

WORKING CAPITAL MANAGEMENT OF FERTILIZER COMPANIES OF INDIA : A CASE STUDY

Dr. Vivek Sharma

Director, C. Rajagopalachari Institute of Management,
U.T.D. Barkatullah University, Bhopal

Mrs. Ruchi Katare

Research Scholar, Commerce Department,
U.T.D. Barkatullah University, Bhopal

Abstract

Management of working capital and liquidity are very important issues that are to be considered for the survival of any firm. This paper makes an attempt to evaluate the effectiveness of working capital and liquidity management of the selected fertilizer companies during 2006-2010.

Keywords: Working Capital, Liquidity

1. Introduction:

Efficient management of working capital assures the sound health of an enterprise. It is related to manage of current assets and current liabilities. The working capital plays an important role for the better liquidity position of any company, as the proportion of the current assets in the working capital will decide the company's liquidity position. Working capital refers to that amount which meets the Short-term financial requirements of a business enterprise. It constantly changes its form and substance during the normal course of business operations.

Normally, the working capital of any concern is invested in stock of raw materials, stock of semi-finished goods, finished goods, receivables, marketable securities and cash. Capital invested in all these firms continuously are being converted into cash and this cash again goes out in the form of other current assets. Thus, it circulates all the time continuously. Liquidity refers to the ability of any firm to pay out its short term obligations as and when became due. The working capital structure has an impact on the liquidity of a firm as the proportion of the current assets in working capital affects the liquidity position of the company. For achieving optimum level of working capital, the factors which affect the requirements of working capital and different elements of current assets should be studied carefully ultimately to achieve sound liquidity position.

2. About the companies: **Chambal Fertilizers and Chemicals Ltd. (CFCL)** is an India-based company. The Company is a manufacturer of Urea and it also has a joint venture for manufacturing of phosphoric acid in Morocco. The Company is also engaged in manufacturing of synthetic and cotton yarn, shipping business and software business. The Company has four segments: own manufactured fertilizers, trading, textile and shipping. Own manufactured fertilizers segment includes manufacture and marketing of Urea, for which price is controlled by the Government of India and distribution is partly controlled. Trading segment includes the purchase and sale of fertilizers and agricultural inputs. Textile segment includes manufacturing and sale of synthetic and cotton yarn. Shipping segment includes transportation of crude oil and liquid products through vessels owned and/or hired by the Shipping division. The Company's subsidiaries include Chambal Infrastructure Ventures Ltd., CFCL Overseas Ltd. and India Steamship Pvt. Ltd.

Nagarjuna Fertilizers and Chemicals Ltd. (NFCL) is an India-based company. The Company is engaged in manufacture and supply of plant nutrients in India. Its portfolio of products and services include Nutrition solutions and Micro Irrigation solutions. Nutrition solutions include macro and micro fertilizers and farm management services. Micro irrigation solutions offer expertise for the management of chemical process plants, which include specialist services and total project management.

It operates in three segments: Straight Nutrition Business, Nutrition Solutions Business and Nagarjuna Management Services. The Company's subsidiaries include Nagarjuna Oil Corporation Limited, Jaiprakash Engineering & Steel Co. Limited and Kakinada Fertilizers Limited. The Company acquired 100% of the equity capital of Kakinada Fertilizers Limited on December 15, 2009

National Fertilizers Ltd. (NFL) produces and markets nitrogenous fertilizers under the Kisan Urea name in India. It offers fertilizers for use in various types of crops, such as food grains, cash crops, and vegetables and oil seeds, as well as for horticulture. The company also manufactures and markets biofertilizers, including rhizobium, phosphate solubilizing bacteria, and azetobactor used to supplement chemical fertilizers. In addition, it produces and markets a range of industrial products comprising methanol, nitric acid dilute, ammonium nitrate, sulphur, industrial grade urea, liquid oxygen, liquid nitrogen, carbon slurry, carbon dioxide gas, anhydrous ammonia, sodium nitrite, sodium nitrate, liquid argon, liquid carbon dioxide, and off grade methanol. The company also offers a range of specialized services in the areas of project management, plant operation, and maintenance. National Fertilizers Limited was incorporated in 1974 and is based in Noida, India.

