CHAPTER VIII
FINDINGS and CONCLUSIONS

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8.1 BACK GROUND OF THE STUDY

Managing various Components of Current Assets is a vital area of Financial Management. It also includes the decision related to current assets and financing of these assets. The term current assets means and includes, all the assets which can be converted into cash within an accounting year, and includes cash, short term securities, debtors bill receivables and stock For the production of goods some current assets are required, but the moment goods are produced they do not go immediately in the market and ultimately in the hands of customer who pays for it. This results into purchase of goods on credit from the supplier, converting raw-material into work-in-progress, then finished goods, then on sale conversion of finished goods into debtors and then conversion of debtors into cash. The payment to the creditors, to be made out of collections. Thus, for smooth running of the business this process has to move smoothly. This includes the management of components of assets, as well as financing of these assets from current liabilities or from various sources of the working capital finance. The efficiency with which this is managed is reflected in the final outcome of the enterprise in the form of profit of the enterprise. Thus, the liquidity and profitability are inter woven with each other. This is an area of concern for all, small and big enterprises. Hence, it becomes an area of concern and interest, for a student of finance to understand, examine, study and to provide guidelines about the proper management of these components of current assets.

For the purpose of detailed analysis, industries selected are:

(i) Steel Industry

(ii) Cement Industry

(iii) Organic Chemicals; and

(iv) Inorganic Chemicals.

The first two industries are having high capital intensity the latter industries are having low capital intensity. Considering the special nature of the Steel and Cement Industry in terms of its importance to the nation they are selected. Moreover, the Chemical industry is selected as it is also one of the important industries for the national development and growth..

It was observed that the average fixed assets for the Steel and Cement Industries were Rs. 670.28 and Rs. 793.41 respectively. This was found to Rs. 109.79 and Rs. 33.39 respectively for the Organic Chemicals Industry and for Inorganic Chemicals Industry. (Chapter IV Table 1)

8.2 METHODOLOGY ADOPTED

For the purpose of detailed analysis, a period of ten years from 1998-99 (as on 31-03-1999) to year 2007-08 (as on 31-03-2008) is selected. For this purpose listed, large companies was the criteria applied at the first screening phase. Thereafter, the data availability for a continuous period of 10 years was ensured. Then, the data were checked for abnormality, if any, and then the sample was selected. This resulted into available data as follows.

TABLE VIII 1

INDUSTRY WISE NUMBER OF COMPANIES

No.	Industry	Companies
1	Steel	52
2	Cement	24
3	Organic Chemicals Industry	39
4	Inorganic Chemicals Industry	21

The analytical tools applied for the purpose of analysis are mainly divided into 2 parts.

1. Financial Analysis Tools; and
2. Statistical Tools.

8.2.1. Financial Analysis Tools

Based on available literature and research studies related to the research topic, a list of various indicators of Management of Components of Current Assets as well as relevant Turnover Ratios are prepared. Moreover, based on the findings of the literature review, the study aims to analyze the impact of Management of Components of Current Assets as well as relevant Turnover Ratios, on profitability of the selected groups of sample companies. The ratios are further grouped in four parts; (i) Basic Ratios (ii) Structural Ratios (iii) Liquidity Ratios; and (iv)Turnover Ratios. Moreover, as the study intends to examine the impact of MCCA on profitability of the company, the ratio analysis and the trend analysis for these ratios is also carried out. These are presented in the Tabular form in Table VIII 2

TABLE VIII 2

No.	Ratios	Abbreviation
BASIC RATIOS (MCCA)		
1	CURRENT ASSETS TO TOTAL ASSETS	(CA/TA)
2	INVENTORY TO CURRENT ASSETS RATIO	(INV/CA)
3	RECEIVABLE TO CURRENT ASSETS RATIO	(REC/CA)
4	CASH & BANKBALANCE TO CURRENT ASSETS	(CB/CA)
STRUCTURAL RATIOS (MCCA)		
5	WORKING CAPITAL TO TOTAL ASSETS	(WC/TA)
6	WORKING CAPITAL TO CURRENT ASSETS	(WC/CA)
7	INVENTORY TO WORKING CAPITAL	(INV/WC)
8	RECEIVABLE TO WORKING CAPITAL	(REC/WC)
9	CASH & BANK BALANCE TO WORKING CAPITAL	(CB/WC)
10	INVENTORY TO GROSS FIXED ASSETS	(INV/GFA)
11	TOTAL LIABILITIES TO NET WORTH	(TL/NW)
12	NET FIXED ASSETS TO TOTAL ASSETS	(NFA/TA)
LIQUIDITRY RATIOS (MCCA)		
13	CURRENT RATIO	(CR)
14	QUICK RATIO	(QR)
15	CASH&BANK TO CURRENT LIABILITIES	(CB/CL)
TURNOVER RATIOS		
16	SALES TO TOTAL ASSETS	(TATR)
17	SALES TO NET FIXED ASSETS	(NFATR)
18	SALES TO CURRENT ASSETS	(CATR)
19	SALES TO WORKING CAPITAL	(WTR)
20	SALES TO INVENTORY RATIO	(ITR)
21	SALES TO DEBTORS RATIO	(DTR)
22	SALES TO CASH & BANK BALANCE	(CBTR)
23	AVERAGE COLLECTION PERIOD	(ACP)

TABLE VIII 2 (Contd.)

No.	Ratios	Abbreviation
24	CREDITORS TURNOVER RATIO	(CTR)
25	AVERAGE PAYMENT PERIOD	(APP)
PROFITABILITY RATIOS		
26	PROFIT BEFORE TAX TO TOTAL ASSETS	(PBT/TA)
27	PROFIT AFTER TAX TO TOTAL ASSETS	(PAT/TA)
28	GROSS PROFIT MARGIN	(GPM)
29	NET PROFIT MARGIN	(NPM)

8.2.2 Statistical Tools

1. To analyze the proportion of each component, for selected industries, the average of ten years for all the companies is derived and the grand average is derived. To examine the details about the level of fluctuations in the ratios between the companies, Standard Deviation and Co-efficient of Variation is computed.

