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WORKING CAPITAL MANAGEMENT IN MANUFACTURING INDUSTRY: A STUDY WITH REFERENCE TO SELECTED MANUFACTURING INDUSTRIES IN INDIA

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ABSTRACT

One of the most important areas in the day to day management of the firm is the management of working capital. Working capital management is the functional area of finance that covers all the current accounts of the firm. It is concerned with management of the level of individual current assets as well as the management of total working capital. The goal of working capital management is to ensure that the firm is able to continue its operations and that it has sufficient cash flow to satisfy both maturing short-term debt and upcoming operational expenses. The interaction between current assets and current liabilities is, therefore, the main theme of working capital management. The study aims to evaluate the working capital position of manufacturing industries in India. The study deals with working capital management in Indian manufacturing industries. Study covers five manufacturing industries. They are; Cement Industry, FMCG Industry, Oil and Gas Industry, Automobile Industry and Pharmaceutical Industry. Under each industry five companies have been taken for the purpose of analyzing the working capital position of each industry. The entire study is based on the secondary data, procured and extracted from the financial statements of the selected companies of the selected industries covering a period of five years from 2007-08 to 2011-12. For the purpose of analyzing the liquidity position of the selected companies under each industry and to evaluate the working capital position of selected manufacturing industries and to test the hypotheses, two kinds of tools have been used. They are statistical tools and financial ratios.

KEYWORDS

Working capital, Liquidity, Manufacturing Industry, Current Ratio, Quick Ratio.

INTRODUCTION

One of the most important areas in the day to day management of the firm is the management of working capital. Working capital management is the functional area of finance that covers all the current accounts of the firm. It is concerned with management of the level of individual current assets as well as the management of total working capital. Working capital refers to the funds invested in current assets, i.e., investment in stocks, sundry debtors, cash and other current assets. Current assets are essential for effective utilization of the fixed assets. Working capital management involves managing the balance between firm's short-term assets and its short-term liabilities. The goal of working capital management is to ensure that the firm is able to continue its operations and that it has sufficient cash flow to satisfy both maturing short-term debt and upcoming operational expenses. The interaction between current assets and current liabilities is, therefore, the main theme of working capital management.

There are many aspects of working capital management which makes it important function of financial management.

- **Time:** working capital management requires much of the finance manager's time.
- **Investment:** working capital represents a large portion of the total investment in assets.
- **Credibility:** working capital management has great significance for all firms but it is very critical for small firms.
- **Growth:** The need for working capital is directly related to the firm's growth.

The present study deals with the working capital management in manufacturing industries in India. In a country like India where infrastructure is not well developed, most of the manufacturing firms are not able to adopt Just In Time management system. Therefore it is inevitable for the firms to invest large amount of funds in the form of inventories. Similarly, firms are forced sell the goods on credit basis. All these enforce the manufacturing and trading firms to invest large amount in the form of current assets. Inadequate investment in working capital reduce the liquidity position of the firm and thereby suffers from cost of illiquidity and excess investment in working capital reduce the profitability of the firm because of high opportunity cost and other costs of liquidity. Here an attempt is made by the researchers to analyse and evaluate the liquidity position of selected manufacturing industries in India.

OBJECTIVES OF THE STUDY

The core objective of this study is to evaluate the working capital position of manufacturing industries in India. However in order to achieve the main objectives, the following subsidiary objectives have been framed by the researchers:

- To examine the liquidity position of selected companies under each manufacturing industry
- To compare the liquidity position of different companies under each industry
- To compare the liquidity position of different manufacturing industries
- To find out the correlation between liquidity position of various manufacturing industries
- To offer meaningful suggestions, if necessary, to the manufacturing industries

HYPOTHESIS

In addition to the above objectives, the researchers formulated the following Hypothesis:

H₀: There is no significant difference among the liquidity position of selected manufacturing industries

SCOPE OF THE STUDY

The study deals with working capital management in Indian manufacturing industries. Study covers five manufacturing industries. They are; Cement Industry, FMCG Industry, Oil and Gas Industry, Automobile Industry and Pharmaceutical Industry. Under each industry five companies have been taken for the purpose of

analyzing the working capital position of each industry. Even though there are many more manufacturing industries in India, the scope of the study confined to only five manufacturing industries.

