

A STUDY ON THE INVENTORY MANAGEMENT ON TATA STEEL LIMITED

Submitted in partial fulfillment of the requirement for the reward of

BACHELOR OF COMMERCE

By SUNDAERSAN.R

Register No-39740233



BACHELOR OF COMMERCE

SCHOOL OF MANAGEMENT STUDIES

SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

Accredited with Grade “A” by NAACI 12B Status by UGC Approved by AICTE

Jeppiaar Nagar, RAJIV GANDHI SALAI, CHENNAI – 600119

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SCHOOL OF MANAGEMENT STUDIES

BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **SUNDARESAN.R (39740233)** who has done the Project work entitled **A STUDY ON INVENTORY MANAGEMENT OF TATA STEEL LIMITED** under my supervision from December 2021 to February 2022.

Dr. R. THAMILSELVAN

Internal Guide

External Guide

Dr. BHUVANESWARI G.

Dean, School of Management Studies

Submitted for Viva voice Examination held on _____

Internal Examiner

External Examiner

DECLARATION

I **SUNDARESAN.R(39740230)**. Hereby declare that the Project Report entitled “entitled **A STUDY ON INVENTORY MANAGEMENT OF TATA STEEL LIMITED** ” done by me under the guidance of Dr. THAMILSELVAN .R, M.Com, M.B.A, M.Phil, B.Ed., Ph.D., Associate Professor, Department of Management Studies is submitted in partial fulfillment of the requirements for the award of Bachelor of Commerce degree.

DATE:

PLACE:

SUNDARESAN .R

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I convey my thanks to **Dr. G. BHUVANESWARI, MBA., Ph.D., Dean, School of Management Studies** and **Dr. A. PALANI, M.Com., M.Phil., M.B.A., Ph.D., Head Dept. of Management Studies** for providing me necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my Project Guide **Dr. THAMILSELVAN.R, M. Com, MBA., M.Phil. B.Ed., Ph.D.** for his valuable guidance, suggestions and constant encouragement paved way for the successful completion of my project work.

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SUNDARESAN.R

Abstract

This research propose to get exposure in inventory and it is very important to the company. It is to ensure quality in business that control the transaction between the consumer goods. It is important to do proper inventory management and control in the production company. This project is to analysis the inventory control in the leading STEEL manufacturing company (TATA STEEL. In this project we will perform the inventory management of Tata steel Limited we will go through the financial statements of the company diagnose inventory soundness.

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CHAPTER 1

1.1 INTRODUCTION OF THE STUDY

INVENTORY MANAGEMENT

Inventory or stock is the goods and materials that a business holds for the ultimate goal of resale or repair. Inventory management is a discipline primarily about specifying the shape and placement of stocked goods.

Inventory Management is a business process which is responsible for managing, storing, moving, sorting, arranging, counting and maintaining the inventory i.e. goods, components, parts etc. Inventory management ensures that the right inventory is available as per the demand at low costs. Inventory Management makes sure that the core processes of a business keep running efficiently by optimizing the availability of inventory.

IMPORTANCE OF INVENTORY MANAGEMENT

Inventory Management includes managing and controlling raw materials, stocks, finished goods, warehousing, storage and other aspects which help reach the product from production to distributor or retailer. Each organization regularly strives on efficient inventory management to uphold optimum inventory to be able to meet its necessities and avoid over or under inventory that can impact the monetary statistics of the firm.

Inventory is forever dynamic. A prerequisite of inventory management is steady and vigilant assessment of exterior and interior factors and control via planning and evaluation. Most of the businesses have an individual department of inventory planners who incessantly observe, control and evaluate inventory and interface with manufacturing, procurement and finance sections of the firm

Objectives of inventory management

The main objective of inventory management is to maintain inventory at appropriate level to avoid excessive or shortage of inventory because both the cases are undesirable for business. Thus, management is faced with the following conflicting objectives:

1. To keep inventory at sufficiently high level to support production and sales activities smoothly.
2. To minimize investment in inventory at minimum level to maximize profitability.
3. To ensure that the supply of raw material & finished goods will remain continuous so that production process is not halted and demands of customers are duly met.
4. To minimize carrying cost of inventory.
5. To keep investment in inventory at optimum level.
6. To reduce the losses of theft, obsolescence & wastage etc.
7. To make arrangement for sale of slow moving items.
8. To minimize inventory ordering costs

Types of Inventory

Inventory is generally categorized as raw materials, work-in-progress, and finished goods.

RAW MATERIALS: Raw materials are inventory items that are used in the manufacturer's conversion process to produce components or finished products. These are unprocessed materials used to produce a good. Examples of raw materials used in Tata Steel are coal, dolomite, High Volatile Coal, coke, lime stone etc.

WORK-IN-PROGRESS: Work-in-progress inventory is the partially finished goods waiting for completion and resale; work-in-progress inventory is otherwise known as inventory on the production floor. For example, a half-assembled airliner or a partially completed yacht would be work-in-process.

