CHAPTER-VIII

IMPACT OF WORKING CAPITAL ON PROFITABILITY
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8.1. INTRODUCTION

As a sequel to the analysis of profitability and working capital in the previous chapters, this chapter is devoted to analyse the impact of working capital on profitability of the two selected cement companies viz., ICL and MCL during the period from 1993/94 to 2007/08. As such, the objective of this chapter is to identify the relationship between working capital variables and profitability by using regression. The working capital variables explaining the variations in profitability are selected on the basis of the existing theories and relevant empirical works.

8.2 FACTORS AFFECTING PROFITABILITY

Keeping the two frequently used profitability measures of ROCE and ROTA in mind, the following variables, on the ‘a-priori’ ground, have been identified as determinant of profitability in the present chapter. The variables chosen are in the form of financial ratios. The factors affecting the variations in profitability of the two selected cement companies are working capital turnover ratio (WCTR), inventory turnover ratio (ITR), debtors turnover ratio (DTR), current ratio (CR) and liquid ratio (LR).
8.3. HYPOTHESIS

The following research questions are raised to frame the hypothesis.

i) How does working capital turnover ratio affect profitability?

ii) How do the liquidity ratios influence profitability?

iii) How do the inventory turnover ratio and debtors turnover ratio affect profitability?

Corresponding to these questions, the following hypotheses are formulated:

i) Profitability is an increasing function of working capital turnover ratio.

ii) Profitability is a decreasing function of liquidity ratios such as current ratio and liquid ratio.

iii) Profitability increases with increase in inventory turnover ratio and debtors turnover ratio.

8.4. PROFITABILITY FUNCTIONS:

Regarding the questions cited earlier, an attempt is made to answer by using the multiple regression framework. The function for profitability is estimated on the basis of the ordinary least square method as shown below:

\[ P = f \left( \frac{GWCTR}{NWCTR}, CR, LR, ITR, DTR \right) \]

Where P = profitability measured in terms to ROCE and ROTA

ROCE = Return on capital employed

ROTA = Return on total assets

GWCTR = Gross working capital turnover ratio

NWCTR = Net working capital turnover ratio

CR = Current ratio

LR = Liquid ratio
ITR = Inventory turnover ratio
DTR = Debtors turnover ratio

8.5. SPECIFICATION OF VARIABLES

a) The co-efficient of WCTR is expected to be positive. It implies that the increase in WCTR would tend to increase the profitability.

b) As per the accepted theory as well as the previous studies, the coefficient of liquidity measured in terms of current ratio and liquid ratio should be negatively related to profitability. It indicates that the increase in liquidity ratio would tend to decrease the profitability.

c) The coefficient of inventory turnover ratio and debtors turnover ratio should be positively related to profitability. It means that the increase in inventory turnover ratio and debtors turnover ratio would lead to increase profitability.

8.6. RESULTS AND DISCUSSION:

The regression functions for profitability in each selected cement company are now estimated to determine the variables explaining variations in profitability in terms of ROCE and ROTA.

8.6.1 PROBITABILITY MODEL 1

The profitability Model 1 has been constructed by using the variable viz., NWCTR, CR, LR, ITR and DTR as under:

\[ P = a + b_1 \text{NWCTR} + b_2 \text{CR} + b_3 \text{LR} + b_4 \text{ITR} + b_5 \text{DTR} - \text{Model 1} \]
P denotes profitability in terms of ROCE and ROTA

The estimated regression results of the profitability Model 1 for the selected two cement companies during the period 1993/94 – 2007/08 are summarised in Table 8.1

It is clear from Table 8.1 that the estimated regression function is found statistically good fit since the explanatory power of the equation measured by $R^2$ and F value appears to be good. The value of $R^2$ stood at 0.84 in ICL and 0.81 in MCL under ROCE, whereas it stood at 0.84 in ICL and 0.86 in MCL under ROTA measure of profitability. Thus about 86 percent to 81 percent of variation in profitability are explained by the dependent variable in that equation.

Table 8.1 shows that the coefficient of NWCTR is found to be of positive sign in ICL and MCL. But the coefficient of this variable is insignificant in both the companies. It shows that any change in NWCTR does not affect the profitability of the companies. It does not confirm our hypothesis that profitability increases with WCTR.

