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STUDY ON INVENTORY MANAGMENT OF TATA STEEL

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Abstract:

The study's goal is to research the inventory management process and distinguish the fundamental variables that cause inventory management practices to collide, as well as to investigate effective and viable inventory management methods. Inventory control is an important aspect of the developed industry. The company will fail if inventory is not managed properly. Maintaining a balanced inventory is a difficult task for the firm. For ensuring a fair inventory level in the organization, various inventory management approaches are available. The main goal of this article is to review inventory management strategies utilized in the steel industry and to identify some methods for improving the company's inventory management process.

Keyword:

Inventory Management of Tata steel

Executive Summary

Tata Steel, which was founded in 1907 and is India's most integrated private sector steel firm, has captive iron ore and coal mines as well as one of the world's most modern steelmaking facilities in Jamshedpur, eastern India, which includes a state-of-the-art cold rolling mill complex. Tata Steel is one of the world's lowest-cost steel producers.

The project's goal is to learn more about inventory management and how it operates at Tata Steel and other steel firms. What are the many methods of inventory management and which one does Tata Steel use? TATA STEEL's inventory management is critical because it is a manufacturing company, and even a minor delay or other stock-related difficulties can cause major problems and huge losses.

The project's goals are as follows:

- To determine the various inventory ratios and analyze the results.
- To comprehend and examine the discrepancy between the theoretical and practical aspects of an inventory system.
- To have a better understanding of inventory management and how it is managed at Tata Steel.

The project's goal is to use the study of various inventory management systems to determine the optimum inventory management approach, so that the steel industry may strive to minimize the problems that the plant confronts.

The research comes to a close with a set of key results and suggestions.

Company Overview

Tata Steel, originally Tata Iron and Steel Company Limited (TISCO), is an Indian multinational steel manufacturer based in Mumbai, Maharashtra. Tata Steel is part of the 150-year-old Tata group, which was founded in Jamshedpur, India, in 1907. The Tata Steel Group is the world's tenth largest steel maker and is noted for its corporate citizenship and business ethics. It was founded by J. N. Tata, who inspired India's steel and power industries. It is the world's tenth largest steel manufacturer.

The Tata Steel Group has a steel manufacturing capacity of 27.5 MnT per year, with activities in 26 countries and a commercial presence in 50 countries (as on March 31, 2018). Tata Steel India also has manufacturing facilities at Jamshedpur, Jharkhand, with a capacity of 10 million tons per year, and Kalinganagar, Odisha, with a capacity of 3 million tons per year. In addition to steel tubes, strips, wires, rounds, and farm implements, TISCO sells ferromanganese, chrome ore, ferromanganese, and chrome ore to the United States, China, and the Middle East. The corporation, along with its subsidiaries, manufactures and sells steel products in India and around the world. Hot and cold rolled coils and sheets, galvanized sheets, tubes, wire rods, building rebars, and bearings are all available from them. Tata Steel is one of the few organizations that is fully integrated from mining to completed product manufacturing and distribution.

Vision:

"We want to set the standard for 'value creation' and 'corporate citizenship' in the global steel business."

Mission:

Tata Steel aspires to improve India's industrial foundation by effectively utilizing employees and commodities, in keeping with the vision and ideals of its founder, Jamshedji Tata. High technology and productivity, in line with modern management methods, are the means anticipated to achieve this. Tata Steel understands that, while honesty and integrity are critical components of a robust and stable business, profitability is the driving force behind economic activity. Overall, the organization aspires to achieve the highest levels of excellence in whatever it does in a fear-free environment, thereby reinforcing its belief in democratic principles.

Values:

Integrity, Unity, Pioneering, Excellence, Responsibility

Products:

The steel plant produces:

- Iron
- Soft iron
- Cast iron
- Alloy

They also produce:

- Locomotive parts
- Machinery, tinplate
- Agricultural equipment
- Cable and wire
- Rebar’s

Research Methodology

The research methodology is a method for solving research problems in a methodical manner. This is an analytical research on inventory management. Exploratory research is the study of research. Because publicly available data and information are being used to make a critical assessment of inventory management. Simply said, research design is the framework or plan for a study that directs data collection and analysis. The researcher's job is to make sure that the data needed is accurate and cost-effective. In this project, an analytical research method was used. Analytical techniques, in general, are used to analyze something and collect data for a certain objective. The project primarily focuses on a critical review of integral coach factory inventory management, as well as manufacturing accounts analysis and inventory control. The tools for data analysis, such as ABC analysis and EOQ

Inventory Management

The items and materials held by a company for the purpose of resale or repair are referred to as inventory or stock. Inventory management is largely concerned with defining the shape and location of stocked products.

