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A STUDY ON INVENTORY MANAGEMENT OF STEEL AUTHORITY OF INDIA LIMITED

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Abstract

Management of working capital is important to carry the routine activities of a firm. The objective behind working capital management is to ensure continuity in the operations of a firm and that it has sufficient funds to satisfy both maturing short-term debt and upcoming operational expenses. It mainly involves management of inventories, accounts receivables, accounts payables and cash. The first component of working capital is inventory. Inventory is a major item of current assets. The factory requires hundreds or thousands of items for manufacturing different products. Such items include the stock of raw materials, goods in process, finished goods and other consumable stores. Inventory constitutes the largest proportion of current assets in a business organization. Cost of stock is a sensitive area in the management of working capital. The management of inventories—raw material, goods-in-process and finished goods is an important factor in the short-run liquidity positions and long-term profitability of the company. Inventory and its importance in meeting customer's needs become important. The present paper examines the “A Study on Inventory Management in Steel Authority of India Limited”, during the period 2008-09 to 2017-18. Financial ratios are applied in measuring the inventory performance and statistical techniques are employed in order to assess the behavior of the selected ratios.

KEYWORDS: Inventory, Stock, Inventory Turnover Ratio, Inventory Holding Period Ratio.

INTRODUCTION

Every business organizations needs inventory for the smooth running of its activities. It serves as a link between production and distribution processes. The investment in inventories constitutes the most significant part of current assets. Working capital is the most of the undertakings. Thus it is very essential to have proper control and management of inventories. The purpose of inventory management is to ensure availability of materials in sufficient quantity as and when required and also to minimize investment in inventories.

The investment in inventory is very high in most of the undertakings engaged in manufacturing, wholesale and retail trade. The amount of investment is sometimes more in inventory than on other assets. In India, a study of 29 major industries has revealed that the average cost of the material is 64 paise and the cost of labor and overhead is 36 paise in a rupee. About 90 per cent part of working capital is invested in inventories. It is necessary for every management to give proper attention to inventory management. A proper planning of purchasing, handling, storing, and accounting should form a proper inventory management. An efficient system of inventory management will determine:-

- a) What to purchase
- b) How much to purchase
- c) From where to purchase and
- d) Where to store

The purpose of inventory management is to keep the stocks in such a way that neither there is over-stocking nor under-stocking. Over-stocking means a reduction of liquidity and starving for other production processes. Under-stocking, on the other hand, will result in stoppage of work. The investment in inventory should be left in reasonable limits ¹.

OBJECTIVE OF THE STUDY

The main objective is to evaluate the efficiency of inventory management in Steel Authority of India Limited.

RESEARCH DESIGN

The study has been carried out by selecting a company namely Steel Authority of India Limited”, which is one of the top public sector enterprises in the iron & steel sector.

PERIOD OF THE STUDY

The present study covers a period of 10 (TEN) years spanning from the year 2008-09 to 2017-18. The period of ten years is sufficient to infer the results. This period has been selected for the study as the needed complete data are available for the present study and through the data true insight into the financial health can be obtained.

SOURCES OF DATA

The present study is based on the secondary data only. The sources include:

- a. Annual Reports of Steel Authority of India Limited;
- b. Reports Published by the Ministry of Steel;
- c. Published and unpublished reports of Steel Authority of India Limited;
- d. Website of Steel Authority of India Limited;
- e. Journals, magazines and periodicals

TOOLS AND TECHNIQUES OF ANALYSIS OF DATA

The following tools and techniques have been used for the present research work:

- (i) **Accounting Techniques:** These techniques are used for deriving inferences.
 - a. Ratio Analysis
 - b. Trend Analysis
- (ii) **Statistical Techniques:** These techniques are applied for interpreting the data.
 - a. Arithmetic Mean
 - b. Standard Deviation (S.D)
 - c. Co-efficient of Variation (C.V.)
 - d. Compound Growth Rate (C.G.R)
 - e. Linear Growth Rate (L.G.R)
 - f. 't'- test
- (iii) **Diagrammatical and Graphic Presentation of Data:** Wherever necessary diagrams, graphs and charts are prepared to give bird's eye view of the situation and also to facilitate easy interpretation of the collected data.

