CHAPTER VI
ANALYSIS OF VARIANCE BETWEEN
THE COMPANIES AND INDUSTRIES

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ANALYSIS OF VARIANCE BETWEEN
THE COMPANIES AND INDUSTRIES

In Chapter IV the basic ratios indicating Components of Current Assets: Basic Indicators are analyzed to examine the overall average, yearly movements and trend over a period of ten years. In the Chapter V the ratios indicating the components of current assets as well as overall structural ratios, liquidity ratios, turnover ratios and the profitability ratios are studied to examine their overall average, and variations, yearly movements and trend over a period of time.

This Chapter attempts to examine the variations if any,

      (a)   between various companies of a given industry,

      (b)   between the years within a given industry and

      (c)   variations between the industries.

For this purpose this Chapter is divided into three parts. Part I deals with the Analysis Of Variance (ANOVA) of the components of the current assets dealt within Chapter IV and Part II deals with the Analysis Of Variance of the Basic Components of the Current Assets and Other Working Capital Ratios dealt within Chapter V and Part III deals with the Analysis Of Variance between the Industries.

PART I

ANALYSIS OF VARIANCE FOR BASIC COMPONENTS OF CURRENT ASSETS

6.1 Variance Between The Companies

As mentioned in the preceding paras, this part will attempt to examine variations in basic ratios viz CA/TA, INV/CA, REC/CA and CB/CA, between companies, within a given industry. The results of ANOVA computations company wise shown from Tables VI 1 to VI 4, for each selected industry viz Steel, Cement, Organic Chemicals and Inorganic Chemicals Industry.

6.1.1 Steel Industry

One way ANOVA between the companies for the Steel Industry is presented in Table VI 1.

While analyzing the variance between the companies for the Steel Industry, for basic current assets ratios, it was observed that for all the ratios significant variations are

observed between the companies at 1% level of significance and the highest variation is observed for the ratio of CA/TA. Therefore, it can be concluded that for the Steel Industry all the basic ratios of components of current assets *viz* INV/CA, REC/CA and CB/CA are significantly different between the companies.

TABLE VI 1

ONE WAY ANALYSIS OF VARIANCE BETWEEN COMPANIES

STEEL INDUSTRY

No.	Ratio	SS	df	MS	F value
1	CA/TA				
	(i) Between Groups	15.23	51	0.30	21.71*
	(ii) Within Groups	6.44	468	0.01	
2	INV/CA				
	(i) Between Groups	5.30	51	0.10	8.18*
	(ii) Within Groups	5.94	468	0.01	
3	REC/CA				
	(i) Between Groups	8.32	51	0.16	14.28*
	(ii) Within Groups	5.34	468	0.01	
4	CB/CA				
	(i) Between Groups	2.51	51	0.05	6.58*
	(ii) Within Groups	3.50	468	0.007	
F crit value 1.56 * variation at 1% level					

6.1.2 Cement Industry

One way ANOVA between the companies for the Cement Industry is presented in Table VI 2

While analyzing the variance between the companies for Cement Industry, for basic current assets ratios, it was observed that for all the ratios significant variations are observed, at 1% level of significance. The highest variance is observed for the ratio of CA/TA.

TABLE VI 2

ONE WAY ANALYSIS OF VARIANCE BETWEEN COMPANIES

CEMENT INDUSTRY

	No. Ratio	SS	df	MS	F value
1	CA/TA				
	(i) Between Groups	3.25	23	0.14	20.97*
	(ii) Within Groups	2.41	216	0.01	
2	INV/CA				
	(i) Between Groups	2.36	23	0.10	9.21*
	(ii) Within Groups	2.49	216	0.01	
3	REC/CA				
	(i) Between Groups	2.67	23	0.12	10.09*
	(ii) Within Groups	2.49	216	0.01	
4	CB/CA				
	(i) Between Groups	1.64	23	0.07	5.89*
	(ii) Within Groups	2.62	216	0.01	
F crit value 1. 88 * variation at 1% level					

6.1.3 Organic Chemical Industry

One way ANOVA between the companies for the Organic Chemicals Industry is presented in Table VI 3

While analyzing the variance between the companies for Organic Chemicals Industry, for basic current assets ratios, it was observed that for all the ratios significant variance is observed, at 1% level of significance. The highest variance is observed for the ratio of CA/TA.

TABLE VI 3

ONE WAY ANALYSIS OF VARIANCE BETWEEN COMPANIES

ORGANIC CHEMICALS INDUSTRY

No.	Ratio	SS	df	MS	F value
1	CA/TA .				
	(i) Between Groups	8.81	38	0.23	27.32*
	(ii) Within Groups	2.98	351	0.01	

2	INV/CA				
	(i) Between Groups	3.46	38	0.09	11.08*
	(ii) Within Groups	2.89	351	0.01	
3	REC/CA				
	(i) Between Groups	5.21	38	0.14	14.38*
	(ii) Within Groups	2.98	312	0.01	
4	CB/CA				
	(i) Between Groups	2.70	38	0.07	12.36*
	(ii) Within Groups	2.02	351	0.01	
F crit Value 1.67 * variation at 1% level					

6.1.4 Inorganic Chemicals Industry

One way ANOVA between the companies for the Inorganic Chemicals Industry is presented in Table VI 4

While analyzing the variance between the companies for Inorganic Chemicals Industry, for basic current assets ratios, it was observed that for all the ratios significant variance is observed, at 1% level of significance. The highest variation is observed for the ratio of CA/TA.

TABLE VI 4

ONE WAY ANALYSIS OF VARIANCE BETWEEN COMPANIES

INORGANIC CHEMICALS INDUSTRY

No.	Ratio	SS	df	MS	F value
1	CA/TA				
	(i) Between Groups	6.24	20	0.31	33.75*
	(ii) Within Groups	1.75	189	0.01	
2	INV/CA				
	(i) Between Groups	2.65	20	0.13	11.55*
	(ii) Within Groups	2.17	189	0.01	
3	REC/CA				
	(i) Between Groups	3.09	20	0.15	11.38*
	(ii) Within Groups	2.57	189	0.01	
4	CB/CA				
	(i) Between Groups	1.77	20	0.09	9.08*
	(ii) Within Groups	1.84	189	0.01	
F crit Value 1.98 * variation at 1% level					

From the above it can be concluded that for all the ratios and for all the industries there exists significant variance between companies for all the industries. The highest variance is observed for CA/TA.

6.2 Variance Between The Years

This part deals with Analysis Of Variance for the components of current assets between the years. This is shown from Table VI 5 to VI 8

6.2.1 Steel Industry

One way ANOVA between the years for the Steel Industry is presented in Table VI 5.

While analyzing the variance between the years for the Steel Industry, for basic current assets ratios, it was observed that only for CB/CA ratio the significant variation is observed, at 5% level of significance. This indicates that all other ratios have no variations over a period of time.

TABLE VI 5

ONE WAY ANALYSIS OF VARIANCE BETWEEN YEARS

STEEL INDUSTRY

No.	Ratio	SS	df	MS	F value
1	CA/TA				
	(i) Between Groups	0.45	9	0.05	1.20
	(ii) Within Groups	21.22	510	0.04	
2	INV/CA				
	(i) Between Groups	0.05	9	0.001	0.03
	(ii) Within Groups	11.24	510	0.02	
3	REC/CA				
	(i) Between Groups	0.35	9	0.04	1.48
	(ii) Within Groups	13.37	510	0.02	
4	CB/CA				
	(i) Between Groups	0.22	9	0.02	2.17*
	(ii) Within Groups	5.80	510	0.01	
F crit Value 1.90 ** variations at 5% level					

6.2.2 Cement Industry

One way ANOVA between the years for the Cement Industry is presented in Table VI 6

While analyzing the variance between the years for the Cement Industry, for basic current assets ratios, it was observed that for INV/CA and CB/CA the significant variance is observed, at 1% level of significance and for REC/CA the significant variance is observed at 10% level of significance. The highest variance is observed for the ratio of CB/CA.

TABLE VI 6

ONE WAY ANALYSIS OF VARIANCE BETWEEN YEARS

CEMENT INDUSTRY

No.	Ratio	SS	df	MS	F value
1	CA/TA				
	(i) Between Groups	0.16	9	0.02	0.93
	(ii) Within Groups	4.54	230	0.02	
2	INV/CA				
	(i) Between Groups	0.60	9	0.07	3.65*
	(ii) Within Groups	4.18	230	0.02	
3	REC/CA				
	(i) Between Groups	0.31	9	0.03	1.66***
	(ii) Within Groups	4.84	230	0.02	
4	CB/CA				
	(i) Between Groups	0.86	9	0.10	6.46*
	(ii) Within Groups	3.40	230	0.01	
F crit Value 2.48 * variation at 1% level F crit Value 1.66 *** variation at 10% level					

6.2.3 Organic Chemicals Industry

One way ANOVA between the years for the Organic Chemicals Industry is presented in Table VI 7

While analyzing the variance between the years for the Organic Chemicals Industry, for basic current assets ratios, it was observed that only for CA/TA the significant variance is observed, at 5% level of significance.