2. To examine the variations, if any, for the selected ratios One Way Analysis Of Variance (ANOVA) is applied. These ANOVA is applied for mainly three purposes:

   i. To examine variations between the companies,

   ii. To examine variations between the years; and

   iii. To examine variations between the industries

3. Examining the impact of MCCA and various Turnover ratios on the Profitability of the companies was the final area of concern. Accordingly, the Simple Regression and Multiple Regressions analysis is applied to examine and analyze this impact and the extent and significance of the same.

8.3.1 OBJECTIVES OF THE STUDY

The present study of Components of Current Assets proposes to study and evaluate the procedure, practices and policies followed in the different industries for the different components of current assets. The study intends to analyze the management of components of current assets.

Precisely the objectives of the study are:

i. To analysis the average ratios related with management of components of current assets over a period of time for selected industries and variations amongst the same.

ii. To examine, the variances for a selected ratio between companies, between industries and between various years.

iii. To analyze, the impact of indicators of Management of Components of Current Assets on profitability of the selected sample.

iv. To analyze, the impact of Turnover Ratios on Profitability of the selected samples.

v. To suggest the measures for ensuring the effective and efficient utilization of different components of the working capital for the purpose of the maximization of shareholder's wealth.

8.3.2 HYPOTHESES

To achieve above objectives, for the purpose of the present study following hypotheses are framed:

H_{01} The proportion of CA/TA, INV/CA,REC/CA and CB/CA remain same over a period of time for all selected industries.

H_{02} The length of operating cycle and cash conversion cycle remains same over a period of time for all selected industries.

H_{03}The proportion of various structural ratios *viz* WC/TA, WC/CA, INV/WC, REC/ WC, CB/WC, INV/GFA, TL/NW and NFA/TA, the Liquidity Ratios *viz* CR, QR and CB/CL, and the Turnover Ratios *viz* TATR, NFATR, CATR, WTR, ITR, DTR, CBTR, ACP, CTR & APP remains same over a period of time for all selected industries.

H_{04} The selected Profitability Ratios remains same over a period of time.

H_{05} There is no variations for the selected ratios between the companies.

H_{06} There is no variations for the selected ratios between the years for selected companies.

H_{07} There are no variations between the industries.

H_{08} The level of sales do not affect the level of working capital

H_{09} The selected ratios indicating Management of Components of Current Assets do not affect Return On Assets.

H_{010} The selected Turnover Ratios do not affect to Return On Assets.

H_{011} The selected ratios indicating Management of Components of Current Assets do not affect Net Profit Margin.

H_{012} The selected Turnover Ratios do not affect to Net Profit Margin

8.4 MAJOR FINDINGS

The major findings of the study are presented here below:

8.4.1 Basic Ratios

The proportion of the CA/TA was found highest at 45% for the Organic Chemicals Industry and lowest 29% for the Cement Industry (Table IV 3). Over a period of ten years the ratio ranged between 27% (2002) to 50% (2008) for the Steel Industry, from 26%(1999) to 34% (2007) for Cement Industry, from 40% (2001) to 51% (2008) for the Organic Chemicals Industry and from 38% (2002) to 46% (2007) for the Inorganic Chemicals Industry (Table IV 4) Thus, the ratio has increased significantly at 1% level of significance over a period of time for three industries *viz* Steel, Cement and Organic Chemicals Industry. The ratio has increased at 5% level of significance for the Inorganic Chemicals Industry (Table IV 5)

On an average the ratio of INV/CA ranged between 35% to 41% indicating the proportion on inventories into current assets. (Table IV 6) The ratio has declined significantly at 5% level of significance for the Cement Industry and at 1% level of significance for the Inorganic Chemicals Industry, indicating the improvement in inventory management by these industries.(Table 8).

On examining the ratio of REC/CA it ranged, between 41% Cement Industry to 53% for Inorganic Chemicals Industry (Table IV 9). It was observed that more than 50% of the total current assets are blocked in the receivables.(Table IV 10) However, on examining the trend over a period of ten years the ratio has declined significantly for the Steel and the Cement Industry at 1% level of significance and at 10% level of significance for the Organic Chemicals Industry, this indicates that receivables management are given due consideration except the Inorganic Chemicals Industry.(Table IV 11).

However, on examining the CB/CA, the inverse results are observed the highest average of 13% for the Cement Industry and lowest was 7% for the Steel Industry. (Table IV 12) and it ranged between 8% (2001) to 26% (2007) for the Cement Industry (Table IV 13). On examining the trend over a period of time (Table IV 14) it is observed that, for all selected industries the ratio has increased significantly at 1% level of significance. The value of R^2 is also found to be quite high ranging from 0.57 to 0.70. This indicates the idle funds and poor cash management.

8.4.2 Operating Cycle and Cash Conversion Cycle

On examining the operating cycle for the selected industries the average of the Steel Industry is found to be the highest 185 days, indicating higher requirement of working capital and lowest for the Cement Industry 129 days (Table IV 15). The average of the operating cycle ranged between 280 (2004) to 93 (2007) for the Steel Industry,

for the Cement Industry, it ranged between 65.49 (1999) to 128.58 (2000). It ranged between 193.18 (1999) to 132.19 (2008) for Organic Chemicals Industry and between 81.68 (2004) to 148.85 (2000). (Table IV 16) On examining the trend over a period of time it was observed that operating cycle time has reduced over a period of time, for the Steel and Organic Chemicals Industry indicating improvement in management of inventory and receivables over a period of time. The cash conversion cycle, average found to be the highest 116.06 for the Organic Chemicals Industry and 19.96 lowest for Inorganic Chemicals Industry. (Table IV18). On analyzing the trend over a period of time it was observed that the time period of cash conversion cycle has declined significantly over a period of time for the Steel, Organic Chemicals Industry and Inorganic Chemicals Industry. This indicates that the improvement in managing working capital.(Table IV 20).