Inventory management is a corporate process for managing, storing, transferring, sorting, arranging, counting, and maintaining inventory, which includes commodities, components, and parts. Inventory management guarantees that the proper inventory is available at the right time and at the right price to meet demand. Inventory management ensures that a company's fundamental activities continue to run smoothly by maximizing inventory availability.

Objective of inventory management

The basic goal of inventory management is to keep inventory at a reasonable level in order to avoid overstocking or understocking, both of which are bad for business. As a result, management is faced with the following competing goals:

1. To ensure that the supply of raw materials and finished items is constant so that the manufacturing process does not come to a halt and customer needs are met.
2. To maintain a suitable quantity of inventory in order to carry out production and sales activities smoothly.
3. To keep inventory investment to a bare minimum in order to optimize profits.
4. To cut down on theft, obsolescence, and waste, among other things.
5. To keep inventory investment at a maximum level.
6. To make arrangements for the slow-moving commodities to be sold.

Importance of Inventory Management

Raw materials, stocks, finished items, warehousing, storage, and other components of inventory management are all part of the process of getting a product from the factory to the distributor or retailer. Each business aims for efficient inventory management on a regular basis in order to maintain optimal inventory levels in order to satisfy its needs and avoid excess or understocking, which can have a negative influence on the company's financial statistics.

Inventory is always changing. Inventory management necessitates a constant and diligent examination of external and internal components, as well as control through planning and evaluation. Most firms have an inventory planning department that constantly monitors, controls, and evaluates inventory while also interacting with the manufacturing, procurement, and finance departments.

Types of Inventory

Raw materials, work-in-progress, and finished commodities are the three basic types of inventory.

- **Raw Materials:** Raw materials are commodities in a manufacturer's inventory that are utilized in the conversion process to create components or finished goods. These are raw ingredients that are utilized to make a product. Coal, dolomite, High Volatile Coal, coke, limestone, and other raw materials are utilized by Tata Steel.
- **Work in Progress:** Work-in-progress inventory refers to partially produced goods that are awaiting completion and resale; it is also known as inventory on the manufacturing floor. A half-assembled aeroplane or a halfway constructed boat, for example, would be considered work-in-progress.
- **Finished and Semi-finished goods:** Products that have completed manufacture and are ready for sale are known as finished goods. These items have been inspected and passed final inspection standards, allowing them to be moved from work-in-process to finished goods inventory. Tata Steel, for example, uses export yards, wire and rod mills, hot strip mills, steel, and rings.
- **ABC Analysis:** The ABC approach is an analytical stock control method that focuses efforts on the items that require the most attention. It is based on the assumption that only a small percentage of inventory items represent the bulk money value of all materials used in the manufacturing process. While a relatively significant number of things may represent a small percentage of the money worth of stores used, that small number of items should be subjected to the highest level of continuous control possible. The materials kept under this method can be categorized into a variety of categories based on their relevance, i.e., their value and frequency of replacement over time. The first category, which we'll name the group of 'an' items, may

make up a small fraction of total products handled, but its total value may account for a significant amount of total stock value. The second category, referred to as the 'B' group of items, may be less significant. All remaining stock items that are quite vast in number but have a low value may be put in the third group, which consists of 'c' items.

Categories of ABC analysis

The goods are grouped into three primary groups in ABC analysis based on their respective consumption value.

1. **Category 'A' items:** The most expensive things, in which account for almost 10% of the overall number of items held, will account for 70% of the total value of all items stocked.
2. **Category 'B' items:** Nearly 20% of total value is categorised as 'B' for items with average consumption value. Statistical sampling can be used to regulate them in general.
3. **Category 'C' items:** Items with low consumption value are placed in category "C," accounting for almost 70% of total number and 10% of total value. These are typically slow-moving, non-moving commodities in stores that are regularly utilised in the manufacturing process but with higher quality.

Advantages of ABC Analysis

- Closer and more stringent oversight of those elements that account for a significant amount of total stock value.
- Saving in stocks carrying costs.
- Inventory investment may be controlled, and expenditures can be put to the best possible use.
- Assists in maintaining adequate safety stock for items in the "C" category.

