A Comparative Analysis of Management of Working Capital in Fertiliser Industry

Mansavi Gumber
Head Cashier- II, Central Bank of India, Rania
Distt – Sirsa (Haryana)

Dr. Surender Kumar
Asstt. Professor, Department of Commerce
Govt. Girls PG College, Bodiyakhera (Fatehabad)

Abstract - Working capital management involves managing the relationship between a firm's short term assets and its short term liabilities. The objective of this research is to form a comparative study between fertilizer industry and co-operative Sector. It is traditionally opined that liquidity and profitability are inversely related. This thesis main objective was to analyse the significance and growth of various constituents of both current assets and current liabilities. For an intensive study of working capital management of fertiliser industry, main focus of the study would be on major and significant players of the industry of public and co-operative sector viz National Fertilizer Limited, Madars Fertilizer Limited, Gujarat State Fertiliser and Chemicals Limited, Indian Farmers Fertiliser Cooperative Limited and Krishak Bharti Co-operative Limited. The co-operative sector possessed more amounts of working capital than the public sector and the former's working capital need grew at a rate which was almost double the rate of the public sector. A solution that the public sector was much more efficient in the management of cash as compared to the co-operative sector which was laming in this regard and was way behind it. It was observed and concluded that the co-operative sector was better off than the public sector as regard liquidity and payment to creditors as their credit period were much shorter than the public sector.

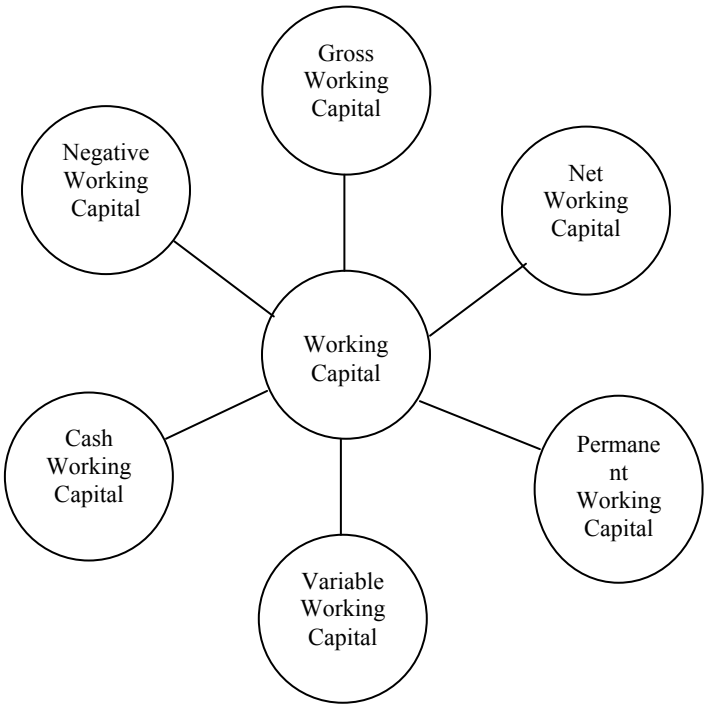
I. INTRODUCTION

1.1 Working Capital Management

Working capital management involves managing the relationship between a firm's short term assets and its short term liabilities. Working capital management is concerned with the management of all the aspects of both the current assets and current liabilities, so as to minimize the risk of insolvency while maximizing return on assets. The goal of working capital management is to ensure that a firm is able to continue its operations and that it has sufficient ability to satisfy both maturing short term debt and upcoming operational expenses. The management of working capital involves managing inventories, accounts receivable and payable, and cash. Working capital management calls for addressing two basic issues-how much of current assets should an organization hold and how to finance such investment in current assets. It is opined that organisations which could tackle these two issues reasonably are able to combat liquidity problems comparatively more efficiently.

1.2 Fertiliser Industry

The Indian Fertiliser Industry entered into the hundredth years of its existence in the year 2006. The industry had a very humble beginning in 1906, when the manufacturing unit of Single Super Phosphate (SSP) was set up in Ranipet near Chennai with annual capacity of 600 MT. The Fertiliser & Chemicals Travancore of India LTd. (FACT) at Cochin in Kerala and the Fertilizer Corporation of India (FCI) in Sindri in Bihar were the first large sized fertiliser plants set up in forties and fifties with a view to establish an industrial base to achieve self-sufficiency in food grains. Subsequently, green revolution in the late sixties gave an impetus to the growth of fertiliser industry in India.