8.4.3 Structural Ratios

Out of eight structural ratios the ratio WC/TA was the highest at 26% for the Steel Industry. (Table V 2) The ratio has increased significantly over a period of time for the Steel and Organic Chemicals Industry, indicating financing of working capital has increased in these industries over a period of time The ratio declined significantly for the Inorganic Chemicals Industry, an indication of that the financing of working capital has reduced from the total assets. (Table V 4).

On examining the ratio of WC/CA it is found that approximately one-third of the current assets remain in the form of working capital (Table V5). The fluctuations between the companies are more as compared to fluctuations over a period of time. (Table V 6). The ratio has increased over a period time significantly for the Organic Chemicals Industry, an indication of improvement of working capital management. The ratio has declined significantly for the Inorganic Chemicals Industry, the liquidity position has declined for the Inorganic Chemicals Industry. (Table V 7). The ratio of INV/WC found to be the highest 79% for the Organic Chemicals Industry, indicating the huge amount of working capital is blocked in inventories (Table V 8). Out of four industries, only for Inorganic Chemicals Industry, the ratio has declined significantly, indicating that only one industry has improved in inventory management and for the remaining industries it was found to be stable (Table V 9)

The ratio of REC/WC was found to be the highest at 1.18 and it is more than working capital, the deviation between the companies is the highest for the Steel Industry, it is lowest for the Steel Industry. When deviations are examined between the years it is found to be the lowest for the Steel Industry (Table V 11 and 12). The management of receivables has improved only in Inorganic Chemicals Industry, over a period of time (Table V 13) The ratio of CB/WC was the highest at 24% for the Cement Industry, indicating high level of idle cash (Table V 14) However, the ratio remained stable over a period of time for all the industries, indicating that there is no improvement

in the management of Cash & Bank Balance by these industries.(Table V 16) The proportion of Inventory into the Gross Fixed Assets was the highest for the Steel Industry at 46% and lowest for the Cement Industry at 15% (Table V 17). The proportion of inventory has increased significantly for the Steel Industry and the Organic Chemicals Industry, the variables are explained at 82% and 77% over a period of time (Table V19). The proportion of Net Fixed Assets to Total Assets observed to be more than or equal to 50% for all the industries.(Table V 23) However, the ratio of NFA/TA has declined significantly for all the industries over a period of time.(Table 25) This goes in line with the ratio of CA/TA computed in Chapter IV, where CA/TA ratio has increased significantly over a period of time, as CA/TA increased, NFA/TA is bound to go down.

8.4.4 Liquidity Ratios

Out of three Liquidity Ratios viz CR, QR and CB/CL, the CR is the highest for the Steel Industry 3.30 and lowest 2.23 for the Cement Industry. The variations are found to be the highest for Inorganic Chemicals Industry (Table V 26). The ratio remained stable for Steel and Organic Chemicals Industry

The ratio has declined significantly for the Cement and Inorganic Chemicals Industry(Table V 28) Looking to industry average (Table V 26) and yearly average (Table V 27) it is clear that it has not fallen to a dangerous level, and an indication of improvement in Working Capital Management. The Quick Ratio was found to be the 2.14 for the Steel Industry, the highest and 1.29 for the Cement Industry, the lowest and 1.70 and 1.55 for Organic Chemicals and Inorganic Chemicals Industry, which is acceptable except for the Steel Industry (Table V 29) The ratio has remained stable over a period of time for all the selected industries indicating the stable behaviour of the ratio. (Table V31).The CB/CL, the most liquid ratio has remained more or less same for all the industries (Table V32). The ratio has ranged between 0.11 (2002) to 0.37 (2007) for the Steel Industry, between 0.17 (2004) to 0.56 (2007) for the Cement Industry, between 0.15 (2002) to 0.38 (2008) for Organic Chemicals Industry and between 0.17 (1999) to 0.50 (2007) for Inorganic Chemicals Industry (Table V 33) On examining the trend over a period of time, it is observed that the ratio has increased significantly over a period of time for the Cement and Organic Chemicals Industry. This indicates the idle funds and management of CB/CL is required to be improved. (Table V 34)

8.4.5 Turnover Ratios

On examination of proportion, fluctuations and trend over a period of time for all ten turnover ratios, it is observed that the ratio of TATR, sales are generated one and half times of the investment in the assets for the Steel Industry and lowest for the Cement Industry. (Table V 35) The ratio has increased significantly over a period of time for all the industries except the Steel Industry, in which it remained stable. (Table

V 37). Similar results are observed for the ratio of NFATR, the sales generated is more number of times for the fixed assets, for the Steel Industry, even though it is the high capital-intensive industry. (Table V 38) The movements over a period of time is also very high from 4.07 (1999) to 17.52 (2008) for the Steel Industry and from 1.87 (2000) to 20.23 (2008) for the Inorganic Chemicals Industry (Table V39). The ratio has increased significantly over a period of time for all the industries, indicating thereby improvement in utilization of net fixed assets by all the industries. (Table V 40). The CATR has remained low as compared to NFATR and remained more or less stable over a period of time. (Table V 43)