FINISHED & SEMI-FINISHED GOODS: Finished goods are products that have completed production and are ready for sale. These goods have been inspected and

have passed final inspection requirements so that they can be transferred out of work-in-process and into finished goods inventory. Example- export yard, wire & rod mill, hot strip mill, steel, rings etc. are used in TataSteel.

Retailers typically refer to this inventory as "merchandise". Common examples of merchandise include electronics, clothes, and cars held by retailers.



Inventory management at TATA STEEL

Inventory management is one of the most important managerial activities. TATA steel has its own mines and quarries in India as well as in some other countries. The raw material inventory includes materials from its own source as well as purchased from others. Raw material inventory therefore lies both at works and its place of extraction. These are transported to works both by road and rail.

Policies maintained by TATA STEEL for Inventories

- Finished and semi-finished products produced and purchased by the company are carried at lower of cost and net realized value.

- Work in progress is carried at lower of cost and realized value.
- Coal, iron ore and other raw materials produced and purchased by the company are carried at lower of cost and net realized value.
- Stores and spare parts are carried at cost. Necessary provision is made and charges to revenue in case of identified obsolete and non-moving items.
- and semi-finished products are valued on full absorption cost basis.
- Cost of inventories is generally ascertained on the "weighted average" basis. Work in progress and finished

Following are the consequences of over investment:

- Unnecessary blockage of funds in inventory
- Excessive storage is required to store the inventory.
- Excessive insurance cost.
- Risk of liquidity: Value of the inventory reduces due to the long holding period as the inventories once purchased are difficult to dispose of at the same value.

Following are the consequences of under investment:

- Under investment in the inventory may cause frequent interruptions in production process.
- Insufficient stock of finished goods may create problems in meeting customers' demands and they may shift to the competitors.

1.2 INDUSTRY PROFILE

Established in **1907**, Tata Steel is Asia's first and India's largest integrated private sector steel company with its captive iron ore and coal mines and one of the world's most modern steel making facilities at Jamshedpur in eastern India which includes a state-of-art cold rolling mill complex. Tata Steel is among the lowest cost producer of steel in the world.

The aim of the project is to understand what inventory management is and how it works in Tata Steel and other steel companies. What are the various methods of inventory management and what method does Tata Steel follow for the same.

Inventory management is very crucial at TATA STEEL as it is a manufacturing firm and a slight delay or other issues related to stock poses serious problems and huge losses.

The objectives of the project are:

- To understand the concept of inventory management in Tata Steel.
- To calculate the various inventory ratios and interpret the results thereon.
- To analyze the efficiency of purchase department, supply chain department and finance and accounts department related to inventory management.
- To understand and analyze the deviation in the theoretical aspect and practical implementation of an inventory system.

The aim of the project is to make use of the study of various inventory management methods and utilizing them to find the best inventory management method, the steel industry should try to minimize the problems the plant faces.

The project concludes with major findings and recommendations

1.3 COMPANY PROFILE

Tata Steel, formerly known as Tata Iron and Steel Company Limited (TISCO), is an Indian multinational steel-making company headquartered in Mumbai, Maharashtra. Established in Jamshedpur, India in the year 1907, Tata Steel is part of the 150-year-old Tata group. Bringing to reality the vision of its founder, J. N. Tata, who inspired the steel and power industry in India, the Tata Steel Group is the 10th largest steel manufacturer in the world and is known to be the hallmark of corporate citizenship and business ethics.

With the operations in 26 countries and its commercial presence in 50 countries, the Tata Steel Group has a steel production capacity of 27.5 Mn per annum (as on March 31, 2018). Tata Steel India also has its manufacturing units at Jamshedpur, Jharkhand, with a production capacity of 10 Mn per annum and at Kalinganagar, Odisha, with a production capacity of 3 Mn per annum. TISCO also exports ferromanganese, chrome ore, steel tubes, strips, wires, rounds and agriculture implements to the United States, China and the Middle East. The company together with its subsidiaries is engaged in the manufacture and sale of steel products in India and internationally. They offer hot and cold rolled coils and sheets, galvanized sheets, tubes, wire rods, construction rebars and bearings. Tata Steel is one of the few companies that are fully integrated- from mining to the manufacturing and marketing of finished products.

Tata Steel is by far the most important, multi-functional and most adaptable of materials. The role of Iron and Steel industry in GDP is very important for the development of the country.

Vision:

“We aspire to be the global steel industry benchmark for ‘value Creation’ and ‘Corporate Citizenship’.

Mission:

Consistent with the vision and values of the founder, Jamshedji Tata, Tata Steel strives to strengthen India's industrial base through the effective utilization of staff and materials. The means envisaged to achieve this are high technology and productivity, consistent with modern management practices. Tata Steel recognizes that while honesty and integrity are the essential ingredients of a strong and stable enterprise, profitability provides the main spark for economic activity. Overall, the company seeks to scale the heights of excellence in all that it does in an atmosphere free from fear and, thereby, its faith in democratic values.

Values:

Integrity | Unity | Pioneering | Excellence | Responsibility

1.4 NEED FOR THE STUDY

The following need has proposed me to choose the Study at Tata Steel limited on Inventory management system.