TABLE VI 7

ONE WAY ANALYSIS OF VARIANCE BETWEEN YEARS

ORGANIC CHEMICALS INDUSTRY

No.	Ratio	SS	df	MS	F value
1	CA/TA				
	(i) Between Groups	0.57	9	0.06	2.15**
	(ii) Within Groups	11.22	380	0.03	
2	INV/CA				
	(i) Between Groups	0.13	9	0.01	0.85
	(ii) Within Groups	6.22	380	0.02	
3	REC/CA				
	(i) Between Groups	0.19	8	0.02	1.03
	(ii) Within Groups	7.99	342	0.02	
4	CB/CA				
	(i) Between Groups	0.04	9	0.005	0.41
	(ii) Within Groups	4.67	380	0.01	
F crit Value 1.90 ** indicates variations at 5% level.					

6.2.4 Inorganic Chemicals Industry

One way ANOVA between the years for the Inorganic Chemicals Industry is presented in Table VI 8

While analyzing the variance between the years for the Inorganic Chemicals Industry, for basic current assets ratios, it was observed that in none of the ratios there is significant variance.

TABLE VI 8

ONE WAY ANALYSIS OF VARIANCE BETWEEN YEARS

INORGANIC CHEMICALS INDUSTRY

No.	Ratio	SS	df	MS	F value
1	CA/TA				
	(i) Between Groups	0.15	9	0.02	0.43
	(ii) Within Groups	7.83	200	0.04	

2	INV/CA				
	(i) Between Groups	0.16	9	0.02	0.74
	(ii) Within Groups	4.67	200	0.02	
3	REC/CA				
	(i) Between Groups	0.04	9	0.005	0.17
	(ii) Within Groups	5.62	200	0.03	
4	CB/CA				
	(i) Between Groups	0.08	9	0.01	0.49
	(ii) Within Groups	3.53	200	0.02	

From above it can be concluded that there does not exist significant variance over a period of time for any industry for most of the ratios.

PART II

ANALYSIS OF VARIANCE FOR INDICATORS OF MANAGEMENT OF COMPONENTS OF CURRENT ASSETS

6.3 Variance between the Companies

This part discusses the Analysis Of Variance for the various indicators of Management of Components of Current Assets (MCCA). As discussed in Chapter on Research Methodology, there are 21, such ratios, including 8 Structural Ratios, 3 Liquidity Ratios and 10 Turnover Ratios. ANOVA are examined. To begin with, the variances between the companies are examined for a given industry in para 6.3.1 to 6.3.4 and thereafter, the variances are examined for these selected ratios, between the years within a given industry in para 6.4.1 to 6.4.4

6.3.1 Steel Industry

One way ANOVA between the companies for the Steel Industry is presented in Table VI 9

TABLE VI 9

ANOVA FOR SOME IMPORTANT RATIOS ONE WAY BETWEEN COMPANIES

STEEL INDUSTRY

No.	Ratio	SS	df	MS	F value
Structural Ratios					
1	WC/TA				
	(i) Between Groups	27.24	51	0.53	20.69*
	(ii) Within Groups	12.08	468	0.03	

TABLE VI 9

No.	Ratio	SS	df	MS	F value
2	WC/CA				
	(i) Between Groups	259.15	51	5.08	6.13*
	(ii) Within Groups	387.86	468	0.83	
3	INV/WC'				
	(i) Between Groups	466.28	51	9.14	1.00
		(266.07)	(51)	(5.22)	(1.17)
	(ii) Within Groups	4285.49	468	9.16	
		(1945.23)	(438)	(4.44)	
4	REC/WC				
	(i) Between Groups	1114.09	51	21.84	1.06
	(ii) Within Groups	9640.24	468	20.60	
5	CB/WC				
	(i) Between Groups	76.61	51	1.50	1.09
	(ii) Within Groups	642.11	468	1.37	
6	INV/GFA				
	(i) Between Groups	5.30	51	0.10	8.19*
	(ii) Within Groups	5.94	468	0.01	
7	TL/NW				
	(i) Between Groups	22159.80	51	434.51	0.19
		5387.10)	(51)	(105.63)	(2.11)*
	(ii) Within Groups	1043027	468	2228.69	
		(22981.23)	(458)	(50.18)	
8	NFA/TA				
	(i) Between Groups	16.49	51	0.32	29.61*
	(ii) Within Groups	5.11	468	0.01	
Liquidity Ratios					
9	CR				
	(i) Between Groups	6532.68	51	128.09	14.66*
	(ii) Within Groups	4087.89	468	8.73	

TABLE VI 9   (Contd.)

No.	Ratio	SS	df	MS	F value
10	QR				
	(i) Between Groups	4098.06	51	80.35	14.15*
	(ii) Within Groups	2657.49	468	5.68	
11	CB/CL .				
	(i) Between Groups	54.68	51	1.07	4.62*
	(ii) Within Groups	108.71	468	0.23	
Turnover Ratios					
12	TATR				
	(i) Between Groups	415.42	51	8.15	30.11*
	(ii) Within Groups	126.60	468	0.27	
13	NFATR				
	(i) Between Groups	243669.05	51	4777.82	5.94*
	(ii) Within Groups	376750	468	805.02	
14	CATR				
	(i) Between Groups	730.25	51	14.32	13.53*
	(ii) Within Groups	495.44	468	1.06	
15	WTR				
	(i) Between Groups	13634.89	51	267.35	1.64*
	(ii) Within Groups	76067.66	468	162.54	
16	ITR				
	(i) Between Groups	17804.98	51	349.12	9.39*
	(ii) Within Groups	17405.37	468	37.19	
17	DTR				
	(i) Between Groups	4781.99	51	93.76	11.40*
	(ii) Within Groups	3849.05	468	8.22	
18	CBTR				
	(i) Between Groups	5477902	51	107409.84	4.28*
	(ii) Within Groups	11757915	468	25123.75	
19	ACP				
	(i) Between Groups	81671225	51	1601397	8.75*
	(ii) Within Groups	85676920	468	183070.34	

TABLE VI 9 (Contd.)

No.	Ratio	SS	df	MS	F value
20	CTR				
	(i) Between Groups	171784.22	51	3368.32	5.68*
21	(ii) Within Groups	277528.36	468	593.01	
	APP				
	(i) Between Groups	41924584	51	822050.68	3.85*
	(ii) Within Groups	1E+08	468	213788.44	
Profitability Ratios					
22	PBT/TA				
	(i) Between Groups	2.43	51	0.05	3.19*
	(ii) Within Groups	6.98	468	0.01	
23	PAT/TA				
	(i) Between Groups	2.05	51	0.04	3.08*
	(ii) Within Groups	6.11	468	0.01	
24	GPM				
	(i) Between Groups	2.48E+08	51	4860030	46.43*
	(ii) Within Groups	48991993	468	104683.75	
25	NPM				
	(i) Between Groups	3468.79	51	68.02	3.57*
	(ii) Within Groups	8917.77	468	19.06	

F crit Value 1.56*   indicates at 1% level of significance

Note: Figures in the bracket indicate the companies which are omitted for the purpose of calculation for the ratio of INV/WC. Three companies are for heavy minus figure for the year March 2000, figures in the bracket indicate the ratio after omitting these companies viz Maharashtra Elektrosmelt Ltd., Rashtriya Ispat Nigam Ltd. and Steel Complex Ltd and for the ratio of TL/NW on account of abnormal figures for March 2001 and 2003, the company omitted is Panchmahal Steel Ltd.

While analyzing the variance between the companies for the Steel Industry, for variance over a span of 10 years it was observed that out of 25 ratios, for 4 ratios were no variance between the companies. These 4 ratios are, INV/WC, REC/WC, CB/WC and TL/NW. For 21 ratios variations are observed at 1% level of significance. They are WC/TA, WC/CA, INV/GFA, NFA/TA, CR, QR, CB/CL, TATR, NFATR, CATR, WTR. ITR, DTR, CBTR, ACP, CTR, APP, PBT/TA, PAT/TA, GPM and NPM.. The highest variance is observed for the ratio of GPM.