On examining the WTR, the average found to be the highest 5.48 for the Organic Chemicals Industry and lowest for the Cement Industry 2.51. (Table V 44). The ratio has fluctuated widely between years for the Steel Industry form 0.29 (2000) to 6.63 (2006), for the Cement Industry from -10.22 (2003) to 6.81 (2007), for the Organic Chemicals Industry from 1.71 (2004) to 10.18 (2008) and from 0.04 (2007) to7.67 (2002) for the Inorganic Chemicals Industry. The Std. Dev. is very high 5.38 for the Cement Industry, on account of one company (Binani Cement Ltd.) and lowest for the Steel Industry 2.07 (Table V 45). The ratio has remained more or less stable over a period of time for all the industries except the Inorganic Chemicals Industry, in which it declined significantly over a period of time (Table V 46) On analyzing the ITR it is observed that the sales are generated more than 8 times of inventory for all the industries. (Table V 47) and movements of the ratio was steadily increased for all the industries. (Table V 48) On examining the trends over a period of time, the ratio has increased significantly over a period of time for all the industries, indicating the improvement in utilization of inventories. (Table V 49). The ratio of DTR found to be the highest for the Cement Industry 8.91 and lowest for the Inorganic Chemicals Industry 5.01 (Table V 50) The movements over a period of time are found to be ranging from 4.51 (1999) to 7.92 (2005) for Steel Industry for the Cement Industry it ranged between 6.60 (2001) to 10.74 (2007). For Organic Chemicals Industry from 4.18 (1999) to 6.30 (2004) and for Inorganic Chemicals Industry from 4.24 (1999) to 6.10 (2008) (Table V 51) The ratio has increased significantly over a period of time for all the industries, indicating improvement in utilization of debtors. (Table V 52)

On analyzing the CBTR, it is found to be the highest for the Steel Industry 112.60 and lowest for the Cement Industry 54.95. (Table V 53) The Std. Dev. over a period of time found to be the highest for the Inorganic Chemicals Industry 28.54, and moderated for three industries *viz* Steel, Cement and Organic Chemicals Industry (Table V54) The ratio declined significantly over a period of time for the Cement Industry and increased significantly over a period of time for the Organic Chemicals Industry and remained stable for the Steel and Inorganic Chemicals Industry (Table V 55) The ACP ratio found to be the highest for the Steel and Inorganic Chemicals Industry

162.42 and 125.86, indicating thereby too liberal or inefficient credit and collection policy. (Table V 56). However, the ratio has fluctuated widely between years from 260.53 (2003) to 72.52 (2007) for the Steel Industry and for Inorganic Chemicals Industry the Std Dev found to be the highest 74.70. (Table V 57) The ratio has declined significantly for the Steel and Organic Chemicals Industry, indicating improvements in credit and collection policy. (Table V 58)

The CTR is found to be the highest for the Steel Industry at 12.74 and lowest for the Inorganic Chemicals Industry at 4.30. (Table V 59). The ratio declined significantly over a period of time for the Steel Industry and increased significantly for the Organic and Inorganic Chemicals Industry. From this it may be concluded that with reference to purchases, efficiency has improved for the Steel Industry, whereas it has deteriorated for other industries. (Table V 61) The APP ratio found to be the highest for the Cement Industry 240.19 and lowest 102.05 for the Organic Chemicals Industry. (Table V 62) The movements in the ratio was found to be 345 days (2004), 389 days (1999), 146 days (1999) and very high 774 days (2006) for the Steel, Cement, Organic and Inorganic Chemicals Industry respectively. On account of 774 days (2006) for Inorganic Chemicals Industry, the Std. Dev. for the Inorganic Chemicals Industry is also very high.(Table V 63) The ratio declined significantly over a period of time for Cement Industry.

8.4.6 Profitability Ratios

Of the four selected Profitability Ratios, *viz* PBT/TA, PAT/TA, GPM and NPM, the two ratios *viz* PBT/TA and PAT/TA are found to be very low for all the industries. (Table V 65 and V 68) The ratio has increased significantly over a period of time for the Steel, Cement and Organic Chemicals Industry, indicating focuses on operating performance and performance of the industries have improved, as the ratio has increased significantly over a period of time for all the industries except Inorganic Chemicals Industry. (Table V 67 and V 70) On analyzing the GPM, the ratio found to be the highest at 41% for the Organic Chemicals Industry and the lowest 5% for the Steel Industry (Table V 71) It ranged between -0.01 (2001) to 0.09 (2005) for the Steel Industry. For the Cement Industry it ranged between 0.11 to 0.23. It ranged between 0.37 (1999) to 0.43 (2005) for Organic Chemicals Industry and it ranges between 0.06 to 0.15 for Inorganic Chemicals Industry (Table V 72). The ratio has increased significantly over a period of time for the Steel and Cement Industry and remained stable over a period of time for Organic and Inorganic Chemicals Industry (Table V 73).

The NPM was the highest for the Cement Industry (Table V 74) and increased significantly over a period of time for the Cement and Organic Chemicals Industry. This indicates low production cost and improvement in net profit, efficiency of the industry and satisfactory return on owner's equity. All the selected profitability ratio remained insignificant for the Inorganic Chemicals Industry, indicating stable behaviour of the ratio.

The time trend observed for all the selected ratios is presented in the Tabular form Table VIII 3

TABLE VIII 3

TIME TREND FOR ALL RATIOS

No.	Ratio	Trend observed over a period of time			
		Steel	Cement	Organic Chemicals Industry	Inorganic Chemicals Industry
Basic Indicators of MCCA					
1	CA/TA	+VE*	+VE*	+VE*	+VE**
2	INV/CA	NS	-VE**	NS	-VE*
3	REC/CA	-VE*	-VE*	-VE***	NS
4	CB/CA	+VE*	+VE*	+VE*	+VE*
Structural Ratios					
5	WC/TA	+VE***	NS	+VE**	-VE***
6	WC/CA	NS	NS	+VE***	-VE***
7	INV/WC	NS	NS	NS	-VE***
8	REC/WC	NS	NS	NS	-VE***
9	CB/WC	NS	NS	NS	NS
10	INV/GFA	+VE*	NS	+VE*	NS
11	TL/NW	NS	NS	NS	-VE***
12	NFA/TA	-VE*	-VE*	-VE*	-VE***
Liquidity Ratios					
13	CR	NS	-VE*	NS	-VE**
14	QR	NS	NS	NS	NS
15	CB/CL	NS	+VE**	+VE*	NS
Turnover Ratio					
16	TATR	NS	+VE*	+VE*	+VE*
17	NFATR	+VE*	+VE*	+VE*	+VE*
18	CATR	NS	NS	NS	NS

TABLE VIII 3 (Contd.)