METHODOLOGY

The entire study is based on the secondary data, procured and extracted from the financial statements of the selected companies of the selected industries covering a period of five years from 2007-08 to 2011-12. For the purpose of analyzing the liquidity position of the selected companies under each industry and to evaluate the working capital position of selected manufacturing industries and to test the hypotheses, two kinds of tools have been used. They are statistical tools and financial ratios. The tests have been conducted at 5% level of significance. The critical value of F with 4 and 20 degrees of freedom is 2.87. The statistical tools used in this study are: Arithmetic Mean, Correlation and Analysis of Variance (ANOVA) have been used extensively. Various kinds of liquidity ratios have been used as the financial tools for the purpose of analysis.

RESULTS AND DISCUSSION

It is clear from Table 1 that Tata motors have invested maximum amount in inventories, i.e., 53% of the total current assets in inventory and Bajaj Motors have invested only 22% of the current assets in inventory. Mahindra and Mahindra has invested maximum, i.e., 40% of the current assets in trade receivables and Hero Motors have invested least, i.e., only 17% of the current assets in trade receivables. Hero Motors have invested maximum of 42% of the current assets in the form of cash in hand and bank and Tata Motors have invested the least, i.e., 12% of the current assets in cash in hand and bank. It is found that all the companies of Automobile Industry have negative working capital and the average net working capital of the industry is -2382.65.

As per Table 2, it is crystal clear that Ultratech Cement has invested maximum amount in inventories, i.e., 70% of the total current assets in inventory and Grasim cement and India cement have invested only 57% of the current assets in inventory. India Cement has invested maximum, i.e., 41% of the current assets in trade receivables and J.K. cement have invested least, i.e., only 18% of the current assets in trade receivables. J.K cement has invested 19% of the current assets in the form of cash in hand and bank and India Cement has invested the least, i.e., 1% of the current assets in cash in hand and bank. It is found that all the companies of Cement Industry have negative working capital and it is highest in Madras Cement (92%) and the average net working capital of the industry is -567.48.

It is found in Table 3 that ITC has invested maximum amount in inventories, i.e., 84% of the total current assets in inventory and Dauber has invested only 59% of the current assets in inventory. Asian paint has invested maximum, i.e., 27% of the current assets in trade receivables and Britannia Industries have invested least, i.e., only 18% of the current assets in trade receivables. Among the companies Dauber has invested 15% of the current assets in the form of cash in hand and bank and ITC has invested the least, i.e., 2% of the current assets in cash in hand and bank. It is found that HUL and Britannia Industries have negative net working capital and rests of the sample companies under FMCG industry have positive net working capital.

From Table 4 it is found that among the companies Indian Oil has invested maximum amount in inventories, i.e., 81% of the total current assets and GAIL has invested only 32% of the current assets in inventory. GAIL has invested maximum, i.e., 63% of the current assets in trade receivables compared to other companies and Indian Oil has invested the least, i.e., only 18% of the current assets in trade receivables. Again GAIL has invested 5% of the current assets in the form of cash in hand and bank, which is highest, compared to other companies, Reliance Industries have invested the least, i.e., 1% of the current assets in cash in hand and bank. It is found that all the companies of Oil and Gas Industry have negative working capital and it is highest in ONGC (242% of current assets) and the average net working capital of the industry is -7820.38.

It is understood from the Table 5 that compared to other companies in the industry Cipla has invested maximum amount in inventories, i.e., 49% of the total current assets in inventory and Dr. Reddy's have invested only 39% of the current assets in inventory. Among the companies Dr.Reddy's has invested maximum, i.e., 59% of the current assets in trade receivables and Cipla has invested the least, i.e., only 49% of the current assets in trade receivables. Dr. Reddy's have invested 3% of the current assets in the form of cash in hand and bank whereas Arabindo pharma has invested the least, i.e., 0.9% of the current assets in cash in hand and bank. It is found that all the companies of Pharmaceutical Industry have positive net working capital and it is highest in Cipla and Arabindo Pharma and the average net working capital of the industry is 1213.56.