6.3.2 Cement Industry

One way ANOVA between the companies for the Cement Industry presented in Table VI 10

TABLE VI 10

ANOVA FOR SOME IMPORTANT RATIOS ONE WAY BETWEEN COMPANIES

CEMENT INDUSTRY

No.	Ratio	SS	df	MS	F value
Structural Ratios					
1	WC/TA				
	(i) Between Groups	3.38	23	0.15	15.76*
	(ii) Within Groups	2.01	216	0.009	
2	WC/CA				
	(i) Between Groups	31.99	23	1.39	10.70*
	(ii) Within Groups	28.08	216	0.13	
3	INV/WC				
	(i) Between Groups	440.44	23	19.15	1.97*
	(ii) Within Groups	2098.43	216	9.71	
4	REC/WC				
	(i) Between Groups	154.02	23	6.70	1.12
	(ii) Within Groups	1287.85	216	5.96	
5	CB/WC				
	(i) Between Groups	236.41	23	10.28	2.02*
	(ii) Within Groups	1101.05	216	5.10	
6	INV/GFA				
	(i) Between Groups	7.81	23	0.34	9.85*
	(ii) Within Groups	7.45	216	0.03	
7	TL/NW				
	(i) Between Groups	5086.51 (409.38)	23 (23)	221.15 (17.80)	0.90 (1.84)**
	(ii) Within Groups	52946.22 (1898.08)	216 (196)	245.12 (9.68)	

TABLE VI 10   (Contd.)

No.	Ratio	SS	df	MS	F value
8	NFA/TA				
	(i) Between Groups	4.04	23	0.18	26.25*
	(ii) Within Groups	1.44	216	0.007	
Liquidity Ratios					
9	CR				
	(i) Between Groups	367.12	23	15.96	18.61*
	(ii) Within Groups	185.28	216	0.86	
10	QR				
	(i) Between Groups	96.82	23	4.21	9.56*
	(ii) Within Groups	95.15	216	0.44	
11	CB/CL				
	(i) Between Groups	10.32	23	0.45	5.47*
	(ii) Within Groups	17.70	216	0.08	
Turnover Ratios					
12	TATR				
	(i) Between Groups	18.62	23	0.81	16.17*
	(ii) Within Groups	10.82	216	0.05	
13	NFATR				
	(i) Between Groups	55.47	23	2.41	10.61*
	(ii) Within Groups	49.07	216	0.23	
14	CATR				
	(i) Between Groups	338.60	23	14.72	18.68*
	(ii) Within Groups	170.22	216	0.79	
15	WTR				
	(i) Between Groups	35853.91	23	1558.87	1.74**
	(ii) Within Groups	193405.09	216	895.39	
16	ITR				
	(i) Between Groups	3911.94	23	170.08	13.41*
	(ii) Within Groups	2739.33	216	12.68	
17	DTR				
	(i) Between Groups	10450.44	23	454.37	20.19*
	(ii) Within Groups	4861.75	216	22.51	

TABLE VI 10 (Contd.)

No.	Ratio	SS	df	MS	F value
18	CBTR				
	(i) Between Groups	445074.63	23	19351.07	5.36*
	(ii) Within Groups	780340	216	3612.69	
19	ACP				
	(i) Between Groups	3863212	23	167965.76	25.85*
	(ii) Within Groups	1403774	216	6498.96	
20	CTR				
	(i) Between Groups	109166.83 (362.85)	23 (22)	4746.38 (16.49)	4.05 *(5.36)*
	(ii) Within Groups	253130.34 (636.62)	216 (207)	1171.90 (3.08)	
21	APP				
	(i) Between Groups	6245986	23	271564.61	9.70*
	(ii) Within Groups	6044980	216	27986.02	
Profitability Ratios					
22	PBT/TA				
	(i) Between Groups	0.75	23	0.03	2.84*
	(ii) Within Groups	2.47	216	0.01	
23	PAT/TA				
	(i) Between Groups	0.58	23	0.03	2.69*
	(ii) Within Groups	2.03	216	0.009	
24	GPM				
	(i) Between Groups	2.14	23	0.09	15.43*
	(ii) Within Groups	1.30	216	0.006	
25	NPM				
	(i) Between Groups	1.72	23	0.07	6.80*
	(ii) Within Groups	2.38	216	0.01	
F crit Value 1.88 * significant at 1% level of significance					

Note: Figures in the bracket indicate the companies which are omitted for the purpose of calculation for the ratio of TL/NW, Three companies viz Kalyanpur Cements Ltd. and Saurashtra Cement Ltd. for heavy minus figure for the year March 1999 and 2005, and for the ratio of CTR the company omitted is Shri Keshav Cements & Infra Ltd. for abnormal figure for the year March 2002 and 2003

While analyzing the variance between the companies for the Cement Industry, , over a span of 10 years it was observed that out of 25 ratios, for 2 ratios there were no variance between the companies. These 2 ratios are REC/WC and TL/NW. The only ratio for which variance are found at 5% level of significance is WTR. For 22 ratios, variance is observed at 1% level of significance. They are WC/TA, WC/CA, INV/WC, CB/WC, INV/GFA, NFA/TA, CR, QR, CB/CL, TATR, NFATR, CATR, ITR, DTR, CBTR, ACP, CTR, APP, PBT/TA, PAT/TA, GPM and NPM. The highest variance is observed for the ratio of NFA/TA.

6.3.3 Organic Chemicals Industry

One way ANOVA between the companies for the Organic Chemicals Industry is presented in Table VI 11

TABLE VI 11

ANOVA FOR SOME IMPORTANT RATIOS ONE WAY BETWEEN COMPANIES

ORGANIC CHEMICALS INDUSTRY

No.	Ratio	SS	df	MS	F value
Structural Ratios					
1	WC/TA				
	(i) Between Groups	8.33	38	0.22	16.31*
	(ii) Within Groups	4.72	351	0.01	
2	WC/CA				
	(i) Between Groups	35.42	38	0.93	9.35*
	(ii) Within Groups	35.01	- 351	0.10	
3	INV/WC				
	(i) Between Groups	220.76	38	5.81	0.96
	(ii) Within Groups	2217.86	351	60.3	
4	REC/WC				
	(i) Between Groups	571.34	38	15.04	0.95
	(ii) Within Groups	5549.46	351	15.81	
5	CB/WC				
	(i) Between Groups	25.70	38	0.68	1.54**
	(ii) Within Groups	154.26	351	0.44	

TABLE VI 11 (Contd.)

No.	Ratio	SS	df	MS	F value
6	INV/GFA				
	(i) Between Groups	4.64	38	0.12	14.45*
	(ii) Within Groups	2.96	351	0.01	
7	TL/NW				
	(i) Between Groups	10012.66	38	263.49	0.95
		(1390.84)	(38)	(36.60)	(2.33)*
	(ii) Within Groups	97076.27	351	276.57	
		(5190.84)	(331)	(15.68)	
8	NFA/TA				
	(i) Between Groups	8.32	38	0.22	26.63*
	(ii) Within Groups	2.88	351	0.01	
Liquidity Ratios					
9	CR				
	(i) Between Groups	501.40	38	13.19	7.81*
	(ii) Within Groups	592.98	351	1.69	
10	QR				
	(i) Between Groups	213.85	38	5.63	6.54*
	(ii) Within Groups	301.82	351	0.86	
11	CB/CL				
	(i) Between Groups	38.42	38	1.01	6.47*
	(ii) Within Groups	54.88	351	0.16	
Turnover Ratios					
12	TATR				
	(i) Between Groups	80.73	38	2.12	22.06*
	(ii) Within Groups	33.80	351	0.10	
13	NFATR				
	(i) Between Groups	2600.75	38	68.44	35.96*
	(ii) Within Groups	668.13	351	1.90	

TABLE VI 11 (Contd.)

No.	Ratio	SS	df	MS	F value
14	CATR				
	(i) Between Groups	192.78	38	5.07	10.02*
	(ii) Within Groups	177.64	351	0.51	
15	WTR				
	(i) Between Groups	19830.25	38	521.85	1.17
	(ii) Within Groups	156107	351	444.75	
16	ITR				
	(i) Between Groups	12563.73	38	330.62	10.26*
	(ii) Within Groups	11316.13	351	32.24	
17	DTR				
	(i) Between Groups	1577.20	38	41.51	10.50*
	(ii) Within Groups	1386.88	351	3.95	
18	CBTR				
	(i) Between Groups	1920003	38	50526.40	3.41*
	(ii) Within Groups	5197721	351	14808.32	
19	ACP				
	(i) Between Groups	817442.62	38	21511.65	5.14*
	(ii) Within Groups	1467637	351	4181.30	
20	CTR				
	(i) Between Groups	33122.01 (13342.72)	38 (38)	871.63 (351.12)	11.83* (13.00) *
	(ii) Within Groups	25863.83 (9211.42)	351 (341)	73.69 (27.01)	
21	APP				
	(i) Between Groups	4314101	38	113529	4.85*
	(ii) Within Groups	8212068	351	23396.20	

TABLE VI 11 (Contd.)