Structure of Inventory

The structure of inventory is generally affected by the nature of the business of a firm. A trading firm will have small investments in raw-materials, work-in process, finished goods and stores & spares. A significant portion of its total inventory would consist of finished inventory only. However, a manufacturing firm, on the other hand, has to invest in each component of inventory. The share of each component in the total inventory varies from industry to industry ². The structure of inventory in Steel Authority of India Limited is shown in table 1.

Table 1

Structure of Inventory in Steel Authority of India Limited during 2008-09 to 2017-18

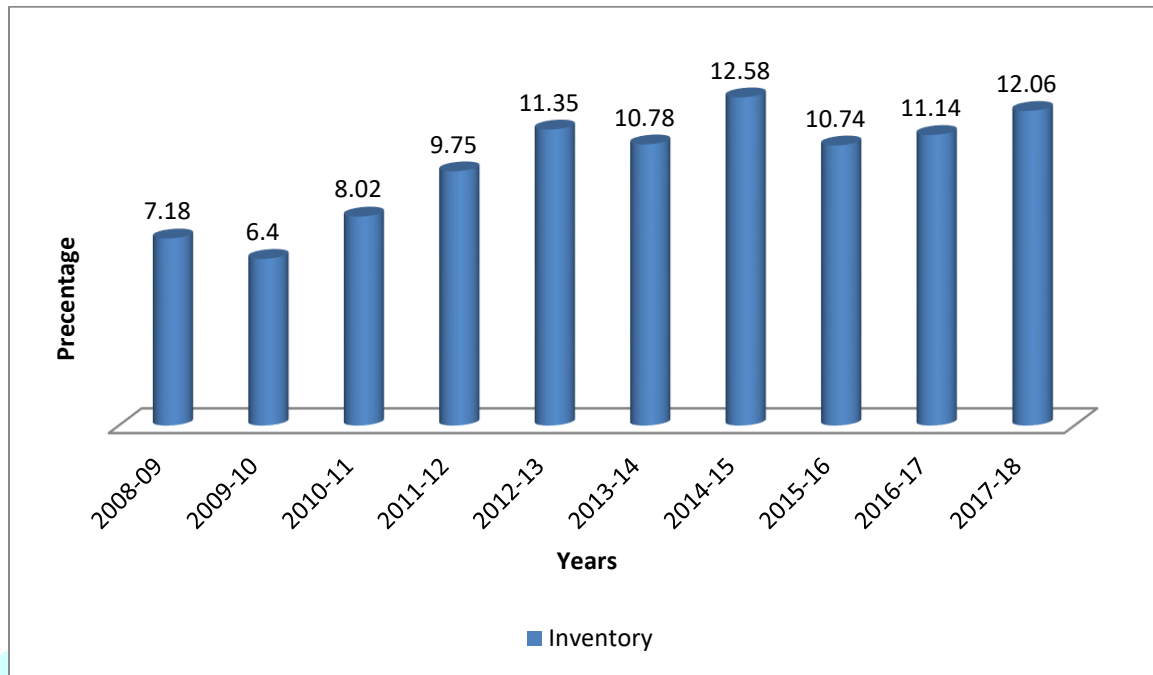
(Rupees in Crores)

Year	Inventory	Percentage
2008-09	10121.45	7.18
2009-10	9027.46	6.40
2010-11	11302.79	8.02
2011-12	13742.37	9.75
2012-13	16008.21	11.35
2013-14	15200.82	10.78
2014-15	17736.37	12.58
2015-16	15134.94	10.74
2016-17	15711.35	11.14
2017-18	16996.67	12.06
Total	140982.43	100

Source: Compiled from the Annual Reports of Steel Authority of India Limited.

Table 1 shows the particulars of inventory in Steel Authority of India Limited. A glance at the table shows that the inventory was Rs. 10121.45 crores in 2008-09 whereas Rs. 16996.67 crores in 2017-18. The highest value recorded was Rs. 16996.67 crores in 2017-18 and lowest value recorded was Rs. 9027.46 in 2009-10. During the study period the value of inventory continuously increased from Rs. 11302.79 crores in 2010-11 to Rs. 16996.6 crores in 2017-18.

The Structure of inventory in Steel Authority of India Limited during 2008-09 to 2017-18 is shown in figure 1.

Figure 1**Structure of Inventory in Steel Authority of India Limited during 2008-09 to 2017-18**

Inventory Turnover Ratio

This ratio is calculated to indicate whether the inventories have been used efficiently or not. The purpose is to ensure the blocking of only required minimum funds in inventory. This ratio is also known as Stock velocity. The particulars of the inventory turnover ratio in Steel Authority of India Limited during 2008-09 to 2017-18 are furnished in table 2.

