138.58	75.01	70.61
2013-14	81.93	137.1	69.04	76.54
2014-15	205.52	135.61	94.28	82.46
2009-10	-	134.13	-	88.39
2010-11	-	132.64	-	94.31
2011-12	-	131.15	-	100.23
2012-13	-	129.67	-	106.16
2013-14	-	128.18	-	112.08

RESULTS AND DISCUSSION

Inter-Correlation

It is inferred from the above inter-correlation analysis that the stock turnover ratio has a high degree of negative correlation coefficient with average collection period in ICL. The correlation coefficients between debtors turnover ratio and average collection period, creditors turnover ratio and average payment period, working capital turnover ratio and average collection period, and average collection period and average payment period show high degree of negative values in ICL. There is moderate correlation coefficient between stock turnover ratio and cash turnover ratio and average collection period in CC. There exist high degree of negative correlation coefficients between debtors turnover ratio and average collection period, creditors turnover ratio and average payment period, and cash turnover ratio and average payment period in CC.

Multiple Regression Model

The selected activity ratios such as stock turnover ratio, debtors turnover ratio, creditors turnover ratio, working capital turnover ratio and cash turnover ratio have no significant impact on the gross profit ratio, net profit ratio, operating profit ,return on capital employed ratio and return on shareholders' funds ratio of the ICL and CC.

Trend Analysis

The trend value of the working capital of the select cement industries is shown in Table 5.28. The annual decrease of the trend value of working capital of ICL comes to Rs.1.49 crore, whereas annual increase of the trend value of working capital of CC comes to Rs.5.93 crore. When compared with the reported value, the trend value of working capital of the cement industries has differed significantly over the study period. The anticipated trend value of working capital for the years 2009-10, 2010-11, 2011-12, 2012-13 and 2013-14 for ICL would be Rs.134.13 crore, Rs.132.15 crore, Rs.131.15 crore, Rs.129.67 crore and Rs.128.18 crore respectively, and it would be Rs.88.39 crore, Rs.94.31 crore, Rs.100.23 crore, Rs.106.16 crore, and 112.08 crore for CC.

CONCLUSION

In this paper, an attempt has been made to measure the activity position of the select cement industries. A significant difference is found in the stock turnover ratio, debtor's turnover ratio, creditor's turnover ratio, cash turnover ratio, and average collection period ratio of the ICL and CC during the study period. However, there is no significant difference in the working capital turnover ratio and average payment period ratio of the ICL and CC. There exists consistency in the stock turnover ratio of the ICL. A consistency is found in the debtor's turnover ratio, creditor's turnover ratio, working capital turnover ratio, cash turnover ratio, average collection period and average payment period of the CC. The activity ratios such as inventory turnover ratio, debtors turnover ratio, creditors turnover ratio, working capital turnover and cash turnover ratio do not have significant impact on the gross profit ratio, net profit ratio, operating profit ratio, return on capital employed ratio, and return on shareholders' funds ratio of the ICL and CC during the study period. The anticipated trend value of working capital for the years 2011-12, 2012-13, and 2013-14 for ICL would be Rs.131.15 crore, Rs.129.67 crore and Rs.128.18 crore respectively, and it would be Rs.100.23 crore, Rs.106.16 crore, and 112.08 crore for CC.

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