Table 6 shows that except Pharmaceutical Industry, none of the sample manufacturing industries have standard current ratio of 2:1. Among the sample manufacturing industries, Oil and Natural Gas industry is the least liquid industry and Pharmaceutical industry is the most liquid industry. It is also clear from the above table that overall average current ratio of the manufacturing industry is less than the standard ratio.

It is understood from Table 7 shows that except Pharmaceutical Industry, none of the sample manufacturing industries have standard quick ratio of 1:1. In terms of quick ratio, again it is proved that Oil and Natural Gas industry is the least liquid industry and Pharmaceutical industry is the most liquid industry and it is also clear from the above table that overall average quick ratio of the manufacturing industry is less than the standard ratio.

As per Table 8, it is clear that the Current Assets to Total Assets ratio of Pharmaceutical Industry is highest (0.35) and Oil and Natural Gas Industry has the least ratio (0.11). It is also found that the overall average Current Assets to Total Assets ratio is 0.22.

It is crystal clear from the Table 9 that Oil and Natural Gas Industry has the highest (11.34) Current Assets Turnover Ratio and Pharmaceutical Industry has the least (1.897) Current Assets Turnover ratio. The average Current Assets Turnover Ratio of the manufacturing industry is 6.84. The Current Assets Turnover Ratio of Cement Industry, FMCG Industry and Pharmaceutical Industry is less than the average ratio of the manufacturing industry and remaining industries have more than the average ratio of the manufacturing industry.

From Table 10 it is found that the correlation between the current ratios of Cement Industry and FMCG Industry, FMCG and Oil and Natural Gas Industry is strong negative, between Automobile and Cement Industry, Automobile and Oil and Natural Gas Industry it is weak negative. The correlation between the current ratios of all other industries with Pharmaceutical Industry is weak negative and the correlation between the ratios of FMCG and Automobile Industry, Cement and Oil and Gas Industry is strong positive.

TABLE 1: WORKING CAPITAL POSITION OF AUTOMOBILE COMPANIES (Rs. in crores)

Particulars	Tata	M&M	Maruti Suz	Hero Mot	Bajaj	Average
Current assets (Five years average form 2007-08 -2011-12)						
Inventory	3,213.37	1,477.23	1,272.12	456.166	472.094	1,436.22
% of TCA	53%	45%	49%	41%	22%	50%
Trade receivables	2,077.81	1,329.94	843.04	191.734	338.552	955.89
% of TCA	34%	40%	32%	17%	26%	33%
Cash & Bank balances	750.87	499.91	506.56	463.08	501.138	471.34
% of TCA	12%	15%	19%	42%	38%	16%
Total Current Assets	6,042.05	3,307.08	2,621.72	1110.98	1311.784	2,863.46
Current liabilities (Five years average form 2007-08 -2011-12)						
Total Current Liab.	14,986.15	4,415.88	3,671.10	3187.45	2066.266	5,246.11
% of TCA	248%	134%	140%	287%	158%	183%
Net Working Capital	-8944.10	-1108.80	-1049.38	-2076.47	-754.48	-2382.65
% of Current Assets	-34%	-40%	-40%	-58%	-13%	-34%

Source: Annual reports of the companies

TABLE 2: WORKING CAPITAL POSITION OF CEMENT COMPANIES (Rs. in crores)