Table 2
Inventory Turnover Ratio in Steel Authority of India Limited during 2008-09 to 2017-18

(Rupees in Crores)

Year	Cost of Goods Sold	Average Inventory	Ratio
2008-09	34689.54	5060.72	6.85
2009-10	31921.11	4513.73	7.07
2010-11	36985.60	5651.39	6.58
2011-12	38370.67	6871.19	5.58
2012-13	37789.53	8004.11	4.72
2013-14	39423.45	7600.41	4.44
2014-15	37455.55	8868.19	4.22
2015-16	38555.89	7567.47	5.09
2016-17	40551.24	7855.68	5.16
2017-18	48379.51	8498.34	5.69
Average	38412.21	7049.12	5.54
S D	4053.37	1411.09	0.96
C V (%)	10.55	20.02	17.25
LGR	3.00	5.98	-3.90
CGR	2.94	6.50	-3.70
t value	4.015**	4.712**	-2.411*

Source: Compiled from the Annual Reports of Steel Authority of India Limited.

Note: *significant at 5 per cent level; **significant at 1 per cent level;

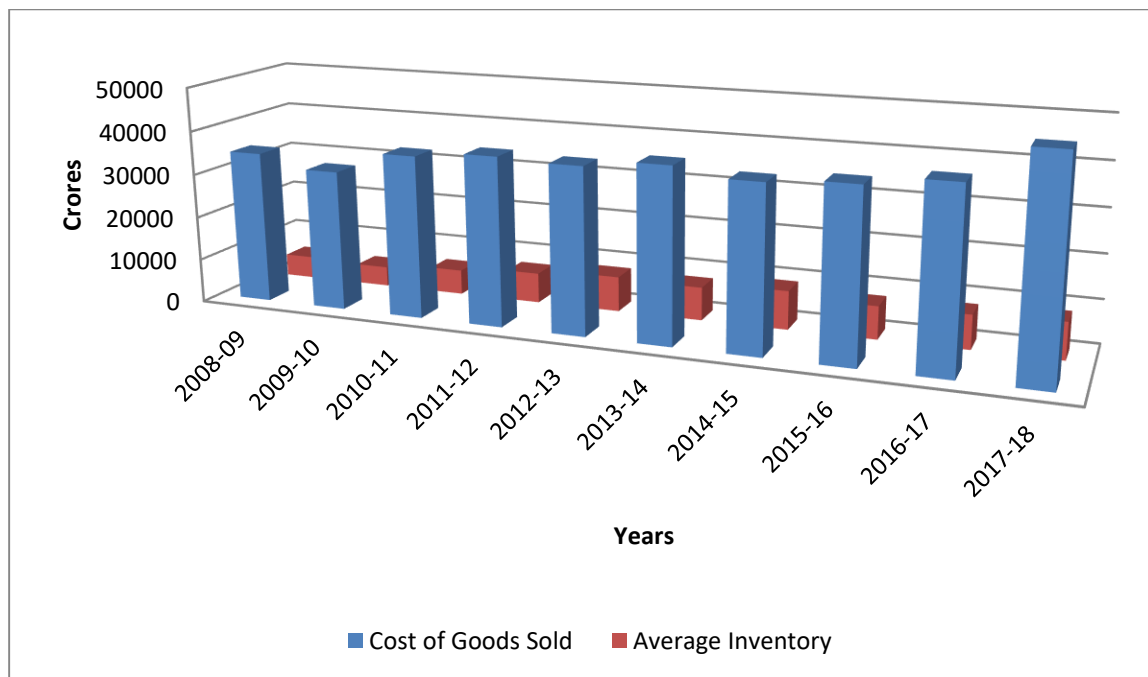
The details of inventory turnover ratio in the Steel Authority of India Limited for period 2008-09 to 2017-18 are exhibited in the table 2. The table shows that the cost of goods sold on an average per year stood at Rs. 38412.21 crores. The standard deviation was 4053.37 and CV was 10.55 per cent. The LGR was 3.00 per cent and CGR was 2.94 per cent. The cost of goods sold was worth Rs.34689.54 crores in 2008-09 whereas Rs. 48379.51 crores in 2017-18. The average inventory on an average per year was constituted at Rs. 7049.12 crores. The standard deviation was 1411.09 and CV was 20.02 per cent. The LGR was 5.98 per cent and CGR was 6.50 per cent. The average inventory was worth Rs.5060.72 crores in 2008-09 whereas Rs. 8498.34 crores in 2017-18. The inventory turnover ratio was 6.85 times in 2008-09 which declined to 5.69 in 2017-18 with slight fluctuations during the study period. It registered the lowest 4.22 times in 2014-15 as against the highest of 7.07 times in 2009-10 and on an average per year it worked out to 5.54 times. The standard deviation was 0.96 and CV was 17.25 per cent. The LGR was -3.90 per cent and CGR was -3.70 per cent. It may be concluded that the inventory turnover ratio was in a satisfactory position in Steel Authority of India Limited during the study period. The 't' test was used whether Inventory Turnover Ratio of Steel Authority of India Limited is significant