No.	Ratio	SS	df	MS	F value
Profitability Ratios					
22	PBT/TA				
	(i) Between Groups	1.75	38	0.05	3.68*
	(ii) Within Groups	4.39	351	0.01	
23	PAT/TA				
	(i) Between Groups	1.35	38	0.04	3.12*
	(ii) Within Groups	3.98	351	0.01	
24	GPM				
	(i) Between Groups	64.30	38	1.69	72.76*
	(ii) Within Groups	8.16	351	0.02	
25	NPM				
	(i) Between Groups	22.62	38	0.60	5.42*
	(ii) Within Groups	38.54	351	0.11	

F crit Value 1.67 * significant at 1% level F crit Value 1.44
** significant at 5% level

Note: Figures in the bracket indicate the companies which are omitted for the purpose of calculation for the ratio of TL/NW, Three companies are Amines & Plasticizers Ltd., I G Petrochemicals Ltd. and I O L Chemicals & Pharmaceuticals Ltd for heavy minus figure for the year March 2002, For the ratio of CTR the company omitted is Jupiter Bioscience Ltd. for the year March 2004.

While analyzing the variance between the companies for the Organic Chemicals Industry, over a span of 10 years it was observed that out of 25 ratios, for 3 ratios there were no variance between the companies. These 3 ratios are INV/WC, REC/WC, and WTR. The ratio of TL/NW has no significant variance if all 39 companies are taken. If however, two companies are ignored as mentioned in note for the reason of abnormal figure, then the ratio of TL/NW observed significant at 1% level of significance. Similarly, for the ratio of CTR, the company mentioned in the note is omitted from the computation, then the ratio remains significant at 1% level of significance. The only ratio for which 5% level of significance is found is CB/WC. For 20 ratios variance is observed at 1% level of significance. They are WC/TA, WC/CA, INV/GFA, NFA/TA, CR, QR, CB/CL, TATR, NFATR, CATR, ITR, DTR, CBTR, ACP, CTR, APP, PBT/TA, PAT/TA, GPM and NPM. The highest variance is observed for the ratio of GPM.

6.3.4 Inorganic Chemicals Industry

Table VI 12 exhibits the ANOVA between the companies for the Inorganic Chemicals Industry.

TABLE VI 12

ANOVA FOR SOME IMPORTANT RATIOS ONE WAY BETWEEN COMPANIES

INORGANIC CHEMICALS INDUSTRY

No.	Ratio	SS	df	MS	F value
Structural Ratios					
1	WC/TA				
	(i) Between Groups	5.92	20	0.30	15.54*
	(ii) Within Groups	3.60	189	0.02	
2	WC/CA				
	(i) Between Groups	32.40	20	1.62	2.91*
	(ii) Within Groups	105.29	189	0.56	
3	INV/WC				
	(i) Between Groups	97.88	20	4.89	1.39
	(ii) Within Groups	665.85	189	3.52	
4	REC/WC				
	(i) Between Groups	383.06	20	19.15	1.12
	(ii) Within Groups	3235.96	189	17.12	
5	CB/WC				
	(i) Between Groups	32.34	20	1.62	1.63**
	(ii) Within Groups	189.20	189	1.00	
6	INV/GFA				
	(i) Between Groups	17.47	20	0.87	2.26*
	(ii) Within Groups	73.17	189	0.39	
7	TL/NW				
	(i) Between Groups	2055.81 (946.35)	20 (20)	102.79 (47.32)	0.16 (0.49)
	(ii) Within Groups	124216.06 (17331.95)	189 (179)	657.23 (96.83)	

TABLE VI 12   (Contd.)

No.	Ratio	SS	df	MS	F value
8	NFA/TA				
	(i) Between Groups	5.97	20	0.30	32.24*
	(ii) Within Groups	1.75	189	0.01	
Liquidity Ratios					
9	CR				
	(i) Between Groups	159.27	20	7.96	5.73*
	(ii) Within Groups	262.47	189	1.39	
10	QR				
	(i) Between Groups	108.29	20	5.41	6.84*
	(ii) Within Groups	149.60	189	0.79	
11	CB/CL				
	(i) Between Groups	35.45	20	1.77	5.42*
	(ii) Within Groups	61.77	189	0.33	
Turnover Ratios					
12	TATR				
	(i) Between Groups	27.92	20	1.40	14.52*
	(ii) Within Groups	18.17	189	0.10	
13	NFATR				
	(i) Between Groups	10852.50	20	542.62	0.94
	(ii) Within Groups	109674.69	189	580.29	
14	CATR				
	(i) Between Groups	167.28	20	8.36	15.50*
	(ii) Within Groups	101.98	189	0.54	
15	WTR				
	(i) Between Groups	5855.21	20	292.76	2.60*
	(ii) Within Groups	21296.51	189	112.68	
16	ITR				
	(i) Between Groups	4812.48	20	240.62	10.13*
	(ii) Within Groups	4488.28	189	23.75	

TABLE VI 12 (Contd.)

No.	Ratio	SS	df	MS	F value
17	DTR				
	(i) Between Groups	851.24	20	42.56	18.54*
	(ii) Within Groups	433.99	189	2.30	
18	CBTR				
	(i) Between Groups	2666346.68	20	133317	6.81*
	(ii) Within Groups	3699574.89	189	19574.47	
19	ACP				
	(i) Between Groups	4697852.61	20	234892.63	2.11*
	(ii) Within Groups	21077004.72	189	111518.54	
20	CTR				
	(i) Between Groups	913.48	20	45.67	10.00*
	(ii) Within Groups	863.60	189	4.57	
21	APP				
	(i) Between Groups	17857587.63	20	892879.38	1.07
	(ii) Within Groups	157272519.34	189	832129.73	
Profitability Ratios					
22	PBT/TA				
	(i) Between Groups	1.14	20	0.06	4.74*
	(ii) Within Groups	2.28	189	0.01	
23	PAT/TA				
	(i) Between Groups	0.88	20	0.04	4.33*
	(ii) Within Groups	1.93	189	0.01	
24	GPM				
	(i) Between Groups	1.41	20	0.07	5.41*
	(ii) Within Groups	2.46	189	0.01	
25	NPM				
	(i) Between Groups	4.09	20	0.20	8.03*
	(ii) Within Groups	4.82	189	0.03	

F crit Value 1.98 * significant at 1% level
F crit Value 1.63 ** significant at 5% level

Note: Figures in the bracket indicate the company which is omitted for the purpose of calculation for the ratio of TL/NW, for heavy minus figure for the year March 2000 and 2002 viz Associated Pigments Ltd.

While analyzing the variance between the companies for the Inorganic Chemicals Industry, over a span of 10 years it was observed that out of 25 ratios, for 5 ratios there were no variance between the companies. These 5 ratios are INV/WC, REC/WC, NFATR and APP, and TL/NW. For CB/WC, variance is found at 5% level of significance. For 19 ratios, variance is observed at 1% level of significance. They are WC/TA, WC/CA, INV/GFA, NFA/TA, CR, QR, CB/CL, TATR, CATR, WTR, ITR, DTR, CBTR, ACP, CTR, PBT/TA, PAT/TA, GPM and NPM. The highest variance is observed for the ratio of NFA/TA.

If one tries to analyze variance in ratios between the companies for all the industries taken together and all the ratios are taken together at a glance it can be depicted in Table VI 13 as follows.

TABLE VI 13

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
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*

TABLE VI 13   (Contd.)

No.	Ratios	Steel Industry	Cement Industry	Organic Chemicals Industry	Inorganic Chemicals Industry
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*

* indicates variations at 1% level of significance   NS Non-Significant.
** indicates variations at 5% level of significance
***indicates variations at 10% level of significance

From this Table VI 13 it can be observed that for all the basic ratios viz CA/TA, INV/CA, REV/CA and CB/CA. variance between the companies are found at 1% level of significance. Moreover for WC/TA and WC/CA the variance is found to be significant between the companies For INV/GFA and NFA/TA high variance is found between the companies for all the industries. For all three liquidity ratios, viz CR, QR and CB/CL significant variance are observed between the companies. Amongst the Turnover ratios, viz TATR, NFATR, CATR, ITR, DTR, CBTR, APP and ITR, significant variance between companies are found for all the industries. For all profitability ratios, viz PBT/TA, PAT/TA, GPM and NPM variance between companies are observed for all 4 industries.