Particulars	Ultratech cement	Grasim cement	India cement	J.K. cement	Madras cement	Average
Current Assets (Five years average form 2007-08 -2011-12)						
Inventory	1,223.18	765.296	450.658	234.432	373.498	609.41
% of TCA	70%	57%	57%	63%	68%	64%
Trade receivables	397.37	520.97	322.906	67.33	140.138	289.74
% of TCA	23%	39%	41%	18%	25%	30%
Cash & Bank balances	121.97	55.898	10.214	69.87	36.834	58.96
% of TCA	7%	4%	1%	19%	7%	6%
Total Current Assets	1,742.52	1342.164	783.778	371.632	550.47	958.11
Current Liabilities (Five years average form 2007-08 -2011-12)						
Total Current Liab.	3,186.79	1377.69	1411.222	596.704	1055.558	1,525.59
% of TCL	183%	103%	180%	161%	192%	159%
Net Working Capital	-1,444.27	-35.53	-627.44	-225.07	-505.09	-567.48
% of Current Assets	-83%	-3%	-80%	-61%	-92%	-59%

Source: Annual reports of the companies

TABLE 3: WORKING CAPITAL POSITION OF FMCG COMPANIES (Rs. in crores)

Particulars	HUL	ITC	Dabur	Asian paint	Britannia Industries	Average
Current Assets (Five years average form 2007-08 -2011-12)						
Inventory	2,398.06	4,820.93	350.092	837.00	303.396	1,741.90
% of TCA	72%	84%	59%	63%	79%	76%
Trade receivables	656.18	831.61	153.986	352.25	48.968	408.60
% of TCA	20%	14%	26%	27%	13%	18%
Cash & Bank balances	282.81	116.30	87.12	133.84	32.08	130.43
% of TCA	8%	2%	15%	10%	8%	6%
Total Current Assets	3,337.04	5,768.84	591.198	1,323.09	384.444	2,280.92
Current Liabilities (Five years average form 2007-08 -2011-12)						
Total current liab.	5183.02	4827.52	486.702	1273.89	438.79	2441.984
% of TCA	155%	84%	82%	96%	114%	107%
Net Working Capital	-1,845.98	941.32	104.50	49.20	-54.35	-161.06
% of Current Assets	-55%	16%	18%	4%	-14%	-7%

Source: Annual Reports of the companies

TABLE 4: WORKING CAPITAL POSITION OF OIL AND GAS COMPANIES (Rs. in crores)

Particulars	Reliance industries	ONGC	GAIL	Bharath Petroleum	Indian oil	Average
Current Assets (Five years average form 2007-08 -2011-12)						
Inventory	24,369.25	3,874.52	815.55	12,155.95	39,721.78	16,187.41
% of TCA	67%	50%	32%	77%	81%	73%
Trade receivables	11,665.02	3,621.63	1,590.87	2,947.94	8,585.78	5,682.25
% of TCA	32%	47%	63%	19%	18%	25%
Cash & Bank balances	514.77	219.50	132.16	620.12	695.82	436.47
% of TCA	1%	3%	5%	4%	1%	2%
Total Current Assets	36,549.04	7,715.66	2,538.58	15,724.02	49,003.37	22,306.13
Current Liabilities (Five years average form 2007-08 -2011-12)						
Total current liab.	49511.17	26360.38	6893.08	18670.52	49197.41	30126.51
% of TCA	135%	342%	272%	119%	100%	135%
Net Working Capital	-12962.13	-18644.72	-4354.50	-2946.50	-194.04	-7820.38
% of Current Assets	-35%	-242%	-172%	-19%	-0.3%	-35%

Source: Annual Reports of the companies

TABLE 5: WORKING CAPITAL POSITION OF PHARMA COMPANIES (Rs. in crores)

Particulars	Dr.Reddy's	Cipla	Sun pharma	Lupin	Arabindo pharma	Average
Current Assets (Five years average form 2007-08 -2011-12)						
Inventory	932.67	1,547.81	479.63	804.02	962.37	945.3
% of TCA	39%	49%	42%	44%	44%	44%
Trade receivables	1,418.38	1,560.02	628.276	996.69	1,192.60	1159.193
% of TCA	59%	49%	55%	55%	55%	54%
Cash & Bank balances	71.74	65.93	25.696	22.34	20.94	41.3292
% of TCA	3%	2%	2%	1%	0.9%	2%
Total Current Assets	2,422.79	3,173.77	1133.60	1,823.06	2,175.90	2145.82
Current Liabilities (Five years average form 2007-08 -2011-12)						
Total current liab.	1,318.59	1,135.13	545.02	883.70	778.89	932.27
% of TCA	54%	36%	48%	48%	36%	43%
Net Working Capital	1,104.20	2,038.64	588.58	939.36	1,397.01	1,213.56
% of Current Assets	46%	64%	52%	55%	64%	57%