No.	Ratio	Trend observed over a period of time			
		Steel	Cement	Organic Chemicals Industry	Inorganic Chemicals Industry
19	WTR	NS	NS	NS	-VE***
20	ITR	+VE**	+VE*	+VE***	+VE**
21	DTR	+VE**	+VE*	+VE***	+VE***
22	CBTR	NS	-VE**	+VE***	NS
23	ACP	-VE***	NS	-VE**	NS
24	CTR	-VE***	NS	NS	+VE*
25	APP	NS	-VE*	NS	NS
Profitability Ratio					
26	PBT/TA	+VE*	+VE*	+VE*	NS
27	PAT/TA	+VE*	+VE*	+VE*	NS
28	GPM	+VE**	+VE**	NS	NS
29	NPM	NS	+VE*	+VE*	NS
Operating Cycle		-VE**	NS	-VE**	NS
Cash Conversion Cycle		NS	NS	-VE**	NS

NS Not Significant
* Significant at 1% level of significance
** Significant at 5% level of significance
*** 10% level of significance

8.5 One Way Analysis Of Variances:

As a next step in the Management of Components Of Current Assets, it was considered essential to examine variations within industry between companies, within industry over a period of time, between the industries on wholistic base and between the industries over a period of time. This analysis, which is carried out through the Statistical tool of ANOVA, is presented in Chapter VI. The major findings are presented in the following para.

8.5.1 Variances Between the Companies (Table VIII 4)

1. For all 4 Basic ratios of components of Current Assets significant variance is observed between the companies within given industry. This is observed for all four selected industries.

2. Out of eight structural ratios for four ratios *viz* WC/TA, WC/CA INV/GFA and NFA/TA significant variance is observed for the Steel Industry, for six ratios *viz* WC/TA, WC/CA, INV/WC, CB/WC, INV/GFA and NFA/TA have significant variance for the Cement Industry. For five ratios *viz* WC/TA, WC/CA, CB/WC, INV/GFA and NFA/TA for the Organic Chemicals Industry and Inorganic Chemicals Industry significant variations are observed..

3. For all three liquidity ratios *viz* CR, QR and CB/CL significant variance is observed between companies for all four industries.

4. On examining of variance between companies for turnover ratios, it is observed that there were significant variances between companies for all ten ratios for the Steel Industry and the Cement Industry. For Organic Chemicals Industry for WTR, variance was not found significant between companies. For remaining nine ratios, variances were significant. For the Inorganic Chemicals Industry, variances were found to be significant for eight ratios *viz* TATR, CATR, WTR, ITR, DTR, CBTR, ACP and CTR, and it was not significant for NFATR and APP.

5. For all four selected profitability ratios, significant variances between companies were observed for all four selected industries.

The summary of these findings are presented in the Tabular Form in Table VIII 4. The Table gives computed F value.

TABLE VIII 4

SUMMARY OF VARIATIONS IN SELECTED RATIOS

BETWEEN COMPANIES — F values

No.	Ratios	Steel Industry	Cement Industry	Organic Chemicals Industry	Inorganic Chemicals Industry
Basic Indicators (MCCA)					
1	CA/TA	21.71*	20.97*	27.32*	33.75*
2	INV/CA	8.18*	9.21*	11.08*	11.55*
3	REC/CA	14.28*	10.09*	14.38*	11.38*
4	CB/CA	6.58*	5.89*	12.36*	9.08*
Structural Ratios (MCCA)					
5	WC/TA	20.69*	15.76*	16.31*	15.54*
6	WC/CA	6.13*	10.70*	9.35*	2.91*
7	INV/WC	NS	1.97*	NS	NS

TABLE VIII 4 (Contd.)

No.	Ratios	Steel Industry	Cement Industry	Organic Chemicals Industry	Inorganic Chemicals Industry
8	REC/WC	NS	NS	NS	NS
9	CB/WC	NS	2.02*	1.54**	1.63**
10	INV/GFA	8.19*	9.85*	14.45*	2.26*
11	TL/NW	NS	NS	NS	NS
12	NFA/TA	29.61*	26.25*	26.63*	32.24*
Liquidity Ratios (MCCA)					
13	CR	14.66*	18.61*	7.81*	5.73*
14	QR	14.15*	9.56*	6.54*	6.84*
15	CB/CL	4.62*	5.47*	6.47*	5.42*
Turnover Ratios					
16	TATR	30.11*	16.17*	22.06*	14.52*
17	NFATR	5.94*	10.61*	35.96*	NS
18	CATR	13.53*	18.68*	10.02*	15.50*
19	WTR	1.64*	1.74**	NS	2.60*
20	ITR	9.39*	13.41*	10.26*	10.13*
21	DTR	11.40*	20.19*	10.50*	18.54*
22	CBTR	4.28*	5.36*	3.41*	6.81*
22	ACP	8.75*	25.85*	5.14*	2.11*
24	CTR	5.68*	4.05*	11.83*	10.00*
25	APP	3.85*	9.70*	4.85*	NS
Profitability Ratios					
26	PBT/TA	3.19*	2.84*	3.68*	4.74*
27	PAT/TA	3.08*	2.69*	3.12*	4.33*
28	GPM	46.43*	15.43*	72.76*	5.41*
29	NPM	3.57*	6.80*	5.42*	8.03*
F crit Value 1%		1.56	1.88	1.67	1.98
F crit Value 5%		1.37	1.57	1.44	1.63

* indicates variations at 1% level of significance
** indicates variations at 5% level of significance
NS not significance

8.5.2 Variances Between the Years (Table VIII 5)

1. On examining variances for the Steel Industry between the years, out of four basic ratios, for the ratio of CB/CA significant variance is observed. out of the eight structural ratios only NFA/TA is found to have significant variances. None of the liquidity ratios are found to have significant variance. Out of turnover ratios, only DTR has significant variance between the years, and of the profitability ratios, PBT/TA and PAT/TA are showing significant variances between the years.