- The need of inventory management system is essential at every stage of the business.
- The inventory is the back bone of the production company and how it works in the development of other
- To know the industry's progress through the inventory management system point of view of companies

1.5 OBJECTIVES OF THE STUDY

Primary objective

- To examine the process of inventory management of tata steels.

Secondary objective

- To analyze the inventory position through various financial ratios .
- To understand the problems faced by company in handling inventory.

1.6 SCOPE OF THE STUDY

- The scope of an inventory system can cover many needs, including valuing the inventory, measuring the change in inventory and planning for future inventory levels.
- The value of the inventory at the end of each period provides a basis for financial reporting on the balance sheet

1.7LIMITATIONS OF THE STUDY

- The inventory details of company are collected for 5 years only
- The information taken from the company was limited
- In this study only limited ratios are used

CHAPTER 2

2.1 REVIEW OF LITERATURE

1. **Plinere, D. & Borisov, A.** (2015). concluded that. inventory management is necessary to every company, having inventories. Companies have stock, but so much as to keep away from overstock and out-of-stock situations. Inventory management can better company inventory control existing condition and reduce costs of the company.
2. **Jose, T., Jayakumar, A., & Sijo, M. T.** (2013) found the difference between EOQ & number of pieces purchased. It is observed that the company is not using EOQ for buying the materials. Therefore, inventory management is not reasonable. From estimate of safety stock. company can decide how much inventory the company can keep in back stock per annum.
3. **Mohamad, S. J. A. N. bin S., Suraidi, N. N., Rahman, N. A. A., & Suhaimi, R. D. S. R.** (2016) concluded that efficiency of inventory management is a major concern area of business. Suggestions are given to improve the performance of inventory management. demand forecasting, scattered inventory & cycle counting
4. **Lwili et al** (2013) A survey conducted and established that there is generally positive correlation between each of inventory management practices. Specific performance indicators were proved to depend on the level of inventory management practices. They established that Return on Equity had a strong correlation with lean inventory system and strategic supplier partnerships. As such, they concluded that the performance of sugar firms could therefore be stated as being a function of their inventory management practices.
5. **Panigrahi** (2013) Undertook an in-depth study of inventory management practices. The

study also investigated the relationship between profitability and inventory conversion days. The study, using a sample of the top five cement companies of India over a period of 10 years from 2001 to 2010, concluded that a considerable inverse linear relationship existed between inventory conversion period and profitability.

6. **Madishetti and Kibona** (2013) Found that a well designed and executed inventory management contributes positively to a small or medium-sized enterprises (SMEs) profitability. Regression analysis was adopted to determine the impact of inventory conversion period over gross operating profit. The results cleared out that significant negative linear relationship occurred between inventory conversion period and profitability.
7. **Srinivas Rao Kasisomayajula**(2014) The study concluded that all the units in the commercial vehicle industry have significant relationship between Inventory and Sales. Proper management of inventory is important to maintain and improve the health of an organization. Efficient management of inventories will improve the profitability of the organization.
8. **Sunitha, K. V.** (2012) in her thesis. inventory management is vital for keeping costs down, when meeting regulations. It is difficult to balance demand and supply and inventory management to make sure that the balance is untouched. The trained inventory management and good quality software will help make inventory management a victory. The ROI of Inventory management has seen better revenue and profits, positive employee ambiance and increase in customer satisfaction.
9. **Atnafu. D. & Balda, A.** (2018) focuses on inventory management & explains the relationship between inventory management practices competitive advantage & organizational performance. The finding of the study on basis of data analysis is that there is a positive relationship between competitive advantages and inventory management performance. And better organizational performance gives a firm bigger capital to apply

various inventory management techniques

10. **HongShen. Qiang. Deng. Rebbaca Lao, Simon Wu** (2016) focused on boosting the inventory management to improve the supply chain of the company. Drop in inventory is considered one of the most significant aspects of inventory management. In practice, small Inventory level is not always a better solution, so manufacturers need to maintain the correct amount of inventory at the correct level
11. **Gaur and Bhattacharya** (2011) Attempted to study the linkage between the performance of the components of inventory such as raw material, work in progress and finished goods and financial performance of Indian manufacturing firms. The study revealed that finished goods inventory as inversely associated with business performance while raw material inventory and work in progress did not have much effect on same. They emphasised that instead of focusing on total inventory, an attempt should be made to concentrate on individual components of inventory so as to adequately manage the same. They concluded that managers not paying heed to inventory performance may become weak in combating competitors.
12. **Pradeep singh** (2008) In his study made an attempt to examine the inventory and working capital management of Indian Farmers Fertilizer Cooperative Limited (IFFCO) and National Fertilizer Limited (NFL). He concluded that the overall position of the working capital of IFFCO and NFL is satisfactory. But there is a need for improvement in inventory in case of IFFCO. However inventory was not properly utilized and maintained by IFFCO during study period. The management of NFL must try to properly utilize the inventory and try to maintain the inventory as per the requirements. So that liquidity will not interrupt
13. **Lal** (1981) his study focused on inventory management. He originated a model which involve price variable in inventory management; earlier price variable in inventory was not considered in that company. The analysis recommended solid policies, which would look after internal and external factors, ultimately it would help in bringing in efficient working capital management