Inventory management at TATA Steel

One of the most crucial managerial tasks is inventory management. TATA Steel owns and operates mines and quarries in India and other nations. Those from its own source as well as materials obtained from others are included in the raw material inventory. As a result, raw material inventory is kept both at the plant and at the extraction site. Both road and rail are used to transport these to work.

Each type of production department keeps track of its own inventory. TATA Steel manages a variety of inventory types, including raw materials, work-in-progress, finished goods, transit inventory, buffer stock, and so on. TATA Steel uses the FIFO approach for inventory valuation and the EOQ method for ordering.

First in first out (FIFO): A method of inventory valuation that allocates costs based on the premise that things are consumed or sold in the order in which they are acquired and placed in stock.

Economic Ordering Quantity (EOQ): It is the optimal number of items for which, assuming orders are issued, the aggregate order placement and inventory carrying costs will be equal and cost-effective. In any case, there will be no loss. The annual requirement in units, the cost of placing one order, and the cost of carrying one unit in inventory for a year are the determining elements for each item of commodities. Any change in one or more of them will affect the item's EOQ.

To find out EOQ; the formula is= $\sqrt{2AO/C}$

Where; A= Annual consumption; O= ordering cost, C= carrying cost

Policies maintained by TATA STEEL for Inventories

- The company's finished and semi-finished items are carried at the lower of their cost and net realised value.
- Work in progress is done at a lower cost and with a lower realised value.
- The company's coal, iron ore, and other raw materials are carried at the lower of cost and net realised value.

For regular manufacturing, TATA STEEL has its own power plant, water preserver, and gas preserver. Jamshedpur's Dimna Lake is one of the plant's advanced points.

Consequences of over investment & under investment in inventory

Both overinvesting and underinvesting in inventories are unfavourable because they have negative repercussions.

Following are the consequences of over investment:

- Unnecessary funds blockage in inventory.
- Inventory storage necessitates a large amount of space.
- Excessive insurance cost.

Following are the consequences of under investment:

- Inadequate inventory investment may result in frequent manufacturing process interruptions.
- A shortage of finished items may make it difficult to meet client requests, causing them to turn to competitors.

Competitors of TATA STEEL

JINDAL STEEL :

JSPL is an industrial behemoth with a stronghold in the steel, power, mining, and infrastructure industries. The Company, which is part of the $ 22 billion OP Jindal Group, is constantly growing its capacity utilizations and efficiencies in order to seize possibilities for Building a Nation of Our Dreams.

Through backward and forward integration, the company, led by Mr. Naveen Jindal, creates cost-effective and efficient steel and power. JSPL's operations are spread across India's states of Chhattisgarh, Odisha, and Jharkhand, where it runs some of the country's most advanced steel production and power generation facilities.

JINDAL STEEL AND WORKS (JSW) :

The JSW Group is known as a "strategic first mover" across the country. It is a $14 billion multinational company with a presence in all of India's key economic sectors. The company is an integral part of the O. P. Jindal Group, which has risen to become an undeniable global leader in just three decades.

Some of the key elements that define the JSW Group are:

- It is well-established in India, South America, South Africa, and Europe.
- Steel, energy, cement, infrastructure, ventures, and sports are among the major sectors where JSW Group is leading activities.
- It employs around 40,000 people from various backgrounds.

Steel Authority of India Ltd. (SAIL) :

Steel Authority of India Limited (SAIL) is India's largest steel producer and one of the country's seven Maharatna Central Public Sector Enterprises. Flat items, such as hot rolled (HR) coils, HR plates, cold rolled (CR) coils, pipes, and electric sheets, are manufactured by the company, as are long products, such as thermo mechanically treated (TMT) bars and wire rods.

Bhilai Steel Plant (BSP), Durgapur Steel Plant (DSP), Rourkela Steel Plant (RSP), and OTHERS are the company's segments. Rails, structural goods, merchant products, electric resistance welded pipes, spiral welded pipes, and silicon steel sheets are also available.