Rashtriya Chemicals and Fertilizers Ltd. (RCFL) is an India-based company engaged in chemical manufacturing. The Company's products include methanol, methylamines and derivatives, ammonium nitrate, sodium nitrate/nitrite, ammonium bicarbonate and formic acid. The subsidiary of the Company is Rajasthan Rashtriya Chemicals & Fertilizers Ltd. During the fiscal year ended March 31, 2010 (fiscal 2010), the Company produced 1.19 lakh metric tons of various industrial chemical products.

3. Objectives of the Study:

The following are objectives of the study:

1. To evaluate working capital management of fertilizer companies.
2. To examine the effectiveness of working capital management on liquidity.
3. To judge the relationship between liquidity and profitability through rank correlation.

4. Hypothesis:

There is no significant relationship between Current Assets to Total Assets Ratio (CATAR) and Return on Investment (ROI) in the fertilizer companies.

5. Methodology Adopted:

The study is concerned with the five years financial data of four fertilizers companies viz. **Rashtriya Chemicals and Fertilizers Ltd. (RCFL)**, **National Fertilizers Ltd.(NFL)**, **Nagarjuna Fertilizers and Chemicals Ltd.(NFCL)**, **Chambal Fertilizers and Chemicals Ltd.(CFCL)**. The data is of secondary nature and

thus limits only to the information that has been collected from the published annual reports of the companies from www.moneycontrol.com. A comparative study of working capital position has been done to throw some light for analyzing the performances of above fertilizer companies through liquidity ratios, Spearman's rank correlation analysis and to test the significance of rank correlation t-test has been applied.

6. Result and Discussion:

The statement of working capital of RCFL, NFL, NFCL and CFCL are represented in Table 1,2,3 and 4. In table 1, the size of working capital of RCFL showing decreasing trend after 2007 and in 2010 it goes negative which means their current liabilities exceeds their current assets. In table 2, the size of working capital of NFL showing mixed trend it is increased in 2007 and decreased in 2008 and again increased in 2009 and 2010. In table 3, the current liabilities of NFCL exceed its current assets resulting negative working capital throughout the study period. In table 4, the size of working capital of CFCL also showing mixed trend and in 2006, 2008 and 2009 it was negative. To evaluate the working capital and liquidity position of the above companies during the period of 2006-2010, the following significant ratios relating to them have been calculated:

6.1 Current Ratio (CR): It is an indicator of the firm's commitment to meet short-term liabilities. It is essential that a business unit should have a reasonable current ratio. Although there is no hard and fast rule, conventionally, a current ratio of 2:1 is considered satisfactory. The higher the ratio, the better it is for the firm from the point of view to repay short-term obligations out of short-term funds. Table 5.1 and 5.2 discloses that CR of RCFL is very volatile and lies between 0.77 times in the year 2009 and 2.17 times in the year 2006 and its mean is 1.46. The CR of NFL is also showing fluctuating trend. It lies between 1.279 times in the year 2008 to 2.14 times in the year 2009 and its mean is 1.56. The CR of NFCL reflecting decreasing trend and falls from 0.94 in the year 2005 to 0.71 times in the year 2009 and its mean is 0.81. The CR of CFCL is also swinging between 0.63 times in the year 2008 and 1.66 times in the year 2006 and its mean is 1.05. Thus, it can be said that CR of all four companies are below the standard of 2:1. However the CR of RCFL and NFL are better than of NFCL and CFCL but yet below the accepted standard of 2:1.