14. **Farzaneh** (1997) Presented a mathematical model, to assist the companies in their decision to switch from EOQ to JIT purchasing policy. He defines JIT as “to produce and deliver finished goods just in time to be sold, sub-assemblies just in time to be assembled in goods and purchased material just in time to be transformed into fabricated parts”. He highlights that the EOQ model focuses on minimizing the inventory costs rather than minimizing the inventory. Under the ideal condition where all the conditions meet, it is economically better off to choose the JIT over the EOQ because it results in purchase price, ordering cost
15. **Rich Lavelly** (1998) Asserts that inventory means “Piles of Money” on the shelf and the profit for the firm. However, he notices that 30% of the inventory of most retail shops is dead. Therefore, he argues that the inventory control is facilitate the shop operations by reducing rack time and thus increases profit. He also elaborates the two types of inventory calculations that determine the inventory level required for profitability. The two calculations are “cost to order” and “cost to keep”. Finally, he proposes seven steps to inventory control.
16. **Gaur, Fisher and Raman** (2005) In their study examined firm-level inventory behaviour among retailing companies. They took a sample of 311 public-listed retail firms for the years 1987–2000 to examine the relationship of inventory turnover with gross margin, capital intensity and sales surprise. They observed that inventory turnover for retailing firms was positively related to capital intensity and sales surprise while inversely associated with gross margins. They also suggested models that yield an alternative metric of inventory productivity, adjusted inventory turnover that can be used in study of performance analysis and managerial decision-making.
17. **S. Singh** (2006) Analysed the inventory control practices of single fertilizer company named IFFCO. He statistically examined the inventory system with consumption, sales and other variables along with growth of these variables and inventory patterns. He

concluded that an increase in components of inventory lead to an increase in the proportion of inventory in current assets. A special focus was made on stores and spares in order to calculate excess purchases resulting in loss of profit.

18. **D.Hoopman**2003 In this article he said that inventory optimization recognize that different industry have different inventory profiles and requirements. Research has indicated that solutions are priced in a large range from tens of thousands of dollars to millions of dollars. In this niche market sector price is definitely not an indicator of the quality of solution, ROI and usability are paramount.

19. **Silver,EdwardA**2002(Articlefromproductionandinventorymanagementjournal)This article considers the context of a population of items for which the assumption underlying the EOQ derivation holds reasonably well. However as is frequently the case in practices there is an aggregate constraint that applies to the population as a whole. Two common forms of constraints are:

- a. The existence of budget to be allocated among the stocks of the items and a purchasing production facility having the capability to process atmost a certain number of replenishment per year. Because of the constraint the individual replenishment quantities cannot be selected independently.

20. **DelaunayC,SahinE**,2007 A lots of work has been done but now if we want to go ahead we must have good visibility upon this field of research. That is why we are focused on frame work for an exhaustive review on the problem of supply chain management with inventory inaccuracies. The authors said that their aim in this work is also to present the most important criterion that allow a distinction between the different types of managing the inventory.

21. **Charles Atkinson**, he explained the inventory management and assessment of inventory levels. As per this study inventory management need to address two issues.

- a. Part I. How to optimize average inventory levels.
- b. Part II .How to assess(evaluate) inventory levels.
- c. This study tells about what the manager should do and not to do, and how much amount should be order in one placed orders.

22. **Bernatde William** 2008 This study tells that the main focus of inventory management is on transportation and warehousing. The decision taken by management depends on the traditional method of inventory control models. The traditional method of inventory management is how much useful in these days the author tell about it. He is also saying that the traditional method is not a cost reducing, it is so much expensive. But the managing the inventory is most important work for any manufacturing unit.

CHAPTER 3

3.1 RESEARCH METHODOLOGY

3.1 TYPE OF RESEARCH

The proposed study is of ANALYTICAL IN NATURE. Research design is needed because it facilitates the smooth sailing of the various research operations, thereby making research as efficient as possible. A research design for a particular problem usually involves the consideration of the following factors.

3.2 DATA COLLECTION

SECONDARY DATA

Secondary Data has been collected from the company's annual report, journal, magazine, and website.

PERIOD OF THE STUDY

Period of study 5 years from 2016-2017 to 2020-2021

TOOLS USED FOR THE STUDY

The following are major tools used in analysis and interpretation.

- Ratio analysis
- Comparative balance sheet statement.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4 1..1 Inventory turnover ratio

This ratio is an efficiency ratio which shows the efficiency of the firm in producing and selling its products.