or not. The calculated value of t is $|2.411|$, which is greater than the table value of 2.262 @ 5 per cent level of significance. Hence the null hypothesis (H_0) is rejected and it is concluded that there was significant difference in inventory turnover ratio of Steel Authority of India Limited during study period.

The particulars of the inventory turnover ratio of Steel Authority of India Limited during 2008-09 to 2017-18 are shown in figure 2.

Figure 2

Cost of Goods Sold and Average Inventory in Steel Authority of India Limited during 2008-09 to 2017-18



Inventory Holding Period Ratio

It may also be of interest to notice the average time taken for clearing the stocks. This can be done by calculating inventory conversion period. This period is calculated by dividing the number of days by inventory turnover ratio. The Inventory Holding Period ratio of Steel Authority of India Limited during 2008-09 to 2017-18 is furnished in table 3.

Table 3
Inventory Holding Period Ratio in Steel Authority of India Limited during 2008-09 to 2017-18
(Rupees in Crores)

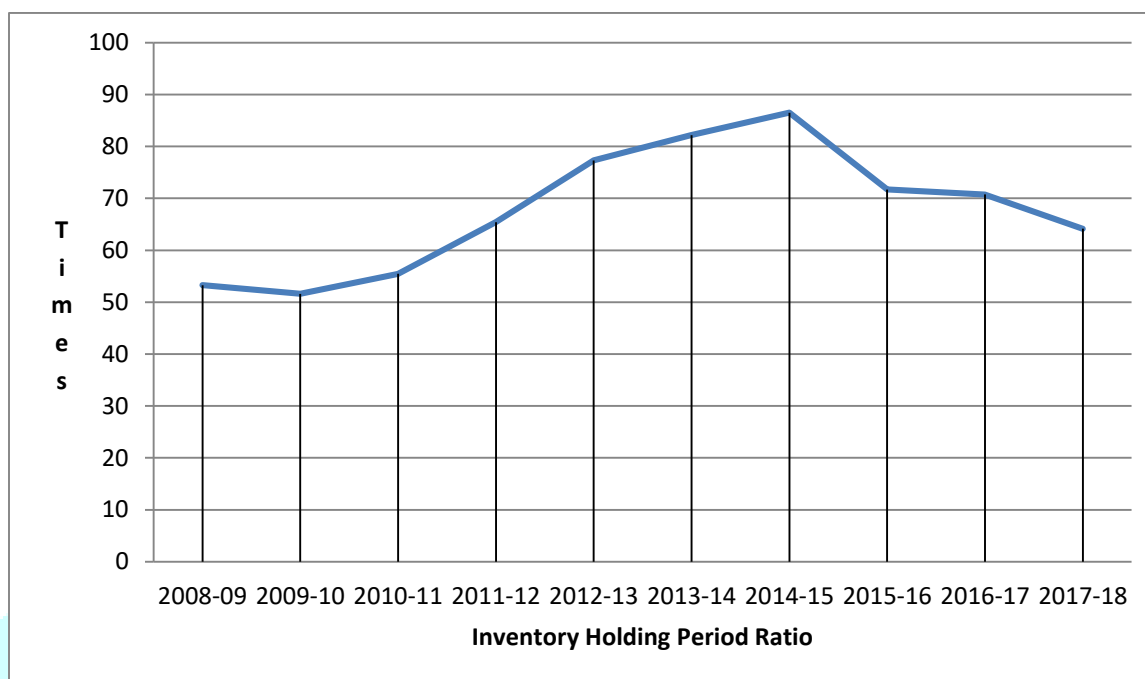
Year	No of Days in Year	Inventory Turnover Ratio	Ratio
2008-09	365	6.85	53.28
2009-10	365	7.07	51.62
2010-11	365	6.58	55.47
2011-12	365	5.58	65.41
2012-13	365	4.72	77.33
2013-14	365	4.44	82.20
2014-15	365	4.22	86.49
2015-16	365	5.09	71.71
2016-17	365	5.16	70.74
2017-18	365	5.69	64.14
Average	365	5.54	67.84

