

MEASURES OF EFFICIENCY IN CEMENT INDUSTRY IN INDIA

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ABSTRACT

Activity ratios are used to measure the speed with which various accounts are converted into sales or cash. Measures of overall liquidity are generally inadequate because differences in the composition of firms current assets and liabilities can significantly affect the firm's "true" liquidity. Therefore, it is preferred to evaluate how efficiently current assets specially debtors and inventory are used.

KEYWORDS: *Activity Ratios, Overall Liquidity, Current Assets and Liabilities, Debtors and Inventory.*

Introduction

Debtors Turnover Ratio

Debtors turnover ratio signifies the efficiency of companies with regard to trade debtors. The numerator of the ratio is the net sales (Total sales - Sales returns) and the denominator is sundry debtors including bills receivables (both are jointly known as accounts receivables). Debtors and bills receivable (B/R) in a company depend upon extent of credit, i.e. the credit sales and the length of credit period. These factors depend upon the management's policy decisions, which are further influenced by the, trade customs prevailing in the industry, nature of the product, its units values, consumption life of the product and availability of funds.

The term 'Debtors' differs from 'Trade Tradors' as 'Trade Debtors' include bills receivables also but exclude the debtors which do not arise from the sales of goods in which the enterprise deals in. The provisions for bad and doubtful debtors is not deducted from the total amount of trade debtors since here the purpose is to calculate the number of days for which sales are tied up in debtors and not to ascertain the realizable value of debtors. Ideally, a company compares its debtors turnover ratio with the companies that have similar business operations and revenue and lie within the same industry The formula to compute Debtors Turnover Ratio is:

$$\text{Debtors Turnover Ratio} = \frac{\text{Net Credit Sales}}{\text{Average Account Receivables}}$$

Here Average Accounts Receivables are calculated as follows:

$$\frac{(\text{Opening Trade Debtors} + \frac{B}{R}) + (\text{Closing Trade Debtors} + \frac{B}{R})}{2}$$

The Debtors Turnover Ratio also called as Receivables Turnover Ratio which shows how quickly the credit sales are converted into the cash. This ratio measures the efficiency of a firm in managing and collecting the credit issued to the customers. Higher the Debtors turnover ratio, better is the credit management of the firm.

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Table 1 shows debtors turnover ratio of the cement companies under study from 2013-14 to 2017-18.

**Table 1: Debtors Turnover Ratio of Cement Companies under Study
(From 2013-14 to 2017-18)**

(Ratio in times)

Year	ACC Cement	Ambuja Cement	Shree Cement	UltraTech Cement
2013-14	45.36	43.43	16.70	44.39
2014-15	46.04	36.79	13.70	41.41
2015-16	47.00	26.96	25.90	36.98
2016-17	65.12	29.72	24.76	47.42
2017-18	81.30	29.19	19.67	55.24
Average	56.96	33.22	20.15	45.09
S.D.	15.91	6.79	5.20	6.86
C.V. (%)	27.92	20.45	25.80	15.22

Source: Annual Reports & Accounts of Cement Companies under Study for the period from 2013-14 to 2017-18.