ESSAR STEEL :

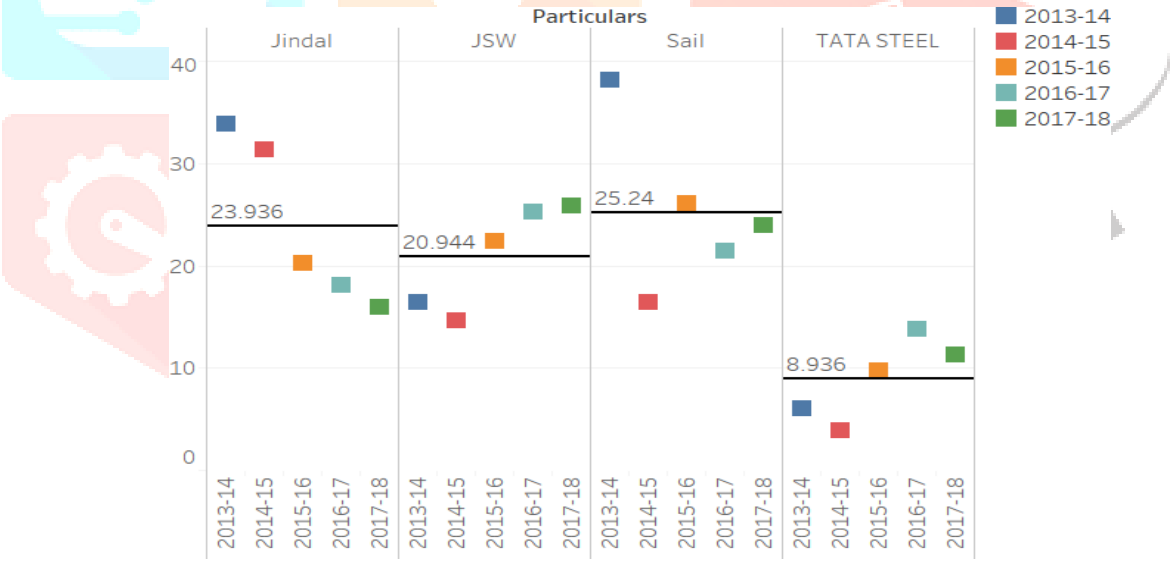
Essar Steel is one of India's top flat product exporters, with a focus on the high-demand markets of the United States and Europe, as well as the emerging markets of Southeast Asia and the Middle East.

Caterpillar, Hyundai, Swaraj Mazda, the Konkan Railway, and Maruti Suzuki are among the key clients who have authorised its steel for use. Essar Steel has a long list of quality certifications. In our high level of forward and backward integration, seamless integration is a major strategic advantage. From raw materials to completed goods, we are fully integrated, providing value at every stage of the manufacturing process.

Comparative Analysis with Competitors

1. Average Collection Period

Particulars	2017-18	2016-17	2015-16	2014-15	2013-14	Company Avg.
TATA STEEL	11.31	13.75	10.82	4.29	6.75	9.38
Jindal	16.01	18.08	20.30	31.40	33.89	23.94
JSW	25.86	25.32	22.43	14.68	16.43	20.94
Sail	23.96	21.43	26.15	16.46	38.2	25.24

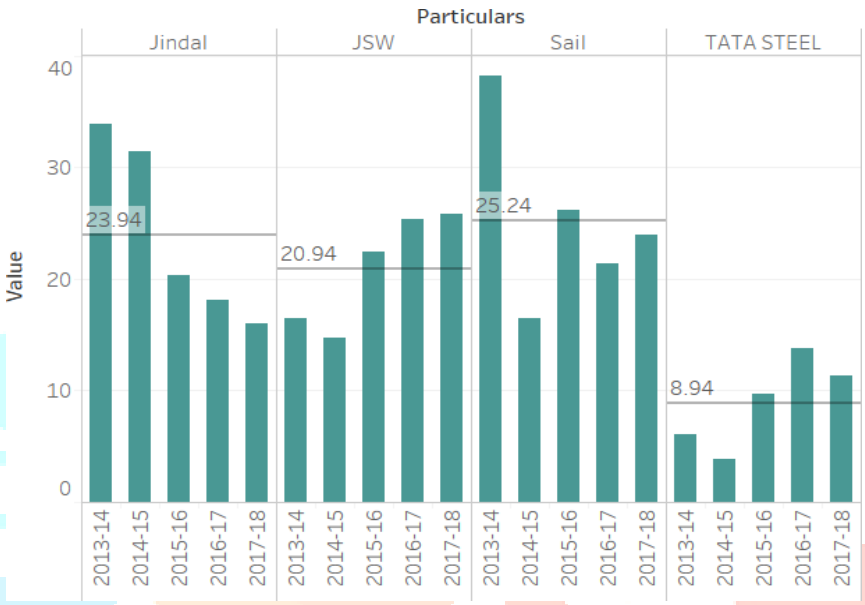


Interpretation-

Tata Steel has the shortest average collecting period of all the corporations, with an average of 8.9 or 9 days compared to the others. The shorter the collection period, the better, as it indicates the number of days it will take to obtain payment from credit sales. Due to larger net credit sales but lesser trade receivables, Jindal Steel has the highest average of 23.94 or 24 days.