Source: Annual Reports of the companies

TABLE 6: CURRENT RATIO OF THE SAMPLE MANUFACTURING COMPANIES

Year/Industry	Automobile	Cement	FMCG	Oil and Gas	Pharma	Mean
March 2012	0.754084	0.657251	0.98	0.673313	2.419031	1.096736
March 2011	0.783979	0.781924	0.99	0.6716993	2.63423	1.172366
March 2010	0.759158	0.770684	0.93	0.6766392	2.139593	1.055215
March 2009	0.794258	0.60093	1.09	0.54238678	2.246985	1.054912
March 2008	0.827024	0.632627	1.10	0.642141	2.353166	1.110992
Mean	0.783701	0.688683	1.018	0.641236	2.358601	1.098044

Source: Annual Reports of the company

TABLE 7: QUICK RATIO OF THE SAMPLE MANUFACTURING COMPANIES

Year/Industry	Automobile	Cement	FMCG	Oil and Gas	Pharma	Mean
March 2012	0.372468	0.242589	0.34	0.226995	1.2731426	0.491039
March 2011	0.23807	0.317157	0.25	0.205147	1.4148127	0.485037
March 2010	0.316885	0.315364	0.24	0.191451	1.1823729	0.449215
March 2009	0.322313	0.217879	0.31	0.18616	1.3886068	0.484992
March 2008	0.328431	0.271051	0.31	0.195043	1.2903375	0.478973
Mean	0.315633	0.272808	0.29	0.200959	1.3098545	0.477851

Source: Annual Reports of the companies

TABLE 8: CURRENT ASSETS TO TOTAL ASSETS OF THE SAMPLE MANUFACTURING COMPANIES

Year/Industry	Automobile	Cement	FMCG	Oil and Gas	Pharma	Mean
March 2012	0.2125394	0.1178706	0.3274886	0.13507395	0.34244336	0.227083
March 2011	0.1908128	0.1136735	0.31177	0.12609239	0.34366437	0.217203
March 2010	0.2125592	0.1174604	0.2863	0.1108786	0.32710606	0.210861
March 2009	0.1968757	0.1142564	0.3259029	0.08263231	0.39021227	0.221976
March 2008	0.2130726	0.1216362	0.342049	0.11366063	0.3422902	0.226542
Mean	0.2051719	0.1169794	0.3187021	0.11366758	0.34914325	0.220733

Source: Annual Reports of the companies

TABLE 9: CURRENT ASSETS TURNOVER RATIO OF MANUFACTURING INDUSTRY

Year/Industry	Automobile	Cement	FMCG	Oil and Gas	Pharma	Mean
March 2012	10.48018	5.697793	6.0788167	10.58341	1.895667	6.94717334
March 2011	12.88311	5.276733	6.1448607	10.03349	1.798105	7.22725974
March 2010	7.914375	6.695587	6.54510046	10.1873	2.048129	6.67809829
March 2009	9.310667	6.487055	6.31424731	14.88671	1.735643	7.74686446
March 2008	9.05708	6.595039	5.53009105	11.01516	2.008109	6.84109581
Mean	9.929083	6.150442	6.12262324	11.34121	1.897131	7.08809785

Source: Annual Reports of the companies

TABLE 10: CORRELATION BETWEEN THE CURRENT RATIOS OF VARIOUS INDUSTRIES

Industry	Automobile	Cement	FMCG	Oil and Gas	Pharma
Automobile	1	-0.45372	0.871334	-0.4195	0.102004
Cement		1	-0.80055	0.710263	0.258023
FMCG			1	-0.72567	0.01403
Oil and Gas				1	0.319146
Pharma					1