2. For the Cement Industry, for basic indicators of MCCA, significant variance is observed for INV/CA, REC/CA and CB/CA. Out of the eight structural ratios, none is having significant variance. Out of the three liquidity ratios, only CB/CL has significant variance. Out of the ten turnover ratios only, five ratios have significant variances. They are TATR, NFATR, ITR, CBTR and APP. Out of the four profitability ratios, all have significant variance.

3. For the Organic Chemicals Industry, for basic ratios the significant variance is observed for the ratio of CA/TA. Out of eight structural ratios only in two ratio *viz* WC/TA and NFA/TA significant variances is observed. Out of three liquidity ratios none have significant variance between the years. Out of ten turnover ratios only in the ratio of DTR and ACP, the significant variance is observed. Out of four profitability ratios significant variance is observed for the two ratios *viz* PBT/TA and PAT/TA.

4. For the Inorganic Chemicals Industry in none of the ratios significant variance is observed over a period of time.

The summary of these findings are presented in the tabular form in Table VIII 5 The Table presents the computed F value.

TABLE VIII 5

SUMMARY OF VARIATIONS OVER A PERIOD OF TIME

BETWEEN YEARS — F values

No.	Ratios	Steel Industry	Cement Industry	Organic Chemicals Industry	Inorganic Chemicals Industry
Basic Ratios					
1	CA/TA	NS	NS	2.15**	NS
2	INV/CA	NS	3.65*	NS	NS
3	REC/CA	NS	1.66***	NS	NS
4	CB/CA	2.17*	6.46*	NS	NS

TABLE VIII 5 (Contd.)

No.	Ratios	Steel Industry	Cement Industry	Organic Chemicals Industry	Inorganic Chemicals Industry
Structural Ratio					
5	WC/TA	NS	NS	1.68**	NS
6	WC/CA	NS	NS	NS	NS
7	INV/WC	NS	NS	NS	NS
8	REC/WC	NS	NS	NS	NS
9	CB/WC	NS	NS	NS	NS
10	INV/GFA	NS	NS	NS	NS
11	TL/NW	NS	NS	NS	NS
12	NFA/TA	1.87***	NS	2.10**	NS
Liquidity Ratios					
13	CR	NS	NS	NS	NS
14	QR	NS	NS	NS	NS
15	CB/CL	NS	3.77*	NS	NS
Turnover Ratios					
16	TATR	NS	1.90***	NS	NS
17	NFATR	NS	3.16*	NS	NS
18	CATR	NS	NS	NS	NS
19	WTR	NS	NS	NS	NS
20	ITR	NS	2.18**	NS	NS
21	DTR	2.73*	NS	2.29**	NS
22	CBTR	NS	1.84***	NS	NS
23	ACP	NS	NS	2.33**	NS
24	CTR	NS	NS	NS	NS
25	APP	NS	2.48*	NS	NS
Profitability Ratios					
26	PBT/TA	3.55*	9.84*	1.87***	NS
27	PAT/TA	2.39**	6.47*	1.74***	NS

TABLE VIII 5 (Contd.)

No.	Ratios	Steel Industry	Cement Industry	Organic Chemicals Industry	Inorganic Chemicals Industry
28	GPM	NS	3.02*	NS	NS
29	NPM	NS	5.76*	NS	NS
F crit Value 1%		2.44	2.48	2.45	
F crit Value 5%		1.90	1.92	1.90	
F crit Value 10%		1.64	1.66	1.65	
NS Non Significant* indicates variations at 1% level of significance ** indicates variations at 5% level of significance***indicates variations at 10% level of significance					

8.5.3 Variance Between the Industries

1. On examining variances between the industries, it is observed that for twenty ratios out of total twenty-nine ratios, significant variances are observed. (Chapter VI Table VI 19)

2. On examining variances between years taking all four industries together, only three ratios *viz* CB/CA, CB/CL and ITR, significant variances are observed. (Chapter VI Table VI 20).

8.6 IMPACT OF SALES ON WORKING CAPITAL

To examine the impact of sales on working capital the regression is carried out (Chapter VII Table VII 1) and the value of R^2 found to be 0.999 for the Steel Industry, implying thereby 99.9% variation on working capital are explained by variations in sales. This is logical when sales increases the requirement of working capital would be more. Similar, results are found for other industries also. Even the lowest prediction power was as high as 63% for the Cement Industry.

8.7 IMPACT OF LIQUIDITY ON PROFITABILITY

To examine the impact of indicators of MCCA and Turnover Ratios on Profitability Ratios, the Basic Ratios (4), Structural Ratios (8) and the Liquidity Ratios (3) were taken as indicators of MCCA, and the 10 Turnover Ratios were selected to examine the impact of activity of various assets on Profitability. Out of four Profitability Ratios, ROA and NPM are considered for the analysis to examine this impact; simple regressions as well as multiple regressions are carried out. Summary and findings of empirical analysis through multiple regressions are presented from Table VIII 6 to Table VIII 9.

8.7.1 Impact of Indicators of MCCA on ROA

To examine the joint effects of various indicators of MCCA on ROA, for each industry the simple regression is taken as the base. If a particular indicator of MCCA is found to be significant, then only it is taken for the multiple regressions.