6.4 Variations Between Years

This part deals with the analysis of variance between the years for the selected four industries for the indicators of Management of Components of Current Assets. An attempt is made to analyze the variance in ratios over a period of 10 years and analysis is carried out for all the four industries separately.

6.4.1 Steel Industry

The results of ANOVA between years for the Steel Industry are presented in Table VI 14

TABLE VI 14

ONE-WAY ANALYSIS OF VARIANCE BETWEEN YEARS

STEEL INDUSTRY

No.	Ratio	SS	df	MS	F value
Structural Ratios					
1	WC/TA				
	(i) Between Groups	0.44	9	0.05	0.64
	(ii) Within Groups	38.88	510	0.08	
2	WC/CA				
	(i) Between Groups	7.30	9	0.81	0.65
	(ii) Within Groups	639.71	510	1.25	
3	INV/WC				
	(i) Between Groups	96.09	9	10.68	1.17
	(ii) Within Groups	4655.68	510	9.13	
4	REC/WC				
	(i) Between Groups	61.64	9	6.85	0.33
	(ii) Within Groups	10692.69	510	20.97	
5	CB/WC				
	(i) Between Groups	11.36	9	1.26	0.91
	(ii) Within Groups	707.36	510	1.39	
6	INV/GFA				
	(i) Between Groups	0.01	9	0.0007	0.03
	(ii) Within Groups	11.24	510	0.02	
7	TL/NW				
	(i) Between Groups	19926.38	9	2214.04	1.08
	(ii) Within Groups	1045260	510	2049.53	

TABLE VI 14   (Contd.)

No.	Ratio	SS	df	MS	F value
8	NFA/TA				
	(i) Between Groups	0.69	9	0.08	1.87***
	(ii) Within Groups	20.91	510	0.04	
	Liquidity Ratios				
9	CR				
	(i) Between Groups	40.68	9	4.52	0.22
	(ii) Within Groups	10579.88	510	20.74	
10	QR				
	(i) Between Groups	29.30	9	3.26	0.25
	(ii) Groups	6726.24	510	13.19	
11	CB/CL				
	(i) Between Groups	3.92	9	0.44	1.39
	(ii) Within Groups	159.47	510	0.31	
	Turnover Ratios				
12	TATR				
	(i) Between Groups	12.29	9	1.37	1.31
	(ii) Within Groups	529.73	510	1.04	
13	NFATR				
	(i) Between Groups	10861.90	9	1206.88	1.01
	(ii) Within Groups	609557.18	510	1195.21	
14	CATR				
	(i) Between Groups	29.22	9	3.25	1.38
	(ii) Within Groups	1196.47	510	2.35	
15	WTR				
	(i) Between Groups	2001.51	9	222.39	1.29
	(ii) Within Groups	87701.04	510	171.96	
16	ITR				
	(i) Between Groups	406.42	9	45.16	0.66
	(ii) Within Groups	34803.93	510	68.24	

TABLE VI 14 (Contd.)

No.	Ratio	SS	df	MS	F value
17	DTR				
	(i) Between Groups	397.12	9	44.12	2.73**
	(ii) Within Groups	8233.92	510	16.14	
18	CBTR				
	(i) Between Groups	145306.12	9	16145.12	0.48
	(ii) Within Groups	17090511	510	33510.81	
19	ACP				
	(i) Between Groups	2498922	9	277658	0.86
	(ii) Within Groups	1.65E+08	510	323233.77	
20	CTR				
	(i) Between Groups	5143.67	9	571.52	0.66
	(ii) Within Groups	444168.91	510	870.92	
21	APP				
	(i) Between Groups	2217421	9	246380.10	0.90
	(ii) Within Groups	1.4E+08	510	274039.51	
Profitability Ratios					
22	PBT/TA				
	(i) Between Groups	0.55	9	0.06	3.55*
	(ii) Within Groups	8.86	510	0.02	
23	PAT/TA				
	(i) Between Groups	0.33	9	0.04	2.39**
	(ii) Within Groups	7.83	510	0.02	
24	GPM				
	(i) Between Groups	5849208	9	649912	1.14
	(ii) Within Groups	2.91E+08	510	570596.74	
25	NPM				
	(i) Between Groups	173.76	9	19.31	0.81
	(ii) Within Groups	12212.80	510	23.95	

F crit value 2.44 *variation at 1% level of significance F crit value 1.90 **variation at 5% level of significanceF crit value 1.64 ***variation at 10% level of significance

While analyzing the variance in the ratios over a period of time for the Steel Industry, it is observed that out of 25 ratios there are no significant variance in 21 ratios over a period of time. For ratio PBT/TA the variance is found to be significant at 1% level of significance, and for two ratios DTR and PAT/TA the variance is found to be significant at 5% level of significance and for NFA/TA ratio, the variance is found to be significant at 10% level of significance.

6.4.2 Cement Industry

The results of ANOVA between years for the Cement Industry are presented in Table VI 15.

TABLE VI 15.

ONE WAY ANALYSIS OF VARIANCE BETWEEN YEARS

CEMENT INDUSTRY

No.	Ratio	SS	df	MS	F value
Structural Ratios					
1	WC/TA				
	(i) Between Groups	0.09	9	0.01	0.41
	(ii) Within Groups	5.31	230	0.02	
2	WC/CA				
	(i) Between Groups	1.94	9	0.22	0.85
	(ii) Within Groups	58.14	230	0.25	
3	INV/WC				
	(i) Between Groups	84.65	9	9.41	0.88
	(ii) Within Groups	2454.23	230	10.67	
4	REC/WC				
	(i) Between Groups	47.04	9	5.23	0.86
	(ii) Within Groups	1394.84	230	6.06	
5	CB/WC				
	(i) Between Groups	26.75	9	2.97	0.52
	(ii) Within Groups	1310.70	230	5.70	
6	INV/GFA				
	(i) Between Groups	0.25	9	0.03	0.42
	(ii) Within Groups	15.02	230	0.07	

TABLE VI 15 (Contd.)

No.	Ratio	SS	df	MS	F value
7	TL/NW				
	(i) Between Groups	2434.31	9	270.48	1.12
	(ii) Within Groups	55598.42	230	241.73	
8	NFA/TA				
	(i) Between Groups	0.21	9	0.02	1.01
	(ii) Within Groups	5.27	230	0.02	
Liquidity Ratios					
9	CR				
	(i) Between Groups	13.70	9	1.52	0.65
	(ii) Within Groups	538.69	230	2.34	
10	QR				
	(i) Between Groups	3.58	9	0.40	0.49
	(ii) Within Groups	188.39	230	0.82	
11	CB/CL				
	(i) Between Groups	3.60	9	0.40	3.77*
	(ii) Within Groups	24.42	230	0.11	
Turnover Ratios					
12	TATR				
	(i) Between Groups	2.03	9	0.23	1.90***
	(ii) Within Groups	27.41	230	0.12	
13	NFATR				
	(i) Between Groups	11.51	9	1.28	3.16*
	(ii) Within Groups	93.03	230	0.40	
14	CATR				
	(i) Between Groups	23.37	9	2.60	1.23
	(ii) Within Groups	485.45	230	2.11	
15	WTR				
	(i) Between Groups	6251.86	9	694.65	0.72
	(ii) Within Groups	223007.14	230	969.60	

TABLE VI 15

No.	Ratio	SS	df	MS	F value
16	ITR				
	(i) Between Groups	522.84	9	58.09	2.18**
	(ii) Within Groups	6128.44	230	26.65	
17	DTR				
	(i) Between Groups	539.63	9	59.96	0.93
	(ii) Within Groups	14772.56	230	64.23	
18	CBTR				
	(i) Between Groups	82260.42	9	9140.05	1.84***
	(ii) Within Groups	1143154	230	4970.24	
19	ACP				
	(i) Between Groups	43347.89	9	4816.43	0.21
	(ii) Within Groups	5223639	230	22711.47	
20	CTR				
	(i) Between Groups	10003.70 (116.31)	9 (9)	1111.52 (12.92)	0.73 (3.22)*
	(ii) Within Groups	352293.47 (883.17)	230 (220)	1531.71 (4.01)	
21	APP				
	(i) Between Groups	1087591	9	120843.48	2.48*
	(ii) Within Groups	11203375	230	48710.33	
Profitability Ratios					
22	PBT/TA				
	(i) Between Groups	0.90	9	0.10	9.84*
	(ii) Within Groups	2.33	230	0.01	
23	PAT/TA				
	(i) Between Groups	0.53	9	0.06	6.47*
	(ii) Within Groups	2.08	230	0.009	

TABLE VI 15 (Contd.)