Presently, there are 125 large sized fertiliser plants, owned by different organisations of the fertiliser industry, operating in the country manufacturing a wide range of nitrogenous phosphatic and complex fertilisers. Out of these 28 are urea plants, 19 are complex fertiliser plants including DAP, 66 are SSP, 10 are ammonium sulphate plants 1 each of CAN and ammonium chloride. The Indian fertiliser industry has succeeded in meeting, to a great extent, the demand of all chemical fertiliser except for MOP.

II. Profile of the Companies selected for the study

Under this topic a brief profile of all the five concerns selected for study has been provided which as follows:

A) IFFCO: IFFCO stands for Indian Farmers Fertilisers Co-Operative Ltd. IFFCO was registered in November 3, 1967 as a Multi-Unit Co-Operative Society. On the enactment of the Multistate Co-Operative Societies Act 1984 and 2002, the society is deemed to be registered as Multistate Co-Operative Society. The society is primarily engaged in the production and distribution of fertilisers. Another ammonia-urea plant was set up at Phulpur in Uttar Pardesh in 1981. The ammonia-urea unit at Aonla was commissioned in 1988. IFFCO acquired fertiliser unit at Paradeep in Orissa in September 2005.

B) KRIBHCO: KRIBHCO represent Krishak Bharti Co-Operative Limited. KRIBHCO was set up a national level Co-Operative society in April 1980. Its objective was to produce and distribute chemical fertilisers and allied farm inputs. The society's ammonia-urea plant is located in Hazira near Surat in Gujrat which produces urea, ammonia and bio-fertilisers and was commissioned on February 5, 1982. The plant has two streams of ammonia plant and four streams of urea plant.

C) NFL: NFL stands for National Fertiliser Limited. NFL incorporated on 23rd August, 1974 with two manufacturing units at Bathinda (Punjab) and Panipat (Haryana). Subsequently, on the re-organisation of the Fertiliser Group of Companies in 1978, the Nagpal Unit of Fertiliser Corporation of India came under the fold of NFL. The company expanded its installed capacity in 1984 by installing and commissioning Vijaipur gas based plant in Madhya Pradesh. NFL is known in the industry for its work culture, value added human resources, safety, environment, concern for ecology and its commitment to social upliftment.

D) GSF&CL: GSF&CL represents Gujrat State Fertilisers and Chemicals Limited. GSF&CL was set up in 1967 when it took its first step with the setting up of 6 Nitrogenous and Phosphatic Fertiliser Plants with an initial investment of Rs.40 crores which produced ammonia, urea, ammonia sulphate, diammonium phosphate, sulphuric acid and phosphoric acid. In 1974 plants to manufacture caprolactam, melamine, nylon-6, oleum-SO2 and Oxo-Synthesis Gas unit and Purge

Gas Recovery unit were set up. In 1989 the company began further expansion and diversification with three co-generation units using LSHS and Natural Gas were set up.

E) MFL: MFL connotes Madras Fertilisers Limited. MFL incorporated on 8th December, 1966 as a joint venture between GOI and AMOCO India incorporated of U.S.A. (AMOCO) in accordance with the fertiliser formation agreement executed on 14/05/1966 with equity contributions of 51 per cent and 49 per cent respectively. At present the shareholding pattern involves GOI 58.74 per cent, Naftiran Intertrade Company Limited (Affiliate of NIOC) 25.44 per cent and public 15.82 per cent. MFL in engaged in the production of urea, ammonia, complex fertilisers and bio-fertilisers.

III. Tools Used For Analysis

3.1 Financial Tools

Ratio Analyses: Ratio analysis is one of the most important and widely used tool of analysing the working capital and its management.

The various ratios that will be calculated are as follows:

1) Liquidity Ratios: These ratios threw light on the liquidity position of the concern. The following ratios were calculated:

I). Current Ratio: Current Ratio = Current Assets/ Current Liabilities

II) Quick Ratio: Quick Ratio = Current Assets – Inventory/ Current Liabilities

2) Activity Ratios: These ratios measure the effectiveness with which an organisation manages its resources on assets. They are also called the turnover ratios because they indicate the speed with which assets are converted or turned over into sales. The various ratios calculated are as follows:

a) Debtors Turnover Ratio: = Total Sales/ Average Debtors

b) Average Collection Period: = $\frac{365}{\text{Debtors Turnover Ratio}}$

c) Inventory Turnover Ratio: = Cost of Goods Sold/ Average Inventory

d) Working Capital Turnover Ratio: = $\frac{\text{Sales}}{\text{Average Working Capital Turnover}}$

e) Creditors Turnover Ration: = Net Credit Annual Purchases/ Average Trade Creditors

f) Average Payment Period: = Number of Days in the Year/ Creditors Turnover Ratio

g) Inventory Conversion Period: = Number of Days in the Year/ Inventory Turnover Ratio