The current ratio, a traditional measure of liquidity, has an unexpected positive coefficient in ICL and MCL with ROCE measure of profitability. Besides, it obtains negative coefficient with ROTA measure of profitability in MCL, whereas it has a positive sign in ICL. Neither the positive coefficient, nor the negative coefficient of CR is statistically significant with profitability in both the firms. It implies that the current ratio does not influence the profitability of the firms under study. It does not confirm our hypothesis that current ratio and profitability has inverse relationship. The liquid ratio, an another measure of liquidity, has
### TABLE 8.1

**REGRESSION FUNCTION FOR IMPACT OF WORKING CAPITAL ON PROFITABILITY**

(1993/94 to 2007/08)

Model: \(1 - P = f (a+b_1 \text{NWTR} + b_2 \text{CR} + b_3 \text{LR} + b_4 \text{ITR} + b_5 \text{DTR} )\)

<table>
<thead>
<tr>
<th>P</th>
<th>Co.</th>
<th>Co-efficient of</th>
<th>R^2</th>
<th>F Ratio</th>
<th>D.W</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Constant</td>
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<td>CR</td>
<td>LR</td>
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<tr>
<td>ROCE</td>
<td>ICL</td>
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<td>2.636</td>
<td>7.078</td>
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<td></td>
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<td>(1.701)</td>
<td>(1.875)*</td>
<td>(-1.534)</td>
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<tr>
<td></td>
<td>MCL</td>
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<tr>
<td></td>
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<td>(-3.256)</td>
<td>(0.303)</td>
<td>(0.352)</td>
<td>(0.695)</td>
</tr>
<tr>
<td>ROTA</td>
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<td>4.974</td>
<td>-4.245</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-3.709)</td>
<td>(1.777)</td>
<td>(1.512)</td>
<td>(1.258)</td>
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<tr>
<td></td>
<td>MCL</td>
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<td>4.714</td>
<td>-4.795</td>
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</tr>
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<td></td>
<td>(2.536)</td>
<td>(0.521)</td>
<td>(-0.802)</td>
<td>(1.436)</td>
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</table>

**Note:** Figures in parenthesis are computed ‘t’ value.

**Significant level:** * 1 percent  ** 5 percent  *** 10 percent level.

**Source:** Centre for Monitoring Indian Economy (CMIE), Mumbai, India.
insignificant negative relationship with profitability (ROCE and ROTA) in ICL, whereas it has insignificant positive relationship with profitability in MCL. It implies that the liquid ratio does not influence the profitability of the firms under study. It does not confirm our hypothesis that liquid ratio and profitability has inverse relationship.

The co-efficient of DTR is positive and is statistically significant with ROTA in ICL only. It indicates that the increase in DTR increases the profitability (ROTA) in the case of ICL during the period of study. However, the positive co-efficient of DTR with ROCE in ICL and the negative co-efficient of DTR with ROCE in MCL are not statistically significant. Besides, the positive co-efficient of DTR with ROTA in MCL is not significant. It indicates that the DTR does not influence the ROCE in both cement companies during the period of study.

To sum up, out of the five independent variables under the profitability Model 1, only one variable, i.e. ITR significantly increases the profitability (ROCE and ROTA) in the case of ICL and MCL during the period of study. Most of other variables, such as NWCTR, CR, LR do not influence the profitability of both the firms under study. The DTR increases the ROTA in ICL, whereas it does not influence the ROTA in MCL as well as the ROCE in both the firms under study.

8.6.2 PROFITABILITY MODEL 2

The Profitability Model 2 has been turned by using five variables namely viz., Gross working capital turnover ratio (GWCTR), current ratio(CR), liquidity ratio (LR), inventory turnover ratio (ITR) and debtors turn over ratio (DTR) as under:
\[ P = a + b_1 \text{GWCTR} + b_2 \text{CR} + b_3 \text{LR} + b_4 \text{ITR} + b_5 \text{DTR} \Rightarrow \text{Model 2} \]

The estimated regression results of the profitability model 2 for the selected current companies during the period 1993/94 – 2007/08 are presented in Table 8.2.

It is clear from Table 8.2 that the estimated regression function is found statistically good fit since the explanatory power of the equation measured by \( R^2 \) and \( F \) value appears to be good. The value of \( R^2 \) stood at 0.84 in ICL and 0.83 in MCL under ROCE, whereas it stood at 0.83 in ICL and 0.87 in MCL under ROTA measure of profitability. Thus, about 87 percent to 83 percent of variation in profitability are explained by the independent variables in that equation.