No.	Ratio	SS	df	MS	F value
24	GPM				
	(i) Between Groups	0.36	9	0.04	3.02*
25	(ii) Within Groups	3.07	230	0.01	
	NPM				
	(i) Between Groups	0.76	9	0.08	5.76*
	(ii) Within Groups	3.35	230	0.01	

F crit value 2.48 *variation at 1% level of significance F crit value 1.92
**variation at 5% level of significance F crit value 1.66
***variation at 10% level of significance

Note: figures in the brackets for the ratio of CTR, indicates the company omitted, for abnormal figures in the year March 2002 and 2003 viz Shri Keshav Cements & Infra Ltd

While analyzing the variance in the ratios over a period of time for the Cement Industry, it is observed that out of 25 ratios there is no significant variance in 15 ratios over a period of time. For ITR the variation is found to be significant at 5% level of significance. For TATR and CBTR the variance is found to be significant at 10% level of significance and for 7 ratios the variance is found to be significant at 1% level of significance. They are CB/CL, NFTAR, APP, PBT/TA, PAT/TA, GPM, and NPM. The highest variance is observed for the ratio of PBT/TA.

For the CTR if one company is ignored as mentioned in the Note the ratio becomes significant at 1% level of significance, and variance remained unchanged for TL/NW after omission of company mentioned in Note.

6.4.3 Organic Chemicals Industry

The results of ANOVA between the years for the Organic Chemicals Industry are presented in Table VI 16.

TABLE VI 16

ONE WAY ANALYSIS OF VARIANCE BETWEEN YEARS

ORGANIC CHEMICALS INDUSTRY

No.	Ratio	SS	df	MS	F value
Structural Ratios					
1	WC/TA				
	(i) Between Groups	0.50	9	0.06	1.68**
	(ii) Within Groups	12.55	380	0.03	

TABLE VI 16   (Contd.)

No.	Ratio	SS	df	MS	F value
2	WC/CA				
	(i) Between Groups	1.48	9	0.16	0.91
	(ii) Within Groups	68.94	380	0.18	
3	INV/WC				
	(i) Between Groups	31.85	9	3.54	0.58
	(ii) Within Groups	2306.77	380	6.07	
4	REC/WC				
	(i) Between Groups	93.15	9	10.35	0.65
	(ii) Within Groups	6027.65	380	15.86	
5	CB/WC				
	(i) Between Groups	2.62	9	0.29	0.62
	(ii) Within Groups	177.34	380	0.47	
6	INV/GFA				
	(i) Between Groups	0.27	9	0.03	1.56
	(ii) Within Groups	7.33	380	0.02	
7	TL/NW				
	(i) Between Groups	2945.48	9	327.28	1.19
	(ii) Within Groups	104143.45	380	274.06	
8	NFA/TA				
	(i) Between Groups	0.53	9	0.06	2.10**
	(ii) Within Groups	10.67	380	0.03	
Liquidity Ratios					
9	CR				
	(i) Between Groups	12.08	9	1.34	0.47
	(ii) Within Groups	1082.30	380	2.85	
10	QR				
	(i) Between Groups	8.93	9	0.99	0.74
	(ii) Within Groups	506.73	380	1.33	

TABLE VI 16 (Contd.)

No.	Ratio	SS	df	MS	F value
11	CB/CL				
	(i) Between Groups	1.82	9	0.20	0.84
	(ii) Within Groups	91.48	380	0.24	
Turnover Ratios					
12	TATR				
	(i) Between Groups	3.93	9	0.44	1.50
	(ii) Within Groups	110.60	380	0.29	
13	NFATR				
	(i) Between Groups	88.59	9	9.84	1.18
	(ii) Within Groups	3180.29	380	8.37	
14	CATR				
	(i) Between Groups	8.22	9	0.91	0.96
	(ii) Within Groups	362.21	380	0.95	
15	WTR				
	(i) Between Groups	2431.94	9	270.22	0.59
	(ii) Within Groups	173505.62	380	456.59	
16	ITR				
	(i) Between Groups	242.36	9	26.93	0.43
	(ii) Within Groups	23637.50	380	62.20	
17	DTR				
	(i) Between Groups	152.27	9	16.92	2.29**
	(ii) Within Groups	2811.80	380	7.40	
18	CBTR				
	(i) Between Groups	91146.85	9	10127.43	0.55
	(ii) Within Groups	7026577	380	18490.99	
19	ACP				
	(i) Between Groups	119618.11	9	13290.90	2.33**
	(ii) Within Groups	2165462	380	5698.58	

TABLE VI 16 (Contd.)

No.	Ratio	SS	df	MS	F value
20	CTR				
	(i) Between Groups	895.96	9	99.55	0.65
	(ii) Within Groups	58089.88	380	152.87	
21	APP				
	(i) Between Groups	156538.33	9	17393.15	0.53
	(ii) Within Groups	12369630	380	32551.66	
Profitability Ratios					
22	PBT/TA				
	(i) Between Groups	0.26	9	0.03	1.87***
	(ii) Within Groups	5.88	380	0.02	
23	PAT/TA				
	(i) Between Groups	0.21	9	0.02	1.74***
	(ii) Within Groups	5.12	380	0.01	
24	GPM				
	(i) Between Groups	0.14	9	0.02	0.08
	(ii) Within Groups	72.33	380	0.19	
25	NPM				
	(i) Between Groups	1.78	9	0.20	1.26
	(ii) Within Groups	59.38	380	0.16	

F crit value 1.90 **variation at 5% level of significance F crit value 1.65 ***variation at 10% level of significance

While analyzing the variance between the years for the Organic Chemicals Industry, over a span of 10 years it was observed that out of 25 ratios, for 19 ratios there were no variance between the years, The 4 ratios for which variance is found significant at 5% level of significance are WC/TA, NFA/TA, DTR and ACP. The variance is found to be significant at 10% level of significance for PBT/TA and PAT/TA. The highest variation is observed for the ratio of ACP.

6.4.4 Inorganic Chemicals Industry

The results of ANOVA between the years for Inorganic Chemicals Industry are presented in Table VI 17.

TABLE VI 17

ONE-WAY ANALYSIS OF VARIANCE BETWEEN YEARS

INORGANIC CHEMICALS INDUSTRY

No.	Ratio	SS	df	MS	F value
Structural Ratios					
1	WC/TA				
	(i) Between Groups	0.29	9	0.03	0.69
	(ii) Within Groups	9.23	200	0.05	
2	WC/CA				
	(i) Between Groups	6.11	9	0.68	1.03
	(ii) Within Groups	131.58	200	0.66	
3	INV/WC				
	(i) Between Groups	30.28	9	3.36	0.92
	(ii) Within Groups	733.46	200	3.67	
4	REC/WC				
	(i) Between Groups	160.32	9	17.81	1.03
	(ii) Within Groups	3458.70	200	17.29	
5	CB/WC				
	(i) Between Groups	7.22	9	0.80	0.75
	(ii) Within Groups	214.32	200	1.07	
6	INV/GFA				
	(i) Between Groups	2.78	9	0.31	0.70
	(ii) Within Groups	87.87	200	0.44	
7	TL/NW				
	(i) Between Groups	5632.95	9	625.88	1.04
	(ii) Within Groups	120638.92	200	603.19	
8	NFA/TA				
	(i) Between Groups	0.15	9	0.02	0.43
	(ii) Within Groups	7.57	200	0.04	

TABLE VI 17 (Contd.)