3) Profitability Ratio: The Net Profit Ratio, calculated, reflects the efficiency of management in manufacturing, selling, administrative and other activities of the concern.

i) Profit Before Tax Ratio = Profit Before Tax/ Net Sales

ii) Net Profit Ratio = Net Profit After Tax/ Net Sales

3.2 Working Capital Leverage

Working Capital Leverage measures the sensitivity of Return on Investment (ROI) i.e. the earning power of the company to the proportionate changes in the level of the current assets. The formula for calculating the Working Capital Leverage (WCL) is:

WCL = Percentage Change in ROI ÷ Percentage Change in Current Assets

= {[EBIT/TA-ΔCA) – (EBIT/TA)] ÷ EBIT/TA}

= ΔCA/TA-ΔCA

And the percentage decrease in CA = ΔCA ÷ CA

Hence, WCL = [ΔCA/(TA- ΔCA)] ÷ [ΔCA/CA]

(This is so in the case of decrease in the level of CA.

And in case there is an increase in the level of CA, the formula will change correspondingly to: [CA/(TA + ΔCA)].

EBIT = Earnings before interest and taxes

TA = Value of total assets i.e. CA + FA

CA = Total value of current assets

FA = Total value of net fixed assets

ΔCA = Change in the level of current assets

ROI = Return on investment i.e. EBIT/TA

It may be further observed that if in a company, the value of total current assets is proportionately higher than its total investment in fixed assets and other non-current assets, taken together, the WCL (or the sensitivity of ROI) will be comparatively much higher if the position is just the reverse.

IV. Operating Cycle Analysis

Operating cycle is the time duration required to convert sales, after the conversion of resources into inventories, into cash. The operating cycle of manufacturing industry like fertiliser industry, broadly consists of the following three phases:

1. Acquisition of resources such as raw materials, labour, power, fuel etc.
2. Manufacturing the product which involves conversion of raw materials into work in progress and finally, into finished goods.
3. Sale of the product either for cash or on credit. Credit sales create account receivable for collection.

These phases affect cash flows, which most of the time, are neither synchronized nor certain. They are not synchronized because cash outflows usually occur before cash inflows. Cash inflows are not certain because sales and collections which give rise to cash inflows are difficult to forecast accurately.

Now an important question which arises here is how to determine the length of the operating cycle? The answer lies in the sum total of (i) inventory conversion period (which in turn is the sum of (a) raw material conversion period (b) work in process conversion period and (c) finished goods conversion period) and (ii) debtors conversion period or average collection period. This total would give gross operating cycle from which if average payment period or payables deferral period is deducted the resultant answer would be net operating cycle. The various components of operating cycle are calculated as follows:

a) Raw Material Conversion Period = $\frac{365}{\text{Raw Material Turnover Ration}}$

i) Raw Material Turnover Ratio = $\frac{\text{Cost of Goods Sold}}{\text{Average Stocks of Raw Materials}}$

b) Work in Process Material Conversion Period = $\frac{365}{\text{Work in Process Material Turnover Ratio}}$

ii) Work in Process Material Turnover Ratio = $\frac{\text{Cost of Goods Sold}}{\text{Average Stock of Work in Process Material}}$

c) Finished Goods Turnover Ratio = $\frac{365}{\text{Finished Goods Turnover Ratio}}$

iii) Finished Goods Turnover Ratio = $\frac{\text{Cost of Goods Sold}}{\text{Average Stocks of Finished Goods}}$

d) Average Collection Period = $\frac{365}{\text{Debtors Turnover Ratio}}$

iv) Debtors Turnover Ratio = $\frac{\text{Total Sales}}{\text{Average Debtors}}$

e) Average Payment Period = Number of Days in the Year

v) Creditors Turnover Ratio = $\frac{\text{Creditors Turnover Ratio}}{\text{Net Credit Annual Purchases}}$ / Average Trade Creditors

Therefore, it can be easily conferred that with the completion of each operating cycle the profitability of the organisation goes up and hence more and more efforts should be made to increase the number of operating cycles by attempting to decrease the length of each operating cycle.