Steel Industry: When ROA is regressed on indicators of MCCA in none of the variable, the prediction power is found to be more than 50%

Cement Industry: When ROA is regressed on indicators of MCCA in none of the variable, the prediction power is found to be more than 50%

Organic Chemicals Industry: When ROA is regressed on indicators of MCCA in none of the variable, the prediction power is found to be more than 50%.

Inorganic Chemicals Industry: When WC/TA, INV/WC, REC/WC, CB/WC and INV/GFA are taken together it has highest explanatory power for ROA. The value of the Adj.R^2 is found to be the highest here at 0.727. When, WC/TA, is replaced with WC/CA keeping other ratios same the value of Adj.R^2 goes down to 0.626, still this is quite high. It may be noted further that, in both these regressions INV/WC, REC/WC and CB/WC are not found to be significant. When INV/WC and INV/GFA are taken together the value of R^2 is found to be 0.513. Here, only two variables are able to explain 51.3% variations of ROA. INV/WC has positive significant impact at 1% level of significance and INV/GFA has negative significant impact at 5% level of significance. The results of this regressions are presented in Table VIII 6.

TABLE VIII 6

MULTIPLE REGRESSION OF ROA ON VARIOUS INDCATORS OF MCCA

INORGANIC CHEMICALS INDUSTRY

No.	R^2 (Adj. R^2)	b_0	WC/TA (t value)	WC/CA (t value)	INV/WC (t value)	REC/WC (t value)	CB/WC (t value)	INV/GFA (t value)	INV/GFA (t value)
1	0.795 (0.727)	- 0.030	0.226 (4.202)*		0.034 (1.134)	0.007 (0.380)	-0.012 (-0.278)	-0.096 (-2.848)**	0.034 (1.134)
2	0.720 (0.626)	- -0.018		0.080 (2.973)*	0.040 (1.141)	-0.004 (0.184)	0.018 (0.366)	-0.077 (-1.855)***	0.040 (1.141)
3	0.513 (0.458)	0.007			0.058 (3.712)*			-0.091 (-2.451)**	

* indicates variations at 1% level of significance
** indicates variations at 5% level of significance

8.7.2 Impacts of the Turnover Ratios on ROA

To examine the joint effects of various Turnover Ratios on ROA, for each industry the simple regression is taken as the base. If a particular Turnover Ratio is found to be significant, then only it is taken for the multiple regressions.

Steel Industry: When ROA is regressed on Turnover Ratios, in none of the variable, the prediction power found to be more than 50%

Cement Industry: When ROA is regressed on Turnover Ratios, in none of the variable, the prediction power found to be more than 50%

Organic Chemicals Industry: When ROA is regressed on Turnover Ratios, in none of the variable, the prediction power found to be more than 50%.

Inorganic Chemicals Industry While examining the impact of various combinations of turnover ratios on ROA, for the Inorganic Chemicals Industry it is observed that the impact of TATR, NFATR, WTR, ITR, DTR and CBTR, i.e. all turnover ratios are found to be significant in one or the other combinations. The highest value of Adj. R^2 was found when NFATR and DTR are taken, and both the variables are found to have significant impact on ROA, 66.7% of variations in ROA are explained by changes in these two explanatory variables. When NFATR and WTR are taken together then also value of Adj. R^2 is found to be 0.653 indicating there by that 65.3% variation in ROA are explained by these two variables. In brief, it can be said that in case of the Inorganic Chemicals Industry almost all the turnover ratios affect significantly ROA.

TABLE VIII 7

MULTIPLE REGRESSION OF ROA ON VARIOUS TURNOVER RATIOS

INORGANIC CHEMICALS INDUSTRY

No.	R^2 Adj. R^2	b_0	TATR (t value)	NFATR (t value)	WTR (t value)	ITR (t value)	DTR (t value)	CBTR (t value)
1	0.519 (0.466)	-0.088	0.072 (2.421)**		0.006 (3.109)*			
2	0.525 (0.406)	-0.109	0.044 (1.241)			0.004 (1.500)	0.011 (1.639)	-0.001 (-1.573)
3	0.688 (0.653)	0.007		-0.005 (-4.330)*	0.005 (3.264)*			
4	0.700 (0.667)	-0.043		-0.005 (-4.555)*			0.015 (3.436)*	

TABLE VIII 7 (Contd.)

No.	R^2 Adj. R^2	b_o	TATR (t value)	NFATR (t value)	WTR (t value)	ITR (t value)	DTR (t value)	CBTR (t value)
5	0.503 (0.448)	0.035		-0.006 (-4.012)*				-5E-06 (-0.049)
6	0.700 (0.647)	-0.044		-0.005 (-4.284)*		0.001 (0.087)	0.015 (3.067)*	
7	0.546 (0.465)	0.009		-0.005 (-3.019)*		0.003 (1.259)		-7.5E-05 (-0.654)
8	0.700	-0.044		-0.005 (-4.284)*		0.001 (0.087)	0.015 (3.067)*	
9	0.704 (0.630)	-0.044		0.005 (-3.477)*		0.001 (0.288)	0.014 (2.921)*	-4.2E-05 (-0.437)

* 1% level of significance ** 5% level of significance

8.7.3 Impact of Indicators of MCCA on NPM

Steel Industry: In the case of the Steel Industry while running simple regression it was observed that CA/TA, WC/TA and CA/TA,WC/CA have significant impact on NPM. It is observed (Table VIII 8) that the value of Adj. R^2 is 62.8 when only two variables *viz* CA/TA and WC/CA are taken. This indicates that these variables are able to explain 62.8% variations in NPM.