No.	Ratio	SS	df	MS	F value
Liquidity Ratios					
9	CR				
	(i) Between Groups	20.44	9	2.27	1.13
	(ii) Within Groups	401.30	200	2.01	
10	QR				
	(i) Between Groups	6.79	9	0.75	0.60
	(ii) Within Groups	251.10	200	1.26	
11	CB/CL				
	(i) Between Groups	2.57	9	0.29	0.60
	(ii) Within Groups	94.66	200	0.47	
Turnover Ratios					
12	TATR				
	(i) Between Groups	2.29	9	0.25	1.16
	(ii) Within Groups	43.80	200	0.22	
13	NFATR				
	(i) Between Groups	5965.43	9	662.83	1.16
	(ii) Within Groups	114561.76	200	572.81	
14	CATR				
	(i) Between Groups	9.51	9	1.06	0.81
	(ii) Within Groups	259.75	200	1.30	
15	WTR				
	(i) Between Groups	944.97	9	105.00	0.80
	(ii) Within Groups	26206.75	200	131.03	
16	ITR				
	(i) Between Groups	379.02	9	42.11	0.94
	(ii) Within Groups	8921.74	200	44.61	
17	DTR				
	(i) Between Groups	40.73	9	4.53	0.73
	(ii) Within Groups	1244.50	200	6.22	

TABLE VI 17 (Contd.)

No.	Ratio	SS	df	MS	F value
18	CBTR				
	(i) Between Groups	153999.00	9	17111	0.55
	(ii) Within Groups	6211922.57	200	31060	
19	ACP				
	(i) Between Groups	1054766.90	9	117196.32	0.95
	(ii) Within Groups	24720090.43	200	123600.45	
20	CTR				
	(i) Between Groups	73.56	9	8.17	0.96
	(ii) Within Groups	1703.52	200	8.52	
21	APP				
	(i) Between Groups	7514017.04	9	834890.78	1.00
	(ii) Within Groups	167616089.94	200	838080.45	
Profitability Ratios					
22	PBT/TA				
	(i) Between Groups	0.11	9	0.01	0.73
	(ii) Within Groups	3.31	200	0.02	
23	PAT/TA				
	(i) Between Groups	0.09	9	0.01	0.74
	(ii) Within Groups	2.72	200	0.01	
24	GPM				
	(i) Between Groups	0.14	9	0.02	0.81
	(ii) Within Groups	3.73	200	0.02	
25	NPM				
	(i) Between Groups	0.28	9	0.03	0.71
	(ii) Within Groups	8.63	200	0.04	

While analyzing the variances between the years for the Inorganic Chemicals Industry, it was observed that for none of the ratios variations are found to be significant.

From Table VI 5 to Table VI 8 and Table VI 14 to Table VI 17 a summary Table of F value with indicators of level of significance is prepared and presented in Table VI 18

TABLE VI 18

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 Indicators (MCCA)					
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
Structural Ratios (MCCA)					
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 (MCCA)					
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

TABLE VI 18   (Contd.)

No.	Ratios	Steel Industry	Cement Industry	Organic Chemicals Industry	Inorganic Chemicals Industry
Profitability Ratios					
26	PBT/TA	3.55*	9.84*	1.87***	NS
27	PAT/TA	2.39**	6.47*	1.74***	NS
28	GPM	NS	3.02*	NS	NS
29	NPM	NS	5.76*	NS	NS
* indicates variations at 1% level of significance NS Non-Significant. ** indicates variations at 5% level of significance ***indicates variations at 10% level of significance					

From the Table VI 18 it can be concluded that out of total 29 ratios, in 11 ratios no significant variance is observed for any industry. For the Inorganic Chemicals Industry none of the ratio has significant variance over a period of time. The ratio of PBT/TA and PAT/TA are found to have significant variance over a period of time for all the industries except the Inorganic Chemicals Industry.

When analysis is carried out for the variance between the years, it is observed that in majority of the ratios for all the industries no significant variance is observed between the years.

PART III

ANALYSIS OF VARIANCE BETWEEN THE INDUSTRIES

6.5 This part deals with the Analysis of Variance between the industries for the selected four industries for all the ratios related to basic components of current assets and indicators of Management of Components of Current Assets and Structural, Liquidity, Turnover and Profitability ratios. Initially ANOVA is applied between the 4 industries and subsequently ANOVA is applied between years for 4 industries. The ratios as discussed in para 6.1 and 6.3 are taken for the purpose of analysis.

Table VI 19 presents the results of the computations for ANOVA between the industries.

TABLE VI 19

ONE WAY ANALYSIS OF VARIANCE BETWEEN THE INDUSTRIES

No.	Ratio	SS	df	MS	F value
Basic Indicators of MCCA					
1	CA/TA				
	(i) Between Groups	0.15	3	0.05	15.80*
	(ii) Within Groups	0.11	36	0.003	
2	INV/CA				
	(i) Between Groups	0.41	3	0.14	338.22*
	(ii) Within Groups	0.01	36	0.0004	

TABLE VI 19 (Contd.)

No.	Ratio	SS	df	MS	F value
3	REC/CA				
	(i) Between Groups	1.08	3	0.36	869.02*
	(ii) Within Groups	0.01	36	0.0004	
4	CB/CA				
	(i) Between Groups	0.01	3	0.004	6.08*
Structural Ratios					
5	WC/TA				
	(i) Between Groups	0.09	3	0.031	29.21*
	(ii) Within Groups	0.04	36	0.001	
6	WC/CA				
	(i) Between Groups	0.02	3	0.01	0.46
	(ii) Within Groups	0.55	36	0.02	
7	INV/WC				
	(i) Between Groups	1.05	3	0.35	1.64
	(ii) Within Groups	7.66	36	0.21	
8	REC/WC				
	(i) Between Groups	2.04	3	0.68	1.86
	(ii) Within Groups	13.18	36	0.37	
9	CB/WC				
	(i) Between Groups	14.46	3	4.82	4.88*
	(ii) Within Groups	35.58	36	0.99	
10	INV/GFA				
	(i) Between Groups	0.41	3	0.14	9.97*
	(ii) Within Groups	0.49	36	0.01	
11	TL/NW				
	(i) Between Groups	46.50	3	15.50	0.67
	(ii) Within Groups	828.34	36	23.01	
12	NFA/TA				
	(i) Between Groups	1.04	3	0.35	103.66*
	(ii) Within Groups	0.12	36	0.00	

TABLE VI 19   (Contd.)

No.	Ratio	SS	df	MS	F value
Liquidity Ratios					
13	CR				
	(i) Between Groups	6.72	3	2.24	30.56*
	(ii) Within Groups	2.64	36	0.07	
14	QR				
	(i) Between Groups	3.78	3	1.26	35.71*
	(ii) Within Groups	1.27	36	0.04	
15	CB/CL				
	(i) Between Groups	0.02	3	0.005	0.52
	(ii) Within Groups	0.38	36	0.010	
Turnover Ratios					
16	TATR				
	(i) Between Groups	6.75	3	2.25	160.51*
	(ii) Within Groups	0.50	36	0.01	
	17 NFATR				
	(i) Between Groups	316.43	3	105.48	7.66*
	(ii) Within Groups	495.47	36	13.76	
18	CATR				
	(i) Between Groups	9.57	3	3.19	55.34*
	(ii) Within Groups	2.08	36	0.06	
19	WTR				
	(i) Between Groups	2958.49	3	986.16	8.86*
	(ii) Within Groups	4007.91	36	111.33	
20	ITR				
	(i) Between Groups	1.96	3	0.65	0.44
	(ii) Within Groups	53.87	36	1.50	
21	DTR				
	(i) Between Groups	45.24	3	15.08	9.10*
	(ii) Within Groups	59.68	36	1.66	

TABLE VI 19   (Contd.)

No.	Ratio	SS	df	MS	F value
22	CBTR				
	(i) Between Groups	12597.28	3	4199.09	8.26*
	(ii) Within Groups	18291.29	36	508.09	
23	ACP				
	(i) Between Groups	26629.08	3	8876.36	2.17
	(ii) Within Groups	147571.29	36	4099.20	
24	CTR				
	(i) Between Groups	1763.93	3	587.98	2.00
	(ii) Within Groups	10570.46	36	293.62	
25	APP				
	(i) Between Groups	78566.05	3	26188.68	2.09
	(ii) Within Groups	451727.17	36	12547.98	
Profitability Ratios					
26	PBT/TA				
	(i) Between Groups	0.03	3	0.01	9.29*
	(ii) Within Groups	0.04	36	0.001	
27	PAT/TA				
	(i) Between Groups	0.04	3	0.01	15.27*
	(ii) Within Groups	0.03	36	0.001	
28	GPM				
	(i) Between Groups	384807.71	3	128269.24	41.05*
	(ii) Within Groups	112484.79	36	3124.58	
29	NPM				
	(i) Between Groups	1.43	3	0.48	5.02*
	(ii) Within Groups	3.43	36	0.10	
F crit value 4.38* (indicates variations at 1% level of significance					

On analysis of the outcome of the computations, it was observed that there are significant variances between the industries for all 4 basic current assets ratios. The highest variance is observed for the ratio of REC/CA.