It is evident from Table 8-2 that the regression co-efficient of GWCTR is positive but insignificant with ROCE as well as with ROTA in ICL. It is negative but insignificant with ROCE as well as with ROTA in the case of MCL. It implies that the GWCTR did not influence the profitability (ROCE and ROTA) in both the cement companies under the study. Hence, the hypothesis that the profitability is an increasing function of GWCTR has not been proved.

The co-efficient of CR is positive (contrary to the theoretical expectation) with profitability (ROCE and ROTA) in the case of ICL, whereas in MCL, it is positive with ROCE and negative with ROTA. The negative co-efficient of GWCTR with ROTA in MCL and the positive coefficient of GWCTR with ROCE in MCL as well as in ICL are statistically insignificant. It means that the CR did not influence the profitability in those cases. However, the significant positive relationship
### TABLE 8.2

**REGRESSION FUNCTION FOR IMPACT OF WORKING CAPITAL ON PROFITABILITY**

(1993/94 to 2007/08)

Model: \( P = f (a + b_1 \text{GWTR} + b_2 \text{CR} + b_3 \text{LR} + b_4 \text{ITR} + b_5 \text{DTR}) \)

<table>
<thead>
<tr>
<th>P</th>
<th>Co.</th>
<th>Co-efficient of</th>
<th>( R^2 )</th>
<th>F Ratio</th>
<th>D.W</th>
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<td></td>
<td>Constant</td>
<td>GWTR</td>
<td>CR</td>
<td>LR</td>
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<tr>
<td>ROCE</td>
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<td>MCL</td>
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<td></td>
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<td>(0.771)</td>
</tr>
<tr>
<td>ROTA</td>
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<td></td>
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<td>(1.631)</td>
<td>(1.840)**</td>
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<td>(-0.920)</td>
<td>(1.603)</td>
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**Note:** Figures in parenthesis are computed ‘t’ value.

**Significant level:** * 1 percent  ** 5 percent  *** 10 percent level.

**Source:** Centre for Monitoring Indian Economy (CMIE), Mumbai, India.
with ROTA in ICL implies that the increase in CR, increases the ROTA which is against the theoretical expectation. Hence, the hypothesis that profitability is a decreasing function of CR is not proved.

The co-efficient of LR is negative (expected) with ROCE as well as with ROTA in the case of ICL. On the other hand, the coefficient of LR is positive (unexpected) with ROCE as well as with ROTA in the case of MCL. Neither the negative coefficient nor the positive coefficient of LR with profitability is significant. Hence, the hypothesis that profitability is a decreasing function of LR is not proved.

The coefficient of ITR is positive (expected) as well as significant with profitability (ROCE and ROTA) in both the cement companies under the study. It indicates that the increase or decrease in ITR will significantly affect the profitability of the firms. Hence, the hypothesis that the profitability is an increasing function of ITR has been tested and proved.

The coefficient of DTR is positive (expected) with profitability (ROCE and ROTA) in both the firms (ICL and MCL) but significant only in ICL with ROCE measure of profitability. It means that the DTR influenced only the ROCE in ICL, whereas it did not influence the profitability in all other cases under the study.

To conclude, the variables such as GWCTR, LR and CR did not influence the profitability at all. Though the DTR influenced the ROCE in the case of ICL it did not influence the profitability in other cases under the study. The only variable that influenced the profitability of both firms under the study is ITR.
8.7. SUMMARY

From the above analysis, out of the five independent variables under the profitability model 1, only one variable i.e. ITR significantly increases the profitability (ROCE and ROTA) in the case of ICL and MCL during the period of study. Most of other variables, such as NWCTR, CR, LR do not influence the profitability of both the firms under study. The DTR increases the ROTA in ICL, whereas it does not influence the ROTA in MCL as well as the ROCE in both the firms under study. In the second regression model the variables such as GWCTR, LR and CR did not influence the profitability at all. Though the DTR influenced the ROCE in the case of ICL it did not influence any other measure of profitability under the study. The only variable that influenced the profitability of both firms under the study is ITR.

8.8. CONCLUSION:

In this chapter, attempt has been made to examine the impact of working capital ratios and liquidity ratios (NWCTR, CR, LR, ITR and DTR) on the profitability of (ROCE and ROTA) of the selected cement companies using the regression technique. ITR is found to be statistically significant in determining the profitability under ROTA and ROCE measure in both the firms under study. Besides Debtors Turnover Ratio is found to be the significant of profitability in ICL (ROCE and ROTA).