Cement Industry: When ROA is regressed on indicators of MCCA in none of the variable, the prediction power is found to be more than 50%

Organic Chemicals Industry: When ROA is regressed on indicators of MCCA in none of the variable, the prediction power is found to be more than 50%

Inorganic Chemicals Industry The eight variables were found to have significant impact on NPM, while running simple regression. From the Table certain important observations can be made. When WC/TA, INV/WC, REC/WC, CB/WC and INV/GFA are taken together the value of Adj. R^2 goes upto 0.827 respectively indicating that, these factors explain variations in NPM to the tune of 82.7%. However, it may be noted that the value of the factors shows significant t-value. This is attributable to the problem of multi co linearity. The correlation co efficient between INV/WC and REC/WC is as high as 0.88, INV/WC to CB/WC is 0.79, REC/WC and CB/WC is 0.84. When WC/TA and INV/GFA are taken together the explanatory power increases to 69.9%, conveying thereby that out of total change in NPM, 69.9% of variations

are explained by these two variables. Hence, one can say that if proper care is taken to manage these two variables, profit can, also be managed in a significant manner.

TABLE VIII 8

SUMMARY OF MULTIPLE REGRESSIONS OF NPM ON INDICATORS OF MCCA

No.	R^2 (Adj. R^2)	b_o	CA/TA (t value)	WC/TA (t value)	WC/CA (t value)	INV/WC (t value)	REC/WC (t value)	CB/WC (t value)	INV/GFA (t value)	CR (t value)	QR (t value)
Steel Industry											
1	0.643 (0.628)	0.222	-3.023 (-2.041)""		3.225 (8.983)*						
Inorganic Chemicals Industry											
2	0.729 (0.699)	-0.086		0.641 (6.229)*					-0.227 (-3.792)*		
3	0.513 (0.459)	-0.131		0.625 (3.250)*						-0.009 (-0.223)	
4	0.513 (0.459)	-0.136		0.614 (3.666)*							-0.008 (-0.194)
5	0.730 (0.682)	-0.073		0.669 (4.519)*					-0.227 (-3.692)*	-0.008 (-0.271)	
6	0.734 (0.687)	-0.067		0.684 (5.311)*					-0.223 (-3.757)*		-0.018 (-0.571)
7	0.870 (0.827)	-0.108		0.545 (5.919)*		0.086 (1.693)	0.004 (0.129)	-0.030 (-0.394)	-0.221 (-3.837)*		
8	0.599 (0.554)	-0.077			0.243 (4.519)*				-0.129 (-1.764)"		
9	0.531 (0.479)	-0.137			0.248 (3.413)*					0.009 (0.250)	
10	0.533 (0.481)	-0.137			0.248 (3.841)*						0.012 (0.342)
11	0.610 (0.541)	-0.114			0.211 (2.988)*				-0.142 (-1.856)"	0.022 (0.701)	
12	0.605 (0.535)	-0.097			0.228 (3.666)*				-0.132 (-1.764)"		0.017 (0.509)
13	0.739 (0.653)	-0.072			0.177 (3.152)*	0.113 (1.545)	-0.029 (-0.633)	0.051 (0.484)	-0.187 (-2.160)"		
14	0.506 (0.452)	-0.208				0.123 (3.609)*					0.083 (2.576)"

*1% level of significance " 5% level of significance

8.7.4 Impact of Turnover Ratios on NPM

From the simple regression, it is observed that for the Steel Industry and Organic Chemicals Industry none of the turnover ratios have significant impact on NPM, and hence, it is not considered for running the multiple regression. Moreover, for the Cement Industry, it is only CBTR, which is found to have significant impact on NPM. Hence, for the Cement Industry, as well, multiple regressions are not carried out. For the Inorganic Chemicals Industry out of 6 turnover ratios 5 are found to have significant impact on NPM. Hence, this is considered for the purpose of carrying out multiple regression. The results are presented in Table VIII 9. On examination of the Table it can be inferred that run 1st has the highest value of Adj. R^2 (0.666). This indicates that NFATR and WTR jointly are able to explain 66.6% variations in NPM. This is followed by value of Adj. R^2 at 0.654 for NFATR and DTR jointly. When NFATR, ITR and DTR are taken, the value of Adj. R^2 is found to be 0.636. Thus if the level of working capital, inventory and debtors with reference to sales are taken care of then, it will affect positively to NPM, higher the turnover ratios, higher the NPM. With reference to NFATR, the impact is negative, meaning thereby higher the turnover of NFATR lower the NPM.

TABLE VIII 9

MULTIPLE REGRESSIONS OF NPM ON TURNOVER RATIOS

INORGANIC CHEMICALS INDUSTRY

No.	R^2 (Adj. R^2)	b_0	NFATR (t value)	WTR (t value)	ITR (t value)	DTR (t value)	CBTR (t value)
1	0.699 (0.666)	-0.002	-0.013 (-5.120)*	0.009 (2.464)**			
2	0.621 (0.578)	-0.003	-0.014 (-4.762)*		0.005 (1.038)		
3	0.689 (0.654)	-0.071	-0.014 (-5.196)*			0.021 (2.286)**	
4	0.690 (0.636)	-0.078	-0.013 (-4.849)*		0.001 (0.308)	0.020 (1.952)***	
5	0.599 (0.554)	0.045	-0.014 (-4.821)*				-4E-05 (-0.206)
6	0.635 (0.570)	-0.007	-0.013 (-3.741)*		0.007 (1.291)		-0.001 (-0.891)
7	0.698 (0.623)	-0.078	-0.012 (-3.895)*		0.003 (0.578)	0.019 (1.830)**	-0.001 (-0.642)

8.8 LIMITATIONS OF THE STUDY

1. The present study is confined to four industries only. Hence, the findings may not be applicable to other industries.
2. Moreover, the study is confined to Large size Listed Companies only. The similar findings may not be applicable for small companies.
3. The period of analysis is ten years. This may not be applicable for other period of study.

8.9 SUGGESTED AREA OF FURTHER RESEARCH

1. The study may be carried out for other high capital-intensive industries like Textiles, Constructions, and Mining.
2. A study may be conducted for small and medium size of companies, which reveals the practices followed in these companies in Management of Components of Current Assets.

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