6.2 Quick Ratio (QR): This ratio is concerned with the relationship of liquid assets and current liabilities. In liquid assets all current assets are included except stock and prepaid expenses. The ideal level of quick ratio is 1:1. Table 5.1 and 5.2 reveals that the QR of RCFL has been fluctuating during the study period and ranged between 1.32 times in the year 2007 and 0.53 times in 2010. Except in 2007 and 2008 it was below the ideal level of 1:1. The QR of NFL is also showing fluctuating trend. It lies between 0.91 times in 2008 and 1.76 times in 2010. The QR of NFCL showing decreasing trend and it ranged between 0.81 times in 2006 and 0.60 times in 2010. The QR of CFCL is decreasing during the study period except in 2007 and 2010. It lies between 1.07 times in 2007 and 0.36 times in 2008. The mean of RCFL, NFL, NFCL and CFCL are 0.93, 1.19, 0.64 and 0.66 times respectively. From the above it can be said that the QR of RCFL and NFL is near to the ideal ratio of 1:1 but the QR of NFCL and CFCL is alarming.

6.3 Current assets to total assets ratio (CATAR): This ratio tells about the share of current assets in total assets. This ratio is calculated by dividing current assets by total assets. The CATAR of RCFL showing increasing trend in between 2006-09 and in 2010 it decreases. Its mean average is 68.34. The CATAR of NFL showing mixed trend throughout the study period and its mean is 82.43. The CATAR of NFCL ranged between 0.13 times in 2006 and 0.16 times in 2008 and its mean is 14.48. The CATAR of CFCL showing decreasing trend. It ranges between 0.17 times in 2008 and 0.33 times in 2006 and its mean value is 26.08. This reflects that the proportion of current assets to fixed assets is higher in RCFL and NFL as compared to NFCL and CFCL where investment in fixed assets is much higher than current assets.

6.4 Working capital turnover ratio (WCTR): This ratio reveals the efficiency with which working capital has been utilized by a concern. High ratio indicates efficient use of working capital in the concern while a low ratio indicates under utilization of working capital in the concern. The overall average WCTR of RCFL, NFL, NFCL and CFCL are 7.45, 10.78, -27.17 and -7.08 respectively. The WCTR of NFCL and CFCL is negative that means current liabilities of these companies are more than their current assets and from the information it is reflecting that current liabilities of NFCL and CFCL are increasing at a faster rate than their current assets which resulting into erosion of working capital.

6.5 Debtor turnover ratio (DTR): This ratio indicates the relationship between net credit sales and average receivables outstanding during the year. Higher ratio indicates collection from debtors is quick and efficient and low ratio indicates that the amount collected from debtors is not quick i.e., the credit management of the firm is not efficient or good. The DTR of RCFL showing mixed trend. It varies between 4.36 times in 2007 and 5.72 times in 2009. The DTR of NFL also showing fluctuating trend and it was 3.81 times in 2007 and 6.01 times in 2009. The DTR of NFCL is increasing but goes down in 2010 and it lies between 5.46 times in 2006 and 7.36 times in 2009. The DTR of CFCL showing volatility and varies between 5.87 times in 2010 and 11.18 times in 2009. The mean DTOR of RCFL, NFL, NFCL and CFCL are 4.90, 5.04, 6.39 and 7.56 respectively. It reflects that CFCL and NFCL handle their credit management more efficiently than RCFL and NFL.

6.6 Inventory turnover ratio (ITR): This ratio shows the relationship between the cost of goods and average inventory kept during the year. This reveals that whether inventory is being efficiently used or not. If inventory turnover ratio is low, it means that stock does not sell quickly and remains lying in warehouse for a long period. This results in heavy investment of funds in stock, increases carrying cost and losses on account of inventory becoming obsolete. Table 5.1 and 5.2 depicts that the ITR of all concerns under study registered fluctuations throughout the period of study and the ITR of RCFL swings between 6.12 times in 2007 and 10.75 times in 2009. The ITR of NFL ranges between 10.68 times in 2006 and 14.63 times in 2010. The ITR of NFCL lies between 16.00 times in 2008 and 29.60 times in 2010. The ITR of CFCL varied between 8.34 times in 2008 and 14.86 times in 2009. The mean ITR of RCFL, NFL, NFCL and CFCL are 8.15, 12.44, 22.15 and 10.91 respectively.

7. Hypothesis Testing:

In table 6, Spearman's rank correlation coefficient is used to find the correlation between liquidity and profitability in the companies. Current assets to total assets ratio and return on investment are taken as profitability and liquidity parameters. To test the significance of coefficients t-test is applied.

