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A Study on Inventory Management at Tata Steel Ltd

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ABSTRACT: The dynamic and competitive landscape of the global steel industry, effective inventory management stands as a critical component for optimizing operational efficiency and financial performance. This study explores the inventory management practices at Tata Steel Limited, a leading multinational steel manufacturing company. The focus is on understanding how the company manages its inventory to meet customer demand while minimizing costs and waste. Key areas of investigation include the strategies employed by Tata Steel to forecast demand, the methods used to categorize inventory, and the tools and metrics applied to measure inventory performance. The analysis delves into the use of technology, specifically advanced analytics and automation, in enhancing inventory accuracy and responsiveness. Additionally, the study discusses the impact of inventory management policies on customer satisfaction, supply chain resilience, and overall profitability. It also highlights the challenges faced by Tata Steel in maintaining optimized inventory levels amidst fluctuating market conditions and the mitigation measures adopted to address these challenges. The findings of this study offer valuable insights into the best practices in inventory management for companies operating in the steel and broader manufacturing sectors. By streamlining inventory processes, Tata Steel demonstrates its commitment to operational excellence, thereby reinforcing its position as a leader in the industry.

KEYWORDS: Inventory management, Customer satisfaction, Operational efficiency, Tata steel limited, Steel manufacturing, Quality control, Inventory turnover.

I. INTRODUCTION

The primary goal of inventory management is to prevent excessive or insufficient stock levels and to maintain enough inventory to support efficient production and sales operations. This involves making an effort to place an order with the appropriate source at the appropriate time in order to obtain the appropriate quantity and quality at the appropriate location. Stocks of the product a business is producing for sale as well as the individual parts that make up the product are called inventories. In a manufacturing organization, inventories can take on different forms, such as raw materials, work-in-process, and finished goods. Finished items, work-in-process, and raw materials are the three categories of inventories.

The Primary Objective of Inventory Control The primary goal of inventory management is to prevent both excessive and insufficient stock levels and to keep enough inventories on hand to support efficient production and sales operations. This involves making an effort to place an order with the appropriate source at the appropriate time in order to obtain the appropriate quantity and quality at the appropriate location. Make sure there is a steady flow of raw materials available to support ongoing production. In times of shortage, keep enough raw material supplies on hand to provide expected-priced customer service. Cut down on the time and carrying. To lower the investment in the inventory, that inventory needs to be handled effectively. Thus, inventory management has also been accorded a high priority. To guarantee availability is the goal of inventory management.

1. NEED FOR THE STUDY

Materials are equivalent to cash and they make up an important part of the total cost. It is essential that materials should be properly safeguarded and correctly accounted. Proper control of material can make a substantial contribution to the efficiency of a business. The success of a business concern largely depends upon efficient purchasing, storage, consumption and accounting. The cost of production is increased recently due to the wide usage of inventory. As requirement of raw material is increased there is a need for the effective maintenance of inventory management. "For every industry the Inventory plays a vital role". Better Inventory control leads to better capital usage .The Company should look after the Inventory effectively which results in optimum level of raw materials & finished goods that will smooth in production process.

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2. SCOPE OF THE STUDY

The study is done on inventories held by manufacturing division of Tata Steel Limited. The scope of the study includes the ABC Analysis of Raw Materials, WIP and Finished Goods for four financial year's .This study provides insight to the management of High Value items and also brings attention of management towards movement of 'A' class items over period of 5 years.

3. OBJECTIVE OF THE STUDY

- To study the various inventory management practices followed by Tata Steel Limited.
- To review the ABC analysis and understand the impact of business dynamics on inventory.
- To evaluate operating cycle and cash cycle of Tata Steel Limited.