Source: Annual Reports of the companies

TESTING OF HYPOTHESIS

H₀: There is no significant difference among the liquidity position of selected manufacturing industries

TABLE 11: ONE WAY ANALYSIS OF VARIANCE BETWEEN SELECTED MANUFACTURING INDUSTRIES (DATA OF 5 YEARS FROM 2006-2010) AND (CRITICAL VALUE OF F=2.86608)

Ratio	Sources of Variation	SS	df	MS	F
Current ratio	Between Sample	274.626	4	68.66	41.85
	Within Sample	32.74	20	1.64	

Table 11 shows that the calculated F value is higher than the critical value of F. Hence the null hypothesis; there is no significant difference among the liquidity position of selected manufacturing industries, is rejected.

FINDINGS OF THE STUDY

An attempt is made here to present a succinct report of what has been discussed and analysed in results and discussions. The analysis and interpretation of the field data resulted in the following major findings:

AUTOMOBILE INDUSTRY

- Among the sample automobile companies, Tata motors have invested maximum amount in inventories i.e., 53% of the total current assets in inventory
- Mahindra and Mahindra has invested maximum (40%) proportion of the current assets in trade receivables
- Hero Motors have invested maximum of 42% of the current assets in the form of cash in hand and bank
- It is found that all the companies of Automobile Industry have negative working capital and the average net working capital of the industry is -2382.65.

CEMENT INDUSTRY

- Among the sample cement industries, Ultratech Cement has invested maximum amount in inventories, i.e., 70% of the total current assets in inventory
- India Cement has invested maximum, i.e., 41% of the current assets in trade receivables
- Compared to other companies , J.K cement has invested more (19% of the current assets) in the form of cash in hand and bank
- It is found that all the companies of Cement Industry have negative working capital and the average net working capital of the industry is -567.48.

FMCG INDUSTRY

- As per the study, ITC has invested maximum amount in inventories, i.e., 84% of the total current assets in inventory
- Compared to other companies Asian paint has invested maximum, i.e., 27% of the current assets in trade receivables
- Among the companies Dauber has invested more i.e., 15% of the current assets in the form of cash in hand and bank
- It is found that HUL and Britannia Industries have negative net working capital and rests of the sample companies under FMCG industry have positive net working capital.

OIL AND GAS INDUSTRY

- Among the oil companies Indian Oil has invested maximum amount in inventories, i.e., 81% of the total current assets
- GAIL has invested maximum, i.e., 63% of the current assets in trade receivables compared to other companies
- It is found that all the companies of Oil and Gas Industry have negative working capital and it is highest in ONGC and the average net working capital of the industry is -7820.38.

PHARMACEUTICAL INDUSTRY

- As compared to other companies in the industry Cipla has invested maximum amount in inventories, i.e., 49% of the total current assets in inventory
- Among the companies Dr.Reddy's has invested maximum, i.e., 59% of the current assets in trade receivables
- It is found that all the companies of Pharmaceutical Industry have positive net working capital and it is highest in Cipla and Arabindo Pharma and the average net working capital of the industry is 1213.56.

CONCLUSION

On the basis of the findings of the study, it can be concluded that except Pharmaceutical Industry, none of the sample manufacturing industries have positive working capital. Among the sample manufacturing industries, Oil and Natural Gas industry is the least liquid industry and Pharmaceutical industry is the most liquid industry. Even though investment in current assets is a dead investment, companies, especially trading and manufacturing industries are supposed to have 2:1 current ratio, to meet all its current obligations in time. As per the study it is clear that most of the manufacturing industries do not have such capacity because most of the manufacturing companies have invested larger part of their current assets investment in the least liquid current asset, i.e., inventories. In case of Pharmaceutical Industry the investment in current assets is more than the standard investment. It shows that even though its liquidity position is strong, profitability point of view, excess investment in current assets is not good for the wealth of the firm. Therefore, the authors herewith suggest the manufacturing companies that they have to maintain a trade-off between the liquidity and profitability while managing the working capital.

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