The null hypothesis states that there is no significant relationship between CATAR and ROI of these four companies.

	NFL	NFCL	RCFL	CFCL
Calculated Value of t	1.70	1.30	1.70	0.76
Critical Value of t at (n-2) degree of freedom and 0.05 Level of significance is	2.31			
Null Hypothesis	Rejected	Rejected	Rejected	Rejected

8. Conclusion:

It can be concluded from the above analysis that the major constituents of current assets are inventories, debtors and cash where as current liabilities and provisions are major constituents of current liability determining the size of working capital. The CR, QR and WCTR of RCFL and NFL are better than of NFCL and CFCL. It indicates that RCFL and NFL are in a better liquid position to pay out its current obligations and also assures efficient use of working capital in their concerns than NFCL and CFCL. On the other hand DTOR of NFCL and CFCL are better than of RCFL and NFL and this reveals that collection from debtors is quick in NFCL and CFCL. All the four companies are using their inventory efficiently. The rank correlation of liquidity and profitability of all the four fertilizer companies found no association between them it reveals that as the liquidity of the company increases their profitability decreases. All the companies under

study need improvement in their liquidity position to meet its short-term obligations in time. NFCL and CFCL should invest in current assets and reduce their current liabilities for steady running of the day-to-day business operations. RCFL and NFL should improve their credit management. They should restrict sales on credit on one hand and should take suitable steps for recovery of dues from its customers on other hand.

9. References:

- Padachi Kesseven,(2006),” Trends in working capital management and its impact on firm’s performance : an analysis of Mauritian small manufacturing firms, International Review of Business Research Papers, Vol II, pp 45 -58
- Gupta S.P.(2009),Financial Management, Sahitya Bhawan Publications, pp460
- Sur Debasish, (2001),”Liquidity management: an overview of four companies in Indian power sector”, The Management Accountant, pp 407-412
- Reddy Y.V., Patkar S.B.,(2004) “Working capital and liquidity management in factoring: A comparative study of SBI and Canbank factors”, The Management Accountant
- Garg A.K. (2007), Advanced Financial Management, Swati Prakashan
- www.google.com
- www.moneycontrol.com

Table 1: Statement of Working Capital of Rashtriya Chemicals And Fertilizers Ltd.

Rs. in Crores

Items	2006	2007	2008	2009	2010
CURRENT ASSETS					
Inventory	426.34 (35.02)	720.25 (39.29)	865.52 (42.1)	692.69 (27.48)	409.59 (30.27)
Debtors	724.56 (59.52)	882.54 (48.14)	1141.09 (55.50)	1788.17 (70.95)	858.98 (63.48)
Cash & Bank Balance	66.44 (5.46)	230.52 (12.57)	49.29 (2.40)	39.50 (1.57)	84.54 (6.25)
Total Current Assets (A)	1217.34 (100)	1833.31 (100)	2055.90 (100)	2520.36 (100)	1353.11 (100)
CURRENT LIABILITIES					
Current Liabilities	687.23 (78.16)	638.07 (75.48)	816.20 (74.74)	1860.46 (82.09)	1543.43 (87.38)
Provisions	192.00 (21.83)	207.31 (24.52)	275.89 (25.26)	405.89 (17.91)	222.84 (12.62)
Total Current Liabilities (B)	879.23 (100)	845.38 (100)	1092.09 (100)	2266.35 (100)	1766.27 (100)
Net Working Capital (A-B)	338.11	987.93	963.81	254.01	-413.16

Source: Annual Reports of Rashtriya Chemicals and Fertilizers Ltd

Table 2: Statement of Working Capital of National Fertilizers Ltd.