V. Cash Management

Cash is the basic input needed to keep the business running on a continuous basis and is also the ultimate output expected to be realised by selling the services or goods manufactured by the firm. The firm should make efforts to keep sufficient cash balances which is neither too less nor too excessive. However, what is sufficient is a matter of how various factors effecting the organisation interact and influence the firm. The term cash includes coins, currency notes and cheques held by the company and also the balances and short term time deposits in the bank(s).

Motives for Holding Cash

The firm's need to hold cash may be attributed to the following three motives:

- The Transaction Motive
- The Precautionary Motive
- The Speculative Motive

VI. Receivables Management

Trade credit arises when a firm sells its products of services on credit and does not receive cash instantly. It is an effective marketing tool, acting as a bridge for the movement of goods through production and distribution stages to customers. Trade credit creates receivables or book debts which the firms is expected to collect in the near future. The book debts or receivables arising out of the credit have three characteristics; (a) it involves an element of risk which should be carefully analysed; (b) it is based on economic value. To the customer, the economic value in goods or services passes immediately at the time of sale, while the seller expects an equivalent value later in the future and; (c) it implies futurity. The cash payment for goods or services received by the buyer will be made by him in the future period.

VII. Inventory Management

Inventories are stock of the product of the company is manufacturing for sale and the components that make up the product. In a manufacturing concern, it may include raw materials, work in process and stores, etc. Inventories, generally, may include the following:

1) Raw Material: Raw materials are the inputs that are used in the manufacturing process to be converted into finished goods. However, it may be noted that what is considered to be the finished goods' for one firm could be the raw material for another firm(s). The quantity of raw materials required will be determined by the rate of consumption and the time needed to replenish the supplies. The factors like availability of raw materials and government regulations, etc. too effect the stock of raw material. Raw materials are important not only in the manufacturing process but also play a crucial role in deciding the location of plant.

2) Work-In-Progress: These are, basically, the items which are partially assembled or processed. The work-in-progress is that stage of stocks which are in between raw materials and finished goods. The complexity of production process and time required to complete production cycle determines the value as well as the quantum of work-in-progress.

VIII. Payable Management

A substantial part of purchased of goods and services in business re on credit terms rather than against cash payment. While the supplier of goods and services then to perceive credit as a lever for enhancing sales or as a form of non-price instrument of competition, the buyer tends to look it as a loaning of goods or inventory. The suppliers' credit is referred to as accounts payable, trade credit, trade bill, trade acceptance, extent to which this 'buy now, pay later' facility is provided will depend upon a variety of factors such as the nature, quality and volume of items to be purchased, the prevalent practices in the trade, the degree of competition and the financial status of the parties concerned. Trade credit or payables constitute a major segment of current liabilities in many business enterprises.

3) Finished Goods: the last stage in the inventory processing is the finished goods. These are the final output in any manufacturing process and are ready to be sold in the market. In other words, they comprise the end-products ready for sale to the consumers. The stock of finished goods provides a buffer between production and market. The purpose of maintaining inventory is to ensure timely and proper supply the customers. The need for finished goods inventory is to ensure timely and proper supply to the customers. The need for finished goods inventory will be more when production is undertaken in general, without waiting for specific orders.

4) Stores and Spares: Stores or otherwise called as purchased components are another important input in the manufacturing process. Spares also form a part of inventory. They do not directly contribute to the final output of the product but are necessary to support the smooth flow of the production process. They treated as inventory due to their short life and also due to their being stored along with materials. As they are also issued and accounted like materials, they are treated as a part of the inventory. The stocking policies of spares are different from industry to industry. All decision about spares are based on the financial cost of the inventory on such spares and the cost that may arise due to their non-availability.

5) Packing Material: Another important component of the inventory is the packing material. It refers to the stock of materials required for the packing of finished goods. In other words, the material into which the end products are packed or stored so that they can be delivered to the customers. They add convenience with respect to the handling of the finished products and also add charisma to the product.