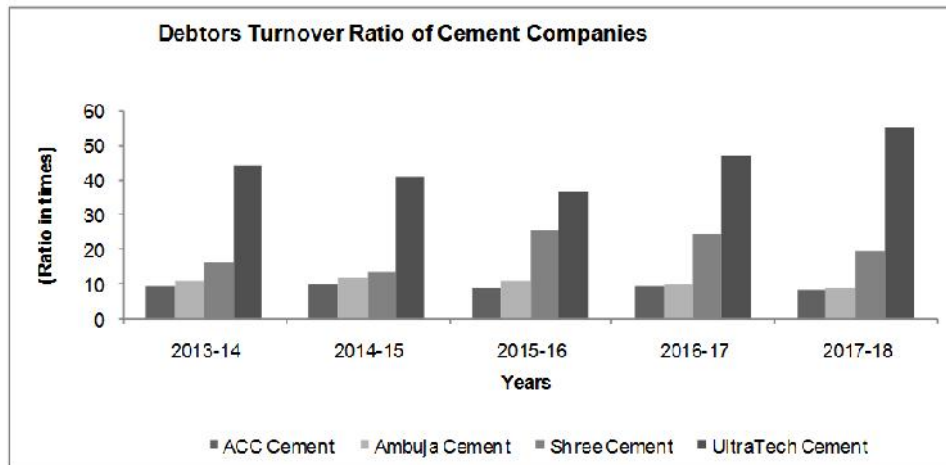


Fig. 1: Debtors Turnover Ratio

ACC Cement

It can be noted from the Table 1 that the debtors turnover ratio of ACC Cement showed an increasing trend throughout the period under study. During the year 2013-14, the ratio was 45.36 times which increased slightly to 46.04 times in 2014-15, 47.00 times in 2015-16, 65.12 times in 2016-17 and reached up to 81.30 times in the final year 2017-18. The average of the debtors turnover ratio was 56.96 times which was highest among cement companies under study and can be regarded satisfactory. The coefficient of variation was 27.92 percent showing some fluctuations that should be kept in control.

Ambuja Cement

It is evident from the Table 1 that the debtors turnover ratio of Ambuja Cement showed a decreasing trend during the period under study except in the year 2016-17. During the year 2013-14, the ratio was 43.43 times which decreased to 36.79 times in 2014-15 and came down to 26.96 times in 2015-16. After that, it increased to 29.72 times in 2016-17 but came down slightly to 29.19 times in the final year 2017-18. The average of the debtors turnover ratio was 33.22 times which can be regarded satisfactory. The coefficient of variation was 20.45 percent showing minor fluctuations that should be kept in control.

Shree Cement

The debtors turnover ratio of Shree Cement showed a fluctuating trend. During the year 2013-14, the ratio was 16.70 times which decreased to 13.70 times in 2014-15 but increased to 25.90 times in 2015-16. After that, it decreased again to 24.76 times in 2016-17 and further came down to 19.67 times in the final year 2017-18. The average of the debtors turnover ratio was 20.15 times which cannot be regarded satisfactory and need improvement. The coefficient of variation was 25.80 percent showing minor fluctuations that should be kept in control.

UltraTech Cement

It can be noted from the Table 1 that the debtors turnover ratio of UltraTech Cement showed a fluctuating trend during the period under study. During the year 2013-14, the ratio was 44.39 times which decreased slightly to 41.41 times in 2014-15 and further came down to 36.98 times in 2015-16. After that, it showed an increasing trend and increased to 47.42 times in 2016-17 and finally reached up to 55.24 times in 2017-18. The average of the debtors turnover ratio was 45.09 times which can be regarded satisfactory. The coefficient of variation was 15.22 percent showing a consistent trend which should be maintained.

An overall comparison of debtors turnover ratio among all the cement companies under study reveals that the average ratio was highest for ACC Cement at 56.96 times followed by UltraTech Cement at 45.09 times, Ambuja Cement at 33.22 times and lowest 20.15 times for Shree Cement. Although this ratio should be improved by all the companies and specially Shree Cement has to give proper attention to increase its debtors turnover ratio.

Statistical Analysis: F-test

Following hypothesis has been tested for the ratio:

H₀: There is no significant difference between debtors turnover ratio of the cement companies under study.

H₁: There is a significant difference between debtors turnover ratio of the cement companies under study.

Table 2 shows one way ANOVA statistics computed for the debtor's turnover ratio of the companies under study for the period from 2013-14 to 2017-18.