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

Table 4.1.1 Inventory turnover ratio

Rs in Crores

Year	Cost of goods sold	Average inventories	Ratio(Times)
2016-2017	2217.67	8687.115	3.91
2017-2018	139.35	10630.13	76
2018-2019	415.28	16651.08	40
2019-2020	2346.59	10985.97	5
2020-2021	3258.86	9660.195	3

Source of Data : Company annual report from 2016-2017 to 2020-2021

Interpretation

From the above table 4.1.1 shows that inventory turnover ratio of the company under study is decreasing year by year from 2016-2017 to 2020-2021 except 2017-2018

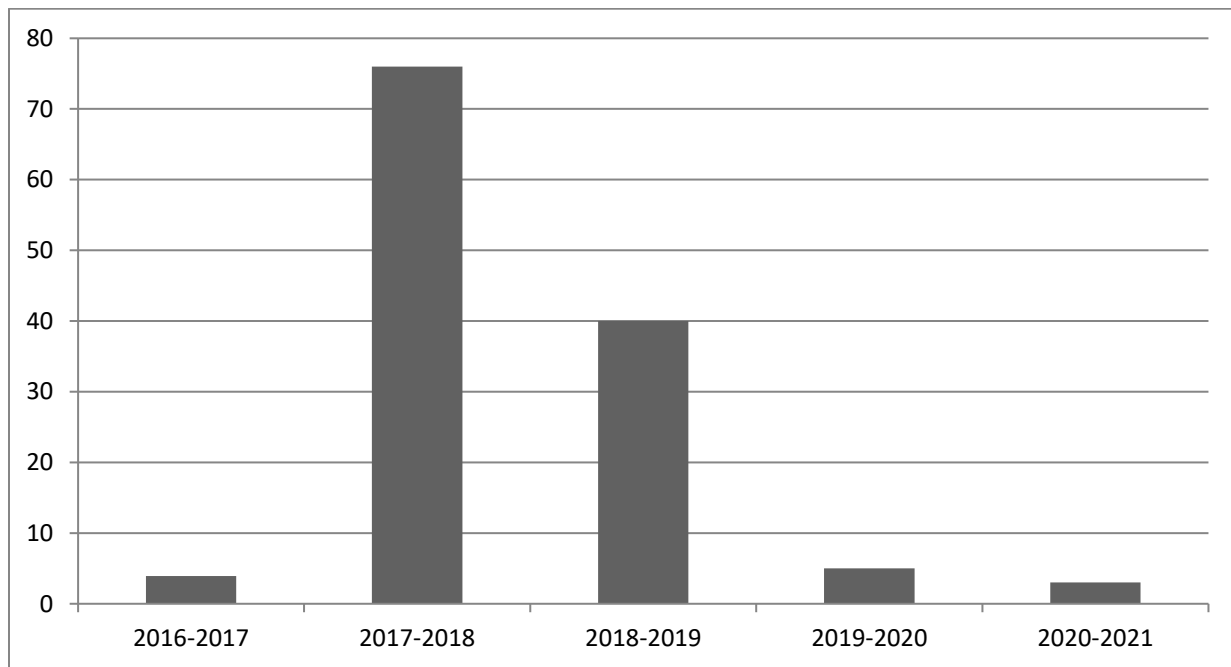


Fig 4.1.1 Inventory Turnover Ratio

4.1.2 Inventory holding period

The holding period refers to the time between an asset purchased and its sale. A short term holding period is defined as less than a year where as a long term holding period is more than year.

$$\text{Inventory Holding Period} = \frac{365}{\text{Inventory Turnover Ratio}}$$

Table 4.1.2 Inventory holding period

Rs in Crores

Year	No of days in a Year	Inventory turnover ratio	Ratio(Times)
2016-2017	365	3.91	91.93
2017-2018	365	76	4.80
2018-2019	365	40	9.12
2019-2020	365	5	73
2020-2021	365	3	121.67

Source of Data : Company annual report from 2016-2017 to 2020-2021

Interpretation

From the above table 4.1.2 shows that inventory Holding period of the company under study is increasing year by year from 2016-2017 to 2020-2021 except 2017-2018