II. REVIEW OF LITERATURE

1. Silver, Edward A., Pyke, David F., & Peterson, Rein D. (1998) focused on Inventory Management and Production Planning and scheduling, is a cornerstone in inventory management literature. They focus on practical approaches to managing inventory, emphasizing the Economic Order Quantity (EOQ) model as a foundational technique. Their research underscores the critical balance between ordering costs and holding costs, advocating for methods that minimize total inventory costs. The authors delve into probabilistic demand forecasting, proposing safety stock strategies to buffer against uncertainties. They also discuss the role of information systems in improving inventory accuracy and decision-making. Silver et al. argue that integrated inventory management can lead to significant cost reductions and service level improvements, stressing the importance of flexibility and responsiveness in supply chain operation.

2. Chikán, Attila (1990) research on inventory management, particularly his work on aligning inventory strategies with corporate objectives, offers a unique perspective on the strategic role of inventory. He argues that inventory management should not be viewed solely as an operational task but as a strategic activity that supports overall business goals. Chikán introduces the concept of the balanced scorecard in inventory management, suggesting that companies should consider multiple performance metrics, including financial, customer, internal process, and learning and growth perspectives. He emphasizes the importance of aligning inventory policies with the company's strategic objectives to enhance competitiveness and customer satisfaction. Chikán's work highlights the need for a holistic approach to inventory management that integrates it with broader business strategies.

3. Bowersox, Donald J., Closs, David J., & Cooper, Bixby M. (2013) research in *Supply Chain Logistics Management*, highlight the importance of technology integration in inventory management. They discuss the role of advanced technologies, such as RFID and ERP systems, in improving inventory accuracy, visibility, and coordination. The authors argue that these technologies enable real-time tracking of inventory, reducing errors and enhancing decision-making. They also emphasize the role of information systems in facilitating collaboration across supply chain partners, leading to more efficient inventory management. Bowersox et al. advocate for the adoption of technology-driven inventory strategies that align with the overall supply chain objectives, promoting operational efficiency and customer satisfaction.

4. Hillier, Frederick S. & Lieberman, Gerald J. (2010) Hillier and Lieberman, in their comprehensive text *Introduction to Operations Research*, provide a detailed exploration of mathematical optimization techniques for inventory management. They discuss various inventory models, including deterministic and stochastic models, and introduce optimization methods such as linear programming and dynamic programming. The authors emphasize the importance of quantitative approaches in managing inventory, offering tools and techniques to optimize inventory policies and reduce costs. They also explore the applications of these methods in real-world scenarios, providing practical examples and case studies. Hillier and Lieberman's work underscores the value of mathematical modelling in achieving efficient and effective inventory management.

III. RESEARCH METHODOLOGY

The basic principle in the research has been adopted in the overall methodology. The following methodology has been used for meeting the requirements.

3.1 Sources of data:

The study is based on both primary data and secondary data.

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Primary data:
The information relating to study is collected with the collected with the cooperation of management of the company, who permitted me to carry on the study and providing with requisite data through oral interviews with the employees.

Secondary data:
Since the study is aimed at the financial aspects of Tata Steel Limited, the whole data has been gathered from

- Reports of the company.
- Brochures of the company.
- Library books.
- The period Annuals of the study has been taken from 2019 to 2023.

3.2 LIMITATIONS OF THE STUDY

- The information is mostly depended upon secondary data.
- One of the factors are the study was the lack of availability of sample information.
- The study not covered the primary data.
- Limited period of time to accomplish the study.

IV. DATA ANALYSIS AND INTERPRETATION

1. INVENTORY TURNOVER RATIO

$$\textbf{Inventory turnover ratio} = \frac{\textbf{Cost of goods sold}}{\textbf{Average Inventory}}$$

S.NO	YEAR	COST OF GOODS SOLD	AVG INVENTORY	INVENTORY TURNOVER RATIO
1	2018-2019	2036920290	2092203987	11.36
2	2019-2020	2059187198	1799590643	11.73
3	2020-2021	1202212926.24	97492024.38	12.01
4	2021-2022	1693034164.20	112736262.20	12.35
5	2022-2023	1646389535.24	105792045.26	12.72