2. Debtors Conversion period

Particulars	2017-18	2016-17	2015-16	2014-15	2013-14	Company Avg.
TATA STEEL	11.31	13.75	9.69	3.85	6.08	8.94
Jindal	16.01	18.08	20.30	31.40	33.89	23.94
JSW	25.86	25.32	22.43	14.68	16.43	20.94
Sail	23.96	21.43	26.15	16.46	38.20	25.24

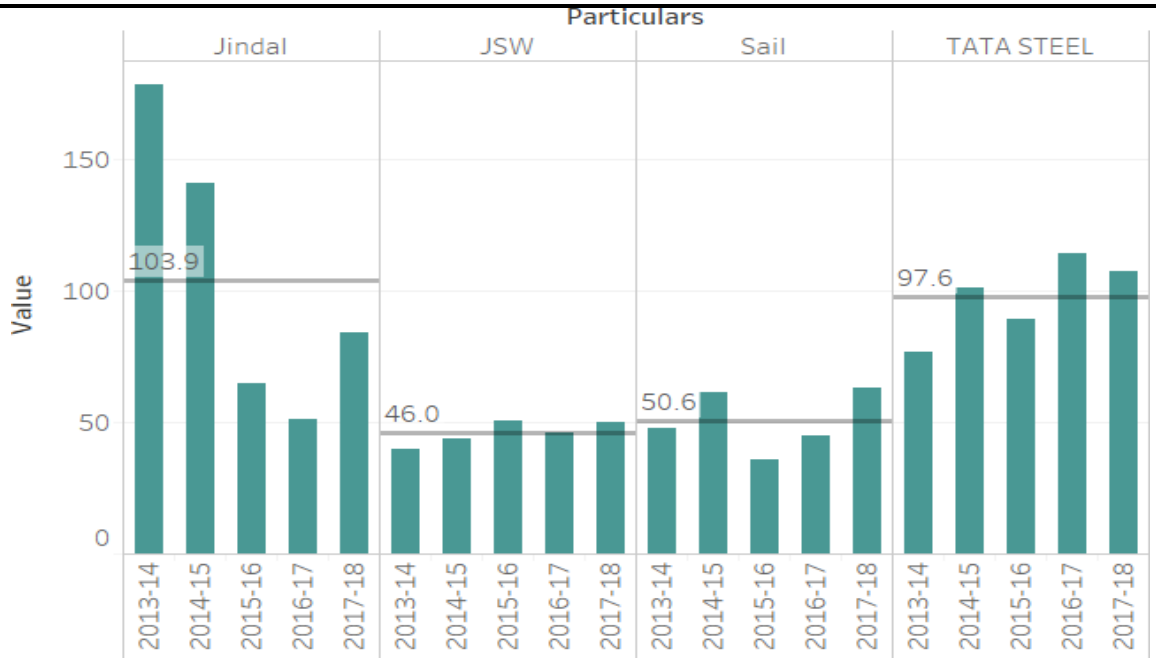


Interpretation –

Tata Steel has the lowest debtor conversion, with an average of 8.94 or 9 days, which is quite good when compared to other corporations. As a result, the debtors are quite good at repaying the money within the specified time frame. Throughout the 5-year period mentioned above in the table, Sail has consistently had a high debtor conversion period when compared to all other companies.

3. Raw material conversion period

Particulars	2017-18	2016-17	2015-16	2014-15	2013-14	Company Avg.
TATA STEEL	107.12	113.88	89.13	100.88	76.78	97.56
Jindal	84.03	51.21	65.01	140.61	178.47	103.87
JSW	49.87	46.14	50.74	43.60	39.71	46.01
Sail	62.84	44.65	36.05	61.61	47.83	50.60



Interpretation:

If we look at the table above, JSW has the shortest raw material conversion duration at 46 days, whereas Jindal Steel has the longest conversion time at 104 days. Due to high raw material consumption, JSW has consistently maintained a shorter time period for raw material conversion than Tata Steel. The shorter the conversion period, the better, as it lowers the cost of storage and signals quick manufacturing.

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