Source: Compiled from the Annual Reports of Steel Authority of India Limited.

The details of inventory holding period ratio in the Steel Authority of India Limited for period 2008-09 to 2017-18 are exhibited in the table 3. The table shows that the Inventory holding period on an average per year stood at 67.84 or 68 Days. The inventory holding period had the lowest of 51.62 or 52 days in the year 2009-10 and the highest of 86.49 or 86 days in 2014-15. Steel Authority of India Limited held its inventory for more than the yearly industry average holding period.

The details of the inventory holding ratio of Steel Authority of India Limited during 2008-09 to 2017-18 are shown in figure 3.

Figure 3
Inventory Holding Period Ratio in Steel Authority of India Limited during 2008-09 to 2017-18



FINDINGS

The major findings are summarized below.

- It can be understood from the table 1 that the structural analysis of the inventory was increasing continuously during the study period from Rs. 34,689.54 in 2008-09 to Rs. 48,379.51 in 2017-18 and it also shows that the investment of more money in current assets through inventory.
- It has been observed through table 2, that during the study period, the inventory turnover ratio was 6.85 times in 2008-09 which declined to 5.69 in 2017-18 with slight fluctuations. It registered the lowest 4.22 times in 2014-15 as against the highest of 7.07 times in 2009-10 and on an average per year it worked out to 5.54 times. It is also found that the highest inventory turnover ratio indicates that the production efficiency of the organization and also shows that over investment in inventories or more inventories were held by the company. It means more money is required to maintain it.
- It can be found from the table 3 that the inventory holding period had the lowest of 51.62 or 52 days in the year 2009-10 and the highest of 86.49 or 86 days in 2014-15.

RESULT OF HYPOTHESIS TESTED

The 't' test was used (table 2) whether Inventory Turnover Ratio of Steel Authority of India Limited was significant or not.

The calculated value of t is $|2.411|$, which is greater than the table value of 2.262 @ 5 per cent level of significance. Hence the null hypothesis (H_0) is rejected and it is concluded that there was significant difference in the inventory turnover ratio of Steel Authority of India Limited during the study period.

SUGGESTIONS

- For better Inventory Management practices, the Steel Authority of India Limited needs to focus on purchase committees for making effective purchase decisions and adopt an appropriate inventory control system.
- The system should aim at keeping the local cost of maintaining inventories at a minimum level, through effective cost control methods.
- For effective utilization of inventory purpose, the company should adopt the efficient inventory management through the material planning and programming, inventory control, warehousing and store keeping and disposal of scrap.
- A purchase committee shall be constituted by involving the production and finance managers so as to properly estimate the raw material requirements to avoid piling up of funds unnecessarily.
- To manage the inventory efficiently, the company can follow economic order quantity to avoid unnecessary blocking of funds in inventory.
- Administrative and procurement lead times have to be minimized to avoid overstocking of inventory.
- Just in time method, shall be followed to reduce the blocking up of working funds in inventory.
- There shall be a separate material planning cell to handle proper storage of materials.

CONCLUSION

Thus, it is very necessary to a trade-off between the liquidity and profitability so as to avoid the excess and inadequate working capital and to maintain sufficient amount of working capital. Inventory includes raw materials, work-in-progress and finished goods. Inventory management is a very important concept in working capital management. Inventory management is accountable to some minor defects in purchasing policy and investment. Effective management of inventory is essential to avoid unnecessary securing up of investment in inventories and minor deficiencies in purchasing policy.

References:

1. Shashi K. Gupta & R.K. Sharma, “**Financial Management**”, Kalyani Publishers, Noida, 2011, p. 23.30.
2. Shashi K. Gupta & R.K. Sharma, “**Financial Management**”, Kalyani Publishers, Noida, 2011, p. 23.28.