Table 4.1

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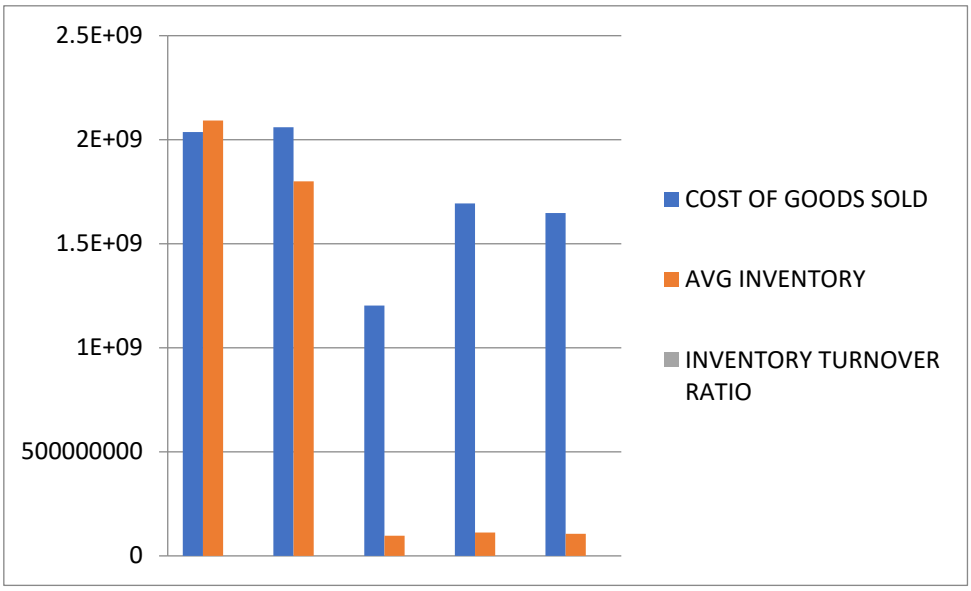

Graph 4.1

INTERPRETATION:

Table shows the inventory turnover ratio. Inventory turnover ratio ranges from 11.36 to 12.72 It indicates fluctuating inventory turnover and it affects the liquidity position of the firm. We can observe that the firm's inventory turnover ratio is increasing at the present year.

2. FINISHED GOODS TURNOVER

$$\textbf{Finished goods turnover} = \frac{\textbf{Cost of goods sold}}{\textbf{Average Inventory}}$$

$$\textbf{Cost of sold goods} = \textbf{Opening stock} + \textbf{Purchases} - \textbf{Manufacturing Expenses} - \textbf{Closing stock}$$

$$\textbf{Average Inventory} = \frac{\textbf{Opening stock+Closing stock}}{\textbf{2}}$$

S.NO	YEAR	COST OF GOODS SOLD	AVG INVENTORY	F.G TURNOVER
1	2018-2019	2095342922	1249635920	1.72
2	2019-2020	2535785940	1248658429	2.03
3	2020-2021	2804920947	1229682376	2.28
4	2021-2022	2278823517	1209220819	1.90
5	2022-2023	1917963888	1207767981	1.34

Table 4.2

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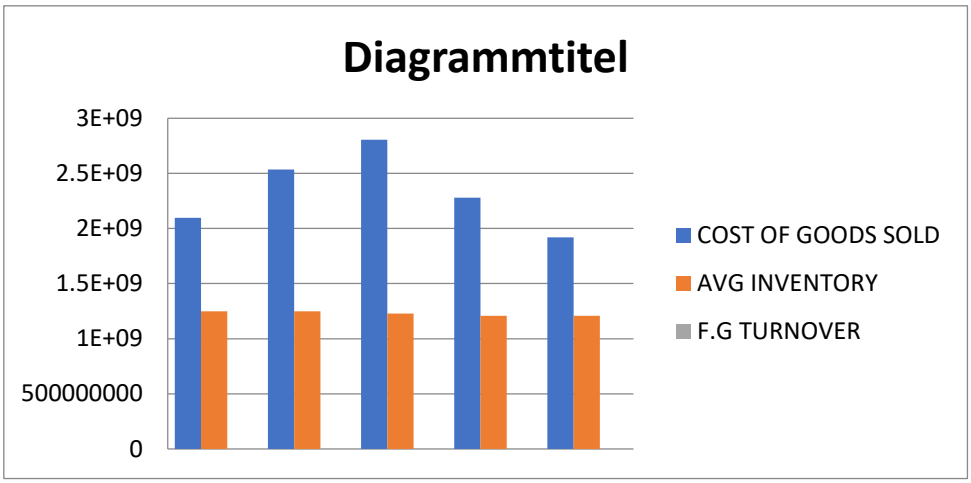