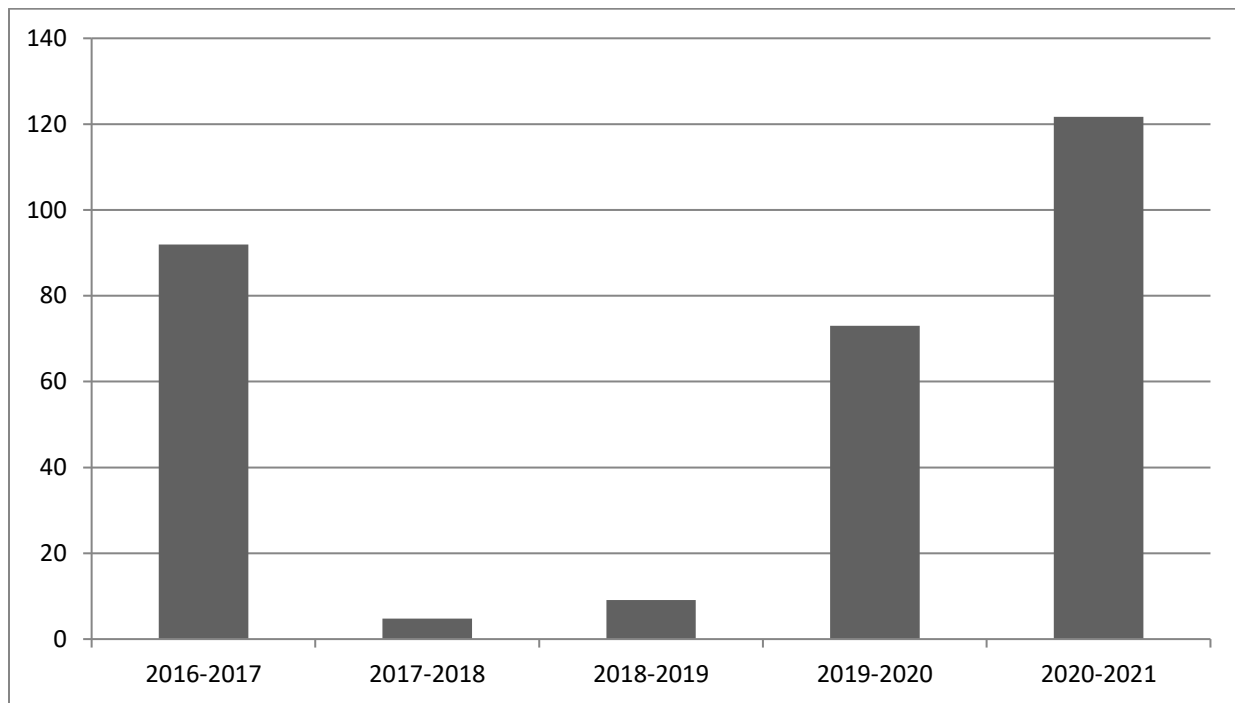


Fig 4.1.2 Inventory holding period

4.1.3 Inventory conversion period

This ratio shows that in how many days inventories are converted into net sales and it generate revenue for the company.

Inventory conversion period = Inventory / Sales * 365

Table 4.1.3 Inventory conversion period

Rs in Crores

Year	Inventories	Sales	Ratio(Days)
2016-2017	10236.85	53695.42	69.58
2017-2018	11023.41	61283.03	65.65
2018-2019	11255.34	73016	56.26
2019-2020	10716.60	60840.09	64.56
2020-2021	8603.79	65506.89	47.97

Source of Data : Company annual report from 2016-2017 to 2020-2021

Interpretation

From the above table 4.1.3 shows that inventory conversion period of the company under study is decreasing year by year from 2016-2017 to 2020-2021 except 2019-2020 .