While analyzing the variance between the industries, for indicators of Management of Components of Current Assets, it is observed that in the 9 ratios there are no variances. They. are WC/CA, INV/WC, REC/WC, TL/NW, CB/CL, ITR, ACP, CTR and APP. The variances are observed at 1% level of significance in the 12 ratios. They are WC/TA, CB/WC, INV/GFA, NFA/TA, CR, QR, TATR, NFATR, CATR, WTR, DTR, and CBTR.

For all 4 profitability ratios viz PBT/TA, PAT/TA, GPM and NPM significant variance is observed between industries. This indicates that profitability of different industries is different. The highest variation is observed for the ratio of TATR.

6.6 Analysis of Variance between the Years for given Industries

This part deals with the analysis of variance between the years for the selected four industries, for the ratios related to components of current assets and Structural, Liquidity, Turnover and Profitability ratios over a period of 10 years.

Table VI 20 presents the results of this computations.

TABLE VI 20

ONE WAY ANALYSIS OF VARIANCE BETWEEN THE INDUSTRIES

YEAR WISE

No.	Ratio	SS	df	MS	F value
Basic Indicators of MCCA					
1	CA/TA				
	(i) Between Groups	0.08	9	0.01	1.48
	(ii) Within Groups	0.18	30	0.01	
2	INV/CA				
	(i) Between Groups	0.003	9	0.0004	0.03
	(ii) Within Groups	0.417	30	0.01	
3	REC/CA				
	(i) Between Groups	0.01	9	0.001	0.02
	(ii) Within Groups	1.08	30	0.036	
4	CB/CA				
	(i) Between Groups	0.01	9	0.002	2.30**
	(ii) Within Groups	0.02	30	0.001	

TABLE VI 20 (Contd.)

No.	Ratio	SS	df	MS	F value
Structural Ratios					
5	WC/TA				
	(i) Between Groups	0.01	9	0.0002	0.39
	(ii) Within Groups	0.12	30	0.004	
6	WC/CA				
	(i) Between Groups	0.13	9	0.01	0.95
	(ii) Within Groups	0.45	30	0.01	
7	INV/WC				
	(i) Between Groups	1.07	9	0.12	0.47
	(ii) Within Groups	7.64	30	0.25	
8	REC/WC				
	(i) Between Groups	3.53	9	0.39	1.01
	(ii) Within Groups	11.69	30	0.39	
9	CB/WC				
	(i) Between Groups	8.21	9	0.91	0.65
	(ii) Within Groups	41.83	30	1.39	
10	INV/GFA				
	(i) Between Groups	0.12	9	0.01	0.50
	(ii) Within Groups	0.78	30	0.03	
11	TL/NW				
	(i) Between Groups	307.08	9	34.12	1.80
	(ii) Within Groups	567.76	30	18.93	
12	NFA/TA				
	(i) Between Groups	0.06	9	0.01	0.19
	(ii) Within Groups	1.10	30	0.04	
Liquidity Ratios					
13	CR				
	(i) Between Groups	1.04	9	0.12	0.42
	(ii) Within Groups	8.31	30	0.28	

TABLE VI 20

No.	Ratio	SS	df	MS	F value
14	QR				
	(i) Between Groups	0.66	9	0.07	0.50
	(ii) Within Groups	4.39	30	0.15	
15	CB/CL				
	(i) Between Groups	0.20	9	0.02	3.44*
	(ii) Within Groups	0.19	30	0.01	
Turnover Ratios					
16	TATR				
	(i) Between Groups	0.31	9	0.03	0.15
	(ii) Within Groups	6.95	30	0.23	
17	NFATR				
	(i) Between Groups	233.49	9	25.94	1.35
	(ii) Within Groups	578.40	30	19.28	
18	CATR				
	(i) Between Groups	1.09	9	0.12	0.34
	(ii) Within Groups	10.56	30	0.35	
19	WTR				
	(i) Between Groups	987.14	9	109.68	0.55
	(ii) Within Groups	5979.27	30	199.31	
20	ITR				
	(i) Between Groups	32.01	9	3.56	4.48*
	(ii) Within Groups	23.82	30	0.79	
21	DTR				
	(i) Between Groups	33.08	9	3.68	1.54
	(ii) Within Groups	71.83	30	2.39	
22	CBTR				
	(i) Between Groups	4850.11	9	538.90	0.62
	(ii) Within Groups	26038.47	30	867.95	

TABLE VI 20 (Contd.)

No.	Ratio	SS	df	MS	F value
23	ACP				
	(i) Between Groups	26829.84	9	2981.09	0.61
	(ii) Within Groups	147370.54	30	4912.35	
24	CTR				
	(i) Between Groups	2425.54	9	269.50	0.82
	(ii) Within Groups	9908.85	30	330.30	
25	APP				
	(i) Between Groups	87988.41	9	9776.49	0.66
	(ii) Within Groups	442304.82	30	14743.49	
Profitability Ratios					
26	PBT/TA				
	(i) Between Groups	0.02	9	0.002	1.45
	(ii) Within Groups	0.05	30	0.002	
27	PAT/TA				
	(i) Between Groups	0.02	9	0.002	0.86
	(ii) Within Groups	0.06	30	0.002	
28	GPM				
	(i) Between Groups	28120.55	9	3124.51	0.20
	(ii) Within Groups	469171.95	30	15639.06	
29	NPM				
	(i) Between Groups	0.84	9	0.09	0.69
	(ii) Within Groups	4.02	30	0.13	

F crit Value 3.07 *indicates variations at 1% level of significance F crit Value 2.21 **indicates variations at 5% level of significance

While analyzing the variances between the years for basic current assets ratios, it was observed that only one ratio CB/CA has significant variance between the years. This indicates that CB/CA ratio has not remained stable over a period of time. For other ratios, no significant variance is observed.

While analyzing the Structural, Liquidity, Turnover and Profitability ratios, it is observed that only for 2 ratios significant variance is observed. One liquidity ratio *viz* CB/CL and one turnover ratio *viz* ITR. This indicates that these 2 ratios have changed over a period of time, taking all industries together. Where as for all other ratios there are no variance over a period of time taking all industries together.

6.7 CONCLUSIONS

Thus in this Chapter an attempt is made to analyze the variances in the basic ratios of the components of current assets and Structural, Liquidity, Turnover and Profitability ratios and between the companies for a given industry, between the years for a given industry, between the industries and between the years, with taking all industries together. Some interesting results have been observed.

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. (Table VI 13)

2. On examining variations between the years within given industry, significant variance is observed for CB/CA for the Steel Industry, INV/CA, REC/CA and CB/CA for the Cement Industry, CA/TA for the Organic Chemicals Industry and for the Inorganic Chemicals Industry in none of the four basic indicators have significant variance over a period of time. (Table VI 18)

3. 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, five ratios *viz* WC/TA, WC/CA, CB/WC, INV/GFA and NFA/TA for the Organic Chemicals Industry and Inorganic Chemicals Industry. (Table VI 13)

4. For all three liquidity ratios *viz* CR, QR and CB/CL significant variance is observed between companies for all four industries. (Table VI 13)

5. 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 significant for eight ratios *viz* TATR, CATR, WTR, ITR, DTR, CBTR, ACP and CTR. However, it was not significant for NFATR and APP. (Table VI 13)

6. For all four selected profitability ratios, significant variances between companies were observed for all four selected industries. (Table VI 13)

7. On examining variances, within given industry for selected companies between the years, different scenario emerges. For the Steel Industry out of the structural ratios

only NFA/TA is found to have significant variances. None of the liquidity ratios are found to be significant variance. Out of turnover ratios, only DTR has significant variances between the years, and of the profitability ratios, PBT/TA and PAT/TA is showing significant variances between the years. (Table VI 18)

8. Of the structural ratios, none is having significant variance for the Cement Industry and Inorganic Chemicals Industry. However, for the Organic Chemicals Industry, WC/TA and NFA/TA are found to have significant variances. (Table VI 18)

9. Of the three liquidity ratios, only CB/CL has significant variance for the Cement Industry and none has significant variances for the Organic Chemicals Industry and Inorganic Chemicals Industry. (Table VI 18)

10. Of the ten turnover ratios for the Cement industry, five ratios have significant variances. They are TATR, NFATR, ITR, CBTR and APP. For the Organic Chemicals Industry only two have significant variances. They are DTR and ACP. (Table VI 18)

11. Of the four profitability ratios, all have significant variance for the Cement Industry and only for PBT/TA and PAT/TA for the Organic Chemicals Industry. (Table VI 18)

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

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

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