Graph 4.2

INTERPRETATION:

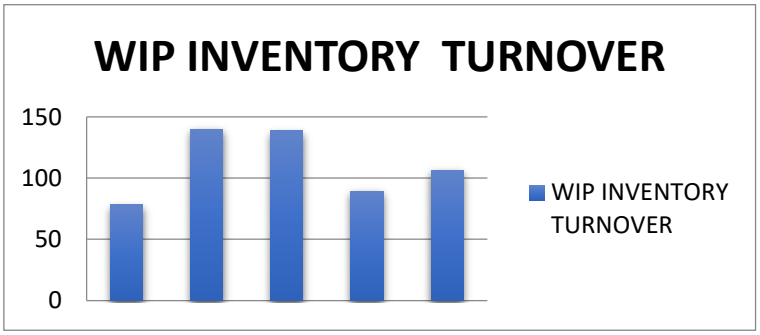
Table shows the finished goods turnover. It indicates fluctuating finished goods turnover and it affects the liquidity position of the firm. At 2018-2019 it's 1.72 and it's increasing in next year 2.03.again it's increasing in respective years with 2.28. The next prospective years it's in decreasing position with 1.90 and 1.34 respectively. We can observe that the firm's finished goods turnover ratio is decreasing at the present year.

3. W.I.P. INVENTORY TURN OVER

$$\textbf{Work in process inventory turnover} = \frac{\textbf{Cost of production}}{\textbf{Average work in process Inventory}}$$

S.NO	YEAR	COST OF PRODUCTION (Rs)	AVG W I P INVENTORY (Rs)	WIP INVENTORY TURNOVER
1	2018-2019	2207680764	24252724	78.25
2	2019-2020	2695601723	20820307.5	170.09
3	2020-2021	2946205988	22869783	168.82
4	2021-2022	2207646507	23486020	89.31
5	2022-2023	1919342052	18184556	106.66

Table 4.3



Graph 4.3

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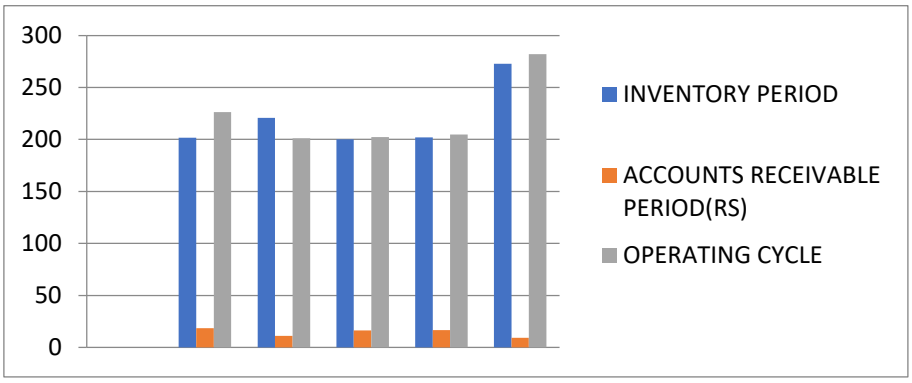
INTERPRETATION:
Table shows the Work in process inventory turnover. Work in process inventory turnover ratio ranges from 78.25 to 170.09. It indicates fluctuating Work in process Inventory turnover and it affects the liquidity position of the firm. At 2018-2019 ITS 78.25 and its increasing in next year 170.09.again its decreasing in respective years with 168.82 the next prospective years it's in decreasing position with 89.31.increasing in the next year 106.66 respectively. We can observe that the firm's work in process inventory turnover ratio is increasing at the present year.