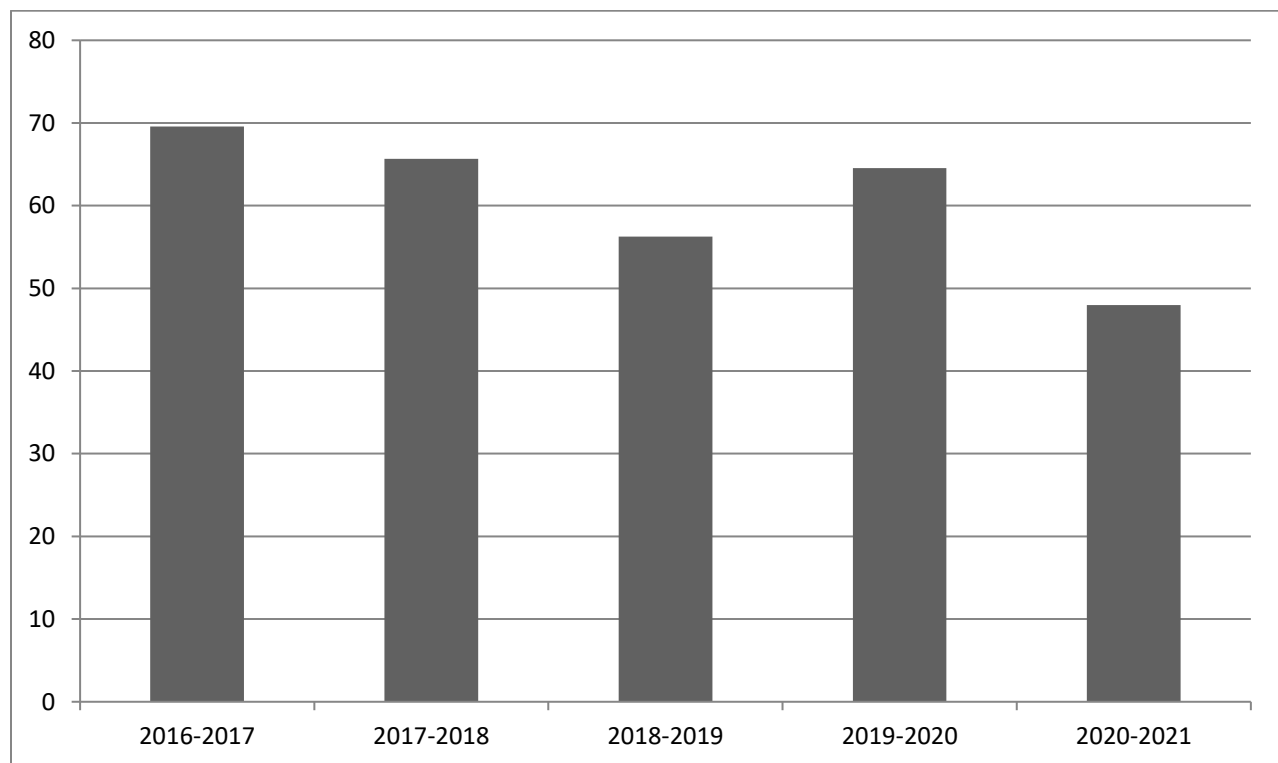


Fig 4.1.3 Inventory conversion period

4.1.4 Average day to sell inventory ratio

It is a financial ratio that indicates the average time in days that a company takes to turn its inventory, including goods that are a work in progress, into sales.

Average Days to Sell Inventory Ratio= Average inventory / Cost of goods sold * 100

Table 4.1.4 Average day to sell inventory ratio

Rs in Crores

Year	Average inventories	Cost of goods sold	Ratio
2016-2017	8687.115	CC	391.72
2017-2018	10630.13	167	7628.37
2018-2019	16651.08	200	4009.60
2019-2020	10985.97	166	468.16
2020-2021	9660.195	179	296.42

Source of Data : Company annual report from 2016-2017 to 2020-2021

Interpretation

From the above table 4.1.4 shows that Average day to sell inventory ratio of the company under study is decreasing year by year from 2016-2017 to 2020-2021 except 2019-2020

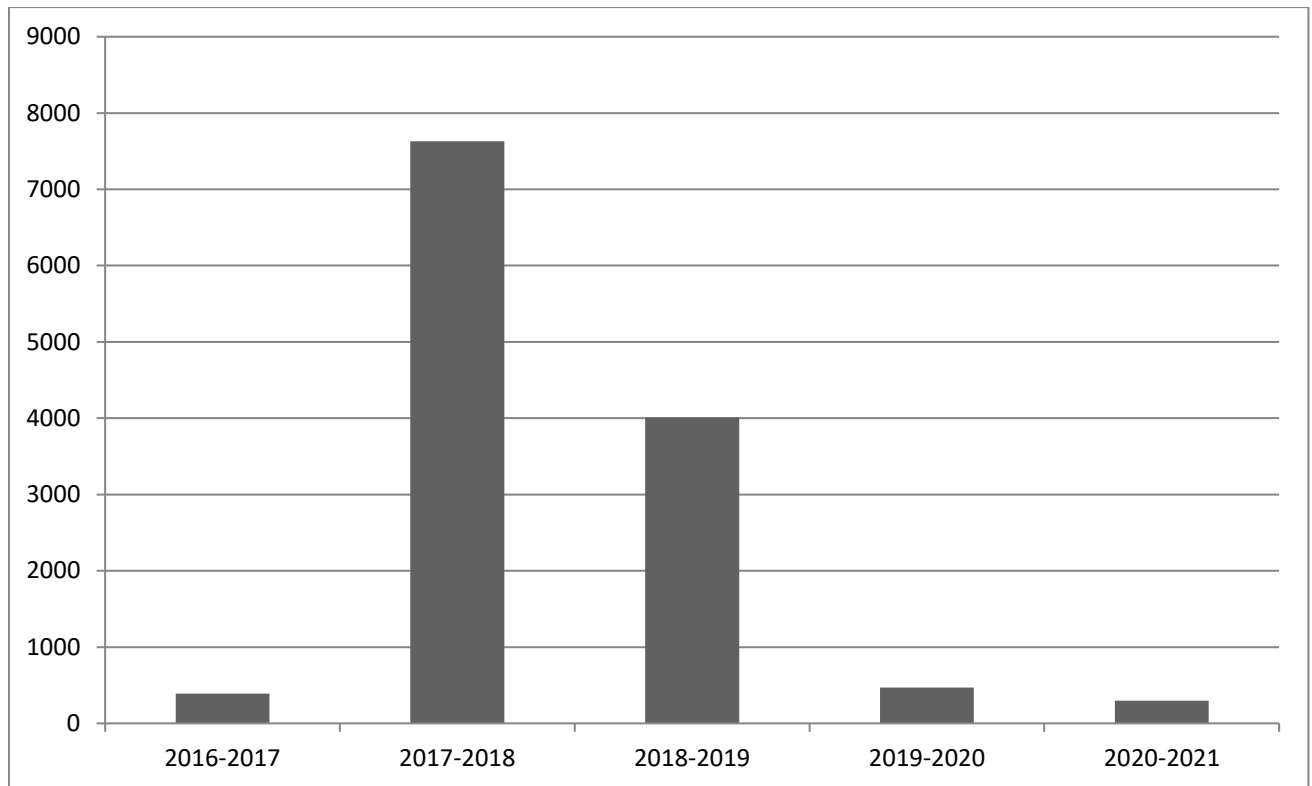


Fig 4.1.4 Average day to sell inventory ratio

4.1.5 Raw materials conversion period

This ratio states that for how much time (interms of days) raw materials will be kept in the warehouse before it is sent to the production department for work-in-progress. Low raw material holding period indicates greater ability of a company to recover cost incurred in production where as high raw material holding period means increasing warehousing cost and thus less profit.