Rs. in Crores

Items	2006	2007	2008	2009	2010
CURRENT ASSETS					
Inventory	324.49 (27.95)	348.20 (22.22)	381.03 (28.89)	348.68 (26.89)	347.12 (17.72)
Debtors	824.47 (71.03)	1205.72 (76.93)	776.72 (58.88)	930.48 (71.75)	920.55 (47.00)
Cash & Bank Balance	11.83 (1.02)	13.39 (0.85)	161.37 (12.23)	17.60 (1.36)	690.81 (35.27)
Total Current Assets (A)	1160.79 (100)	1567.31 (100)	1319.12 (100)	1296.76 (100)	1958.48 (100)
CURRENT LIABILITIES					
Current Liabilities	677.20 (79.44)	747.15 (84.10)	852.26 (82.85)	781.13 (77.94)	698.13 (76.11)
Provisions	175.27 (20.56)	141.28 (15.90)	176.37 (17.15)	221.14 (22.06)	219.12 (23.89)
Total Current Liabilities (B)	852.47 (100)	888.43 (100)	1028.63 (100)	1002.27 (100)	917.25 (100)
Net Working Capital (A-B)	308.32	678.88	290.49	294.49	1041.23

Source: Annual Reports of Rashtriya Chemicals and Fertilizers Ltd

Table 3: Statement of Working Capital of Nagarjuna Fertilizers And Chemicals Ltd.

Rs. in Crores

Items	2006	2007	2008	2009	2010
CURRENT ASSETS					
Inventory	57.76 (13.54)	84.88 (20.71)	189.24 (37.17)	74.94 (17.31)	59.38 (14.97)
Debtors	311.24 (72.99)	313.76 (76.54)	298.14 (58.57)	346.05 (79.90)	298.16 (75.15)
Cash & Bank Balance	57.45 (13.47)	11.28 (2.75)	21.66 (4.26)	12.10 (2.79)	39.18 (9.88)
Total Current Assets (A)	426.45 (100)	409.92 (100)	509.04 (100)	433.09 (100)	396.72 (100)
CURRENT LIABILITIES					
Current Liabilities	402.38 (88.27)	352.00 (78.00)	470.62 (76.20)	482.46 (72.60)	525.41 (93.59)
Provisions	53.49 (11.73)	99.28 (22.00)	146.97 (23.80)	182.12 (27.40)	35.96 (6.41)
Total Current Liabilities (B)	455.87 (100)	451.28 (100)	617.59 (100)	664.58 (100)	561.37 (100)
Net Working Capital (A-B)	-29.42	-41.36	-108.55	-231.49	-164.65

Source: Annual Reports of Rashtriya Chemicals and Fertilizers Ltd

Table 4: Statement of Working Capital of Chambal Fertilizers And Chemicals Ltd.

Rs. in Crores

Items	2006	2007	2008	2009	2010
CURRENT ASSETS					
Inventory	249.22 (38.58)	352.01 (35.62)	302.60 (57.72)	316.82 (31.90)	243.31 (29.25)
Debtors	319.11 (49.41)	525.84 (53.21)	163.10 (31.11)	660.10 (66.47)	558.50 (67.14)
Cash & Bank Balance	77.57 (12.01)	110.42 (11.17)	58.57 (11.17)	16.20 (1.63)	30.00 (3.61)
Total Current Assets (A)	645.90 (100)	988.27 (100)	524.27 (100)	993.12 (100)	831.81 (100)
CURRENT LIABILITIES					
Current Liabilities	594.32 (76.30)	456.14 (76.45)	468.92 (77.16)	1441.56 (91.93)	473.19 (73.18)
Provisions	184.64 (23.70)	140.49 (23.55)	138.78 (22.84)	126.51 (8.07)	173.44 (26.82)
Total Current Liabilities (B)	778.96 (100)	596.63 (100)	607.70 (100)	1568.07 (100)	646.63 (100)
Net Working Capital (A-B)	-133.06	391.64	-83.43	-574.95	185.18

Source: Annual Reports of Rashtriya Chemicals and Fertilizers Ltd

Table 5.1: Liquidity Management of Rashtriya Chemicals & Fertilizers Ltd. And National Fertilizers Ltd.