4. OPERATING CYCLE

Operating cycle = Inventory period + account receivable period

S.NO	YEARS	INVENTORY PERIOD (RS)	ACCOUNTS RECEIVABLE PERIOD(RS)	OPERATING CYCLE
1	2018-2019	201.62	18.61	226.23
2	2019-2020	220.73	11.20	200.92
3	2020-2021	200.02	16.29	202.31
4	2021-2022	201.92	16.77	204.69
5	2022-2023	272.74	9.17	281.87

Table 4.4



Graph 4.4

INTERPRETATION:
The table shows the proportion of operating cycle it varies between 204.69. to 281.87 in the year 2022-2023. The Operating cycle ranges from202.31 to 281.87. We have observed in the year 2022-2023 the company spends more time 281.87. From the year 2020-2021 the operating cycle is gradually increased as the receivables were received within time.

5. INVENTORIES TO SALES

$$\textbf{Inventory to sales} = \frac{\textbf{Total inventory}}{\textbf{sales}} * \textbf{100}$$

S.NO	YEAR	SALES	TOTAL INVENTORY	INVENTORIES TO SALES RATIO
1	2018-2019	2958724922	1732024825	48.4

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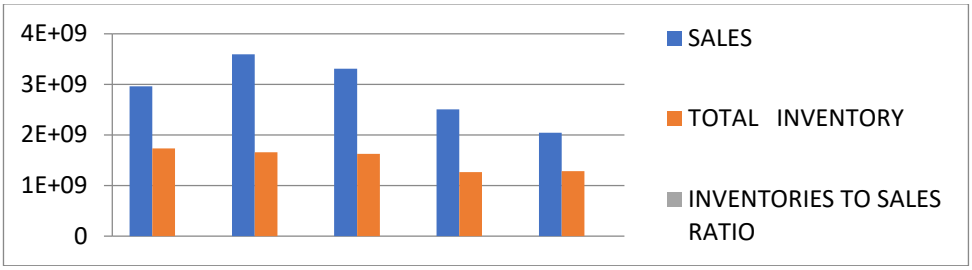
2	2019-2020	3591709940	1659330982	37.9
3	2020-2021	3304974847	1627507945	40.20
4	2021-2022	2506897517	1267778839	50.57
5	2022-2023	2042099888	1284584247	66.19

Table. 4.5



Graph 4.5

INTERPRETATION:

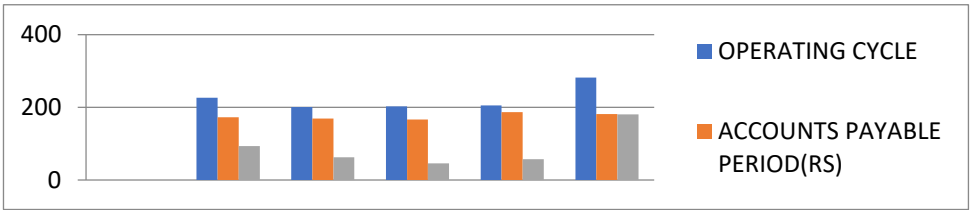
Table shows the inventory to sales ratio. An inventory to sales ranges from 37.9 to 66.19. It indicates fluctuating inventory to sales turnover and it affects the liquidity position of the firm. At 2018-2019 Its 48.4 and its decreasing in next year 37.9.again it's increasing in respective years with 40.20. The next prospective years its in increasing position with 50.57 and 66.19 respectively. We can observe that the firm's inventory to sales turnover ratio is increasing at the present year.