KRUSKAL-WALLIS/H-TEST RESUTLS FOR INDIVIDUAL RATIOS

H0 : No Significant Variations Exists in the Respective Ratio of Five Companies
H1 : Significant Variations Exists in the Respective Ratio of Five Companies

RATIO	χ20.05 (V = 4)	H VALUE	REMARKS
WCTR	9.49	19.71	Null Hypothesis is Rejected
DTR	9.49	19.96	Null Hypothesis is Rejected
ITR	9.49	10.22	Null Hypothesis is Rejected
CR	9.49	21.16	Null Hypothesis is Rejected
QR	9.49	20.05	Null Hypothesis is Rejected

WCTR : WORKING CAPITAL TURNOVER RATIO
DTR : DEBTORS TURNOVER RATIO
ITR : INVENTORY TURNOVER RATIO
CR : CURRENT RATIO
QR : QUICK RATIO

IX. CONCLUSION

On the behalf of Working Capital Management it was observed that the working capital amount an average in IFFCO was higher than all other concerns followed by KRIBHCO and NFL. Akin to working capital, IFFCO possessed huge amounts of current assets followed by KRIBHCO and GSF&CL. MFL had the lowest amounts of current assets. On the whole the co-operative sector had investments in current assets which were 1.5 times of the investment in current assets by the public sector. It was also deduced that inventories and debtors were very high in case of the public sector whereas loans and advances were soaring as far as the co-operative sector was concerned. Cash balances were comparatively high in case of the co-operative sector. On the behalf of Receivable Management for the sectors, it can be concluded that, undoubtedly, the public sector was much more efficient in the management of cash as compared to the co-operative sector which was laming in this regard and was way behind it. On the behalf of study of payables management it was observed and concluded that the co-operative sector was better off than the public sector as regard liquidity and payment to creditors as their credit periods were much shorter than the public sector, nevertheless the public sector derived benefits from the massive credit periods.

REFERENCES

[1] Agarwal, J.D. (1988), "A goal programming model for working capital management," Finance India, Vol. 2, Issue 2.
[2] Aksoy, Y. (1990), "Interactive Multiple Objective Decision Making: A Bibliography (1965–1988)," Management Research News, Vol. 13, Issue 2.
[3] Chakraborty, K. (2008), "Working Capital and Profitability: An Empirical Analysis of Their Relationship with Reference to Selected Companies in the Indian Pharmaceutical Industry," The Icfai Journal of Management Research

[4] Chakraborty, P.K. and Bandopadhyay, K. (2007), "Strategic Working Capital Management: Case of a Turnaround Company," ICFAI Reader
[5] Coskun, S., Basligil, H. and Baracli, H. (2008), "A weakness determination and analysis model for business process improvement," Business Process Management Journal, Vol. 14, Issue 2.
[6] Cote, J.M. and Latham, C.K. (1999), "The Merchandising Ratio: A Comprehensive Measure of Working Capital Strategy," Issues in Accounting Education; Vol. 14, Issue 2
[7] Filbeck, G., Krueger, G. and Krueger, T.M. (2005), "An Analysis of Working Capital Management Results across Industries," Mid-American Journal of Business, Vol. 20,
[8] Issue 2.
[9] Garcia-Teruel, P.J. and Martinez-Solano, P. (2007), "Effects of working capital management on SME profitability," International Journal of Managerial Finance, Vol.3, Issue 2.
[10] Jafar, A. and Sur, D. (2006), "Efficiency of Working Capital Management in Indian Public Enterprises during the Post-liberalization Era: A Case Study of NTPC," The Icfai Journal of Management Research
[11] Khorram Shahgol, R. and Okoruwa, A. (1994), "A goal programming approach to investment decisions: A case study of fund allocation among different shopping malls in Atlanta," Operational Research, Vol. 73, Issue 1.
[12] Kim, G.C. and Schniederjans, M.J. (1993), "A Multiple Objective Model for a Just-in- Time Manufacturing System Environment," International Journal of Operations & Production Management, Vol.13, Issue 12.
[13] Lee, A.H.I. and Kang, H.-Y. (2008), "A mixed 0-1 integer programming for inventory model: A case study of TFT-LCD manufacturing company in Taiwan," Kybernetes, Vol. 37, Issue 1.
[14] Rafuse, M.E. (1996), "Working capital management: an urgent need to refocus," Management Decision, Vol. 34, Issue 2.
[15] Rees Loren., P.; Clayton, Edward R.; Taylor, III, Bernard W (1987), "A linear goal programming model of a multi-period, multi-commodity network flow problem," Business Logistics, Vol. 8, Issue 1.
[16] Rifai, A.K. (1996), "A note on the structure of the goal-programming model: assessment and evaluation," International Journal of Operations & Production Management, Vol.16, Issue 1.