Table 2: One Way ANOVA for Debtors Turnover Ratio

Source of Variation	Sum of Square	Degree of Freedom	Mean Sum of Square	F _c	F _t
Between Companies	3741.4825	3	1247.1608	13.3625	3.24
Within Companies	1493.3272	16	93.3329		
Total	5234.8097	19			

Decision: "F" test indicates that the calculated value of F_c = 13.3625 and tabular value of F_t = 3.24 at 5% level of significance. As the calculated value of F is more than table value of F, the null hypothesis has been rejected. It means there is a significant difference between the debtors turnover ratio of the companies under study.

Inventory Turnover Ratio

This ratio is calculated by dividing cost of goods sold by the average inventory held during the same year. Cost of goods sold is taken as the numerator because inventories are normally valued at cost. The average inventory is obtained by having the sum of beginning and ending inventories.

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

$$\text{Average Inventory} = \frac{\text{Opening Inventory} + \text{Closing Inventory}}{2}$$

$$\text{Cost of Goods Sold} = \text{Opening Inventory} + \text{Purchases} - \text{Closing Inventory}$$

Inventory is called to be the graveyard of a business. It has a direct relation with profits. If the stocks are accumulated and sales fall, business is likely to suffer losses. On the other hands, sufficient stock should be maintained to meet the sales requirement. This ratio helps to ascertain the number of times, the stock is turned over during a specified period which can be used to estimate the inventory requirements at various points of time.

Sufficient efforts are necessary to use the ending inventories. This ratio helps to ascertain the number of time the stock is turned over during a specified period which can be used to estimate the inventory requirements at various point of time. This ratio helps in determining the liquidity of a business concern as much as it indicates the rate at which the inventories are converted into sales and then into cash ultimately. This ratio also through light on the inventory policy pursued by any unit and the reasonableness of the same. The ratio indicates how fast inventory is sold. A high ratio is good from the viewpoint of liquidity since an improvement in the ratio shows that either the same volume of sales has been maintained with a lower investment in stock, or the volume of sales has increased without any increase in the amount of stock.

Table 3 is showing inventory turnover ratio of the cement companies under study from 2013-14 to 2017-18.

**Table 3: Inventory Turnover Ratio of Cement Companies under Study
(From 2013-14 to 2017-18)**

(Ratio in times)

Year	ACC Cement	Ambuja Cement	Shree Cement	UltraTech Cement
2013-14	9.35	11.23	7.81	8.34
2014-15	9.92	12.02	7.59	10.41
2015-16	9.12	11.20	7.35	10.74
2016-17	9.46	9.93	6.48	9.61
2017-18	8.82	8.89	7.38	10.91
Average	9.33	10.65	7.32	10.00
S.D.	0.41	1.24	0.51	1.05
C.V. (%)	4.38	11.62	6.91	10.55

Source: Annual Reports & Accounts of Cement Companies under Study for the period from 2013-14 to 2017-18.