6.CASH CYCLE

Cash cycle = Operating cycle – Accounts payable period

S.NO	YEARS	OPERATING CYCLE (RS)	ACCOUNTS PAYABLE PERIOD(RS)	CASH CYCLE
1	2018-2019	226.23	172.57	93.66
2	2019-2020	200.92	168.69	62.23
3	2020-2021	202.31	166.71	45.6
4	2021-2022	204.69	187.01	57.68
5	2022-2023	281.87	181.0	180.87

Table 4.6



Graph 4.6

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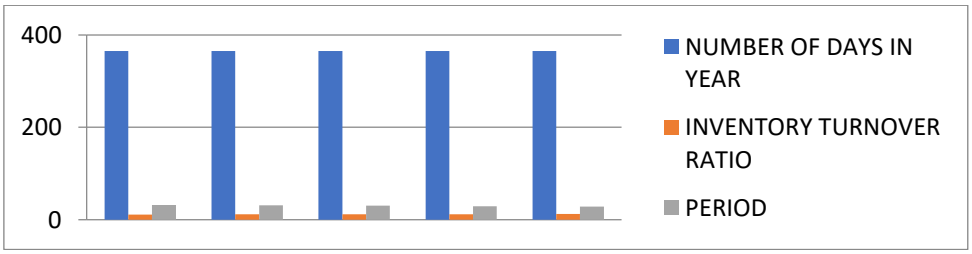
INTERPRETATION:
From the table we can say the proportion of cash cycle is varies between 57.68 to 180.87 in the year 2022-2023.We have observed in the year of 2022-2023 the company Receives the highest cash operations 180.87. From the year 2018-2023 the cash operating cycle is gradually decreased these leads the company gains more profits.

7. INVENTORY HOLDING PERIOD

$$\textbf{Days of Inventory Holding} = \frac{365}{\text{InventoryTurnoverRatio}}$$

S.NO	YEARS	NUMBER OF DAYS IN YEAR	INVENTORY TURNOVER RATIO	PERIOD
1	2018-2019	365	11.36	32
2	2019-2020	365	11.73	31.11
3	2020-2021	365	12.01	30.39
4	2021-2022	365	12.35	29.55
5	2022-2023	365	12.72	28.69

Table4.7



Graph 4.7

INTERPRETATION:
The table shows the trend of inventory holding period of the company. It is understood that the days of inventory holding has gradually decreased from 32days to 28 days, because the inventory turnover ratio and the inventory holding period are interrelated. If the inventory turnover ratio increases than the days of the inventory holding decreases and vice-versa. It indicates the improvement in the management efficiency in converting their inventories into sales as fast as possible.

V. FINDINGS

- Tata Steel Ltd maintains good safety rules.
- The machinery used in Tata Steel Ltd reduces high man power utilization.
- To hedge the problem of power cut, the firm maintains its own electricity generation plant.
- Overall the inventory management at Tata Steel Ltd is up to the mark.

VI. SUGGESTIONS

- The firm has to sell 40% of the total production to government.
- When the company uses new technology production will increase.
- Compare to various companies' competition is reduced as various new techniques and methods are use.
- The level of current assets with respective to the current liabilities should also increase so that good liquidity position be maintain.
- The company should improve its liquidity to the extent its finished goods ideal turnover ratio. Automatically it will lead to increase in current ratio.

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VII. CONCULUSION

Finally it is concluded that inventory of Tata Steel Ltd is very important segment to gain the high profits. In Tata Steel Ltd Inventory management is the heart of organization as well as necessary too. Though Tata Steel Ltd is doing well in manufacturing many products or items, it was found that a little rectification has to be made. Order is placed monthly or quarterly it may cost heavy expenditure for placing orders so many times. High Costs will be beard each time when an order is placed so it is suggestible that order should be placed annually depending on demand. Storage facilities should be modified and separate department of research should be established especially for inventory of goods. In this type of process, it requires more number of employees and suppliers should also wait until the accounts are matched. This process takes an input, adds value to it and provides an output to an internal or external customer. The inventory as well as the inventory management at Tata Steel Ltd is up to the mark.

REFERENCES

BOOKS

1. Financial Management……. I.M. Pandey
2. Financial Management……. Prasanna Chandra
3. Financial Management……. Van Horn
4. Management Accounting and Control…. S.N.Maheswari
5. Financial Management…….Khan and Jain

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