Ratios are in times

Period	Rashtriya Chemicals & Fertilizers Ltd.						National Fertilizers Ltd.					
	CR	QR	CATAR	WCTR	DTR	ITR	CR	QR	CATAR	WCTR	DTR	ITR
2006	1.38	0.90	0.67	9.05	5.07	7.11	1.36	0.98	0.78	11.69	5.72	10.68
2007	2.17	1.32	0.76	3.55	4.36	6.12	1.76	1.37	0.92	5.69	3.8	11.49
2008	1.88	1.09	0.74	5.35	5.10	6.51	1.28	0.91	0.68	14.25	4.18	11.36
2009	1.11	0.81	0.81	32.98	5.72	10.75	1.29	0.95	0.75	17.41	6.01	14.05
2010	0.77	0.53	0.43	-13.69	4.27	10.26	2.14	1.76	0.99	4.89	5.50	14.63
Mean	1.46	0.93	0.68	7.45	4.90	8.15	1.56	1.19	0.82	10.78	5.04	12.44

Source: Annual reports of Rashtriya Chemicals & Fertilizers Ltd. and National Fertilizers Ltd.

Note: CR-Current Ratio, QR- Quick Ratio, CATAR- Current Assets to Total Assets ratio, WCTR- Working Capital Turnover Ratio, DTR- Debtors Turnover Ratio, ITR- Inventory Turnover Ratio

Table 5.2: Liquidity Management of Nagarjuna Fertilizers & Chemicals Ltd. and Chambal Fertilizers & Chemicals Ltd.

Period	Nagarjuna Fertilizers & Chemicals Ltd						Chambal Fertilizers & Chemicals Ltd.					
	CR	QR	CATAR	WCTR	DTR	ITR	CR	QR	CATAR	WCTR	DTR	ITR
2006	0.94	0.81	0.13	-49.43	5.46	21.71	0.83	0.51	0.33	-20.61	6.69	9.97
2007	0.91	0.72	0.13	-43.91	5.81	25.46	1.66	1.07	0.32	6.62	6.15	8.64
2008	0.82	0.51	0.16	-20.21	7.17	16.00	0.86	0.36	0.17	-32.70	7.92	8.34
2009	0.65	0.54	0.15	-10.25	7.36	17.96	0.63	0.43	0.27	-8.01	11.18	14.86
2010	0.71	0.60	0.16	-12.07	6.17	29.60	1.29	0.91	0.21	19.30	5.87	12.76
Mean	0.81	0.64	0.14	-27.17	6.39	22.15	1.05	0.66	0.26	-7.08	7.56	10.91

Source: Annual reports of Rashtriya Chemicals & Fertilizers Ltd. and National Fertilizers Ltd.

Note: CR-Current Ratio, QR- Quick Ratio, CATAR- Current Assets to Total Assets ratio, WCTR- Working Capital Turnover Ratio, DTR- Debtors Turnover Ratio, ITR- Inventory Turnover Ratio

Table 6: Rank correlation between liquidity and profitability of Rashtriya Chemicals & Fertilizers Ltd., National Fertilizers Ltd., Nagarjuna Fertilizers & Chemicals Ltd. and Chambal Fertilizers & Chemicals Ltd.

Period	RCFL				NFL				NFCL				CFCL			
	CATAR		ROI		CATAR		ROI		CATAR		ROI		CATAR		ROI	
	%age	Rank (L ₁)	%age	Rank (P ₁)	%age	Rank (L ₂)	%age	Rank (P ₂)	%age	Rank (L ₃)	%age	Rank (P ₃)	%age	Rank (L ₄)	%age	Rank (P ₄)
2006	67.50	4	13.64	2	78.23	3	16.67	2	12.93	5	7.55	4	33.25	1	16.57	1
2007	76.21	2	12.07	3	92.30	2	17.11	1	12.95	4	7.08	5	32.38	2	10.07	5
2008	73.89	3	11.27	4	68.27	5	11.01	5	16.28	1	8.39	3	17.29	5	10.29	4
2009	81.36	1	22.55	1	74.72	4	13.32	4	14.74	3	9.58	2	26.72	3	15.53	2
2010	42.71	5	9.53	5	98.64	1	13.64	3	15.50	2	13.20	1	20.76	4	11.12	3
r value	0.70				0.70				0.60				0.40			
t value	1.70				1.70				1.30				0.76			
Note: The critical value of t with (n-2) degree of freedom at 0.05 level of significance is 2.31																