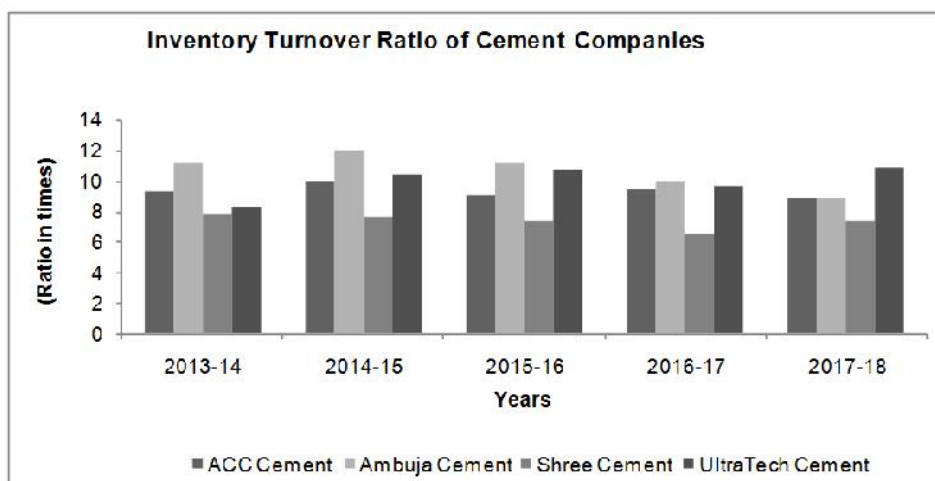


Fig. 2: Inventory Turnover Ratio

ACC Cement

It can be noted from the Table 3 that the inventory turnover ratio of ACC Cement showed a fluctuating trend during the period under study. During the year 2013-14, the inventory turnover ratio was 9.35 times which increased to 9.92 times in 2014-15 but decreased to 9.12 times in 2015-16. But then after, it increased to 9.46 times in 2016-17 but finally, decreased and came down to 8.82 times in 2017-18. The average of the inventory turnover ratio was 9.33 times which can be regarded satisfactory. The coefficient of variation was 4.38 percent showing consistency of the ratio which should be maintained.

Ambuja Cement

It is evident from the Table 3 that the inventory turnover ratio of Ambuja Cement showed a decreasing trend during the period under study except in the year 2014-15. During the year 2013-14, the ratio was 11.23 times which increased to 12.02 times in 2014-15 but decreased to 11.20 times in 2015-16. After that, it declined to 9.93 times in 2016-17 and further came down to 8.89 times in the final year 2017-18. The average of the inventory turnover ratio was 10.65 times which can be regarded satisfactory. The coefficient of variation was 11.62 percent showing minor fluctuations that should be kept in control.

Shree Cement

The inventory turnover ratio of Shree Cement showed a decreasing trend during the period under study except in the year 2017-18. During the year 2013-14, the ratio was 7.81 times which decreased to 7.59 times in 2014-15, 7.35 times in 2015-16 and further came down to 6.48 times in 2016-17. After that, it inclined and rose up to 7.38 times in the final year 2017-18. The average of the inventory turnover ratio was 7.32 times which can be regarded satisfactory. The coefficient of variation was 6.91 percent showing minor fluctuations that should be kept in control.

UltraTech Cement

It can be noted from the Table 3 that the inventory turnover ratio of UltraTech Cement showed an increasing trend during the period under study except in the year 2016-17. During the year 2013-14, the ratio was 8.34 times which increased to 10.41 times in 2014-15 and reached up to 10.74 times in 2015-16. After that, it declined to 9.61 times in 2016-17 but the ratio increased in the final year 2017-18 up to 10.91 times which was the highest ratio during the period under study. The average of the inventory turnover ratio was 10.00 times which can be regarded satisfactory. The coefficient of variation was 10.55 percent showing minor fluctuations that should be kept in control.

An overall comparison of inventory turnover ratio among all the cement companies under study reveals that the average ratio was highest for Ambuja Cement at 10.65 times followed by UltraTech at 10.00 times, ACC Cement at 9.33 times and lowest 7.32 times for Shree Cement. Although this ratio should be improved by all the companies and specially Shree Cement has to give proper attention to increase its inventory turnover ratio to improve profitability of the company.

Statistical Analysis: F-test

Following hypothesis has been tested for the ratio:

H₀: There is no significant difference between inventory turnover ratio of the cement companies under study.

H₁: There is significant difference between inventory turnover ratio of the cement companies under study.

Table 4 shows one way ANOVA statistics computed for the inventory turnover ratio of the companies under study for the period from 2013-14 to 2017-18.

Table 4: One Way ANOVA for Inventory Turnover Ratio

Source of Variation	Sum of Square	Degree of Freedom	Mean Sum of Square	F _c	F _t
Between Companies	31.1565	3	10.3855	13.5391	3.24
Within Companies	12.2732	16	0.7671		
Total	43.4297	19			

Decision: "F" test indicates that the calculated value of $F_c = 13.5391$ and tabular value of $F_t = 3.24$ at 5% level of significance. As the calculated value of F is more than table value of F , the null hypothesis has been rejected. It means there is a significant difference between the inventory turnover ratios of the companies under study.

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