$$\text{Raw material conversion period} = \frac{\text{Raw material Inventory}}{(\text{Raw material consumption}/365)}$$

Table 4.1.5 Raw materials conversion period

Rs in Crores

Year	Raw material inventories	Raw materials consumption/365 (Raw materials consumption in Days)	Ratio(Days)
2016-2017	3898.99	34	113.90
2017-2018	4953.2	46	148.73
2018-2019	4496.38	54	82.73
2019-2020	3586.21	47	75.22
2020-2021	2990.25	10	282.63

Source of Data : Company annual report from 2016-2017 to 2020-2021

Interpretation

From the above table 4.1.5 shows that Raw materials conversion period of the company under study is increasing year by year from 2016-2017 to 2020-2021 except 2018-2019 and 2019-2020

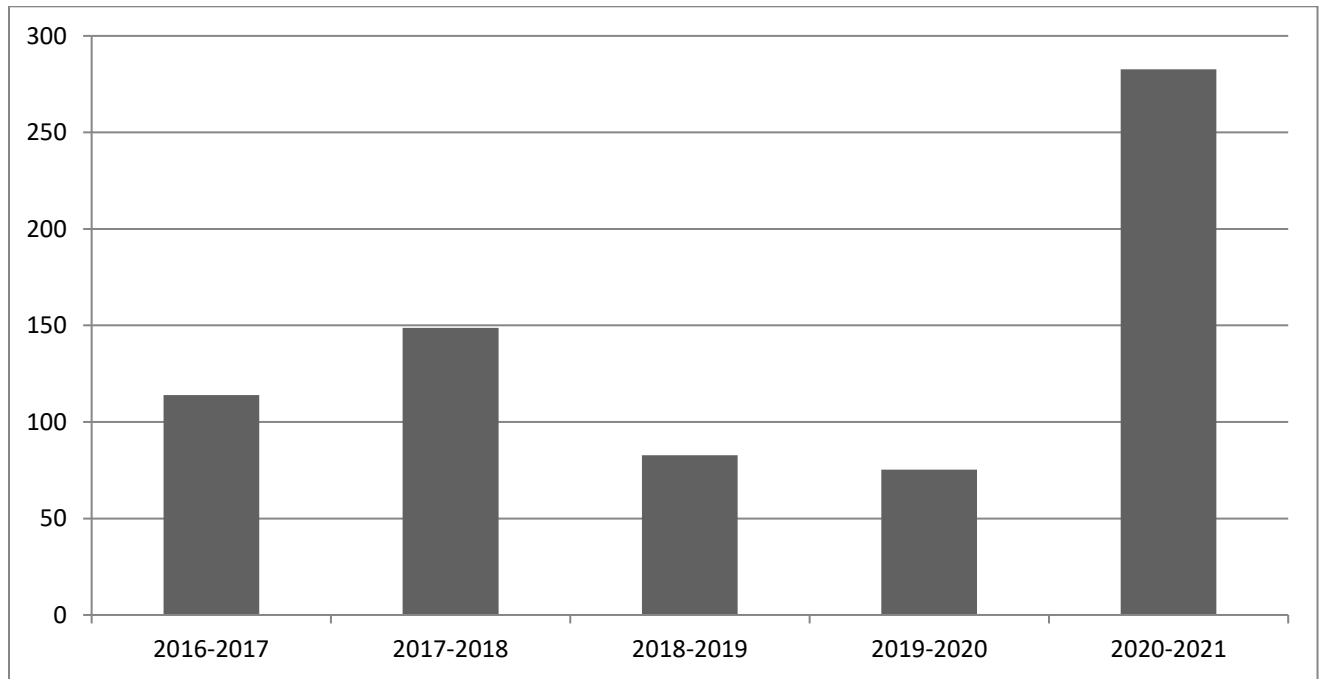


Fig 4.1.5 Raw materials conversion period

4.1.6 Work in progress conversion period

This ratio indicates the time period which the company takes to convert its work in progress into finished goods. Lesser the work in progress holding period, lesser will be the blockage of company's fund.

$$\text{Work in progress conversion period} = \frac{\text{Work in progress}}{(\text{Cost of production}/365)}$$

Table 4.1.6 Work in progress conversion period

Rs in Crores

Year	Work in progress	Cost of production	Ratio(Days)
2016-2017	5.88	131	0.4
2017-2018	6.77	140	0.4
2018-2019	14.54	157	0.9
2019-2020	6.9	143	0.4
2020-2021	0.01	155	0.01

Source of Data : Company annual report from 2016-2017 to 2020-2021

Interpretation

From the above table 4.1.6 shows that Work in progress of the company under study is increasing year by year from 2016-2017 to 2020-2021 except 2018-2019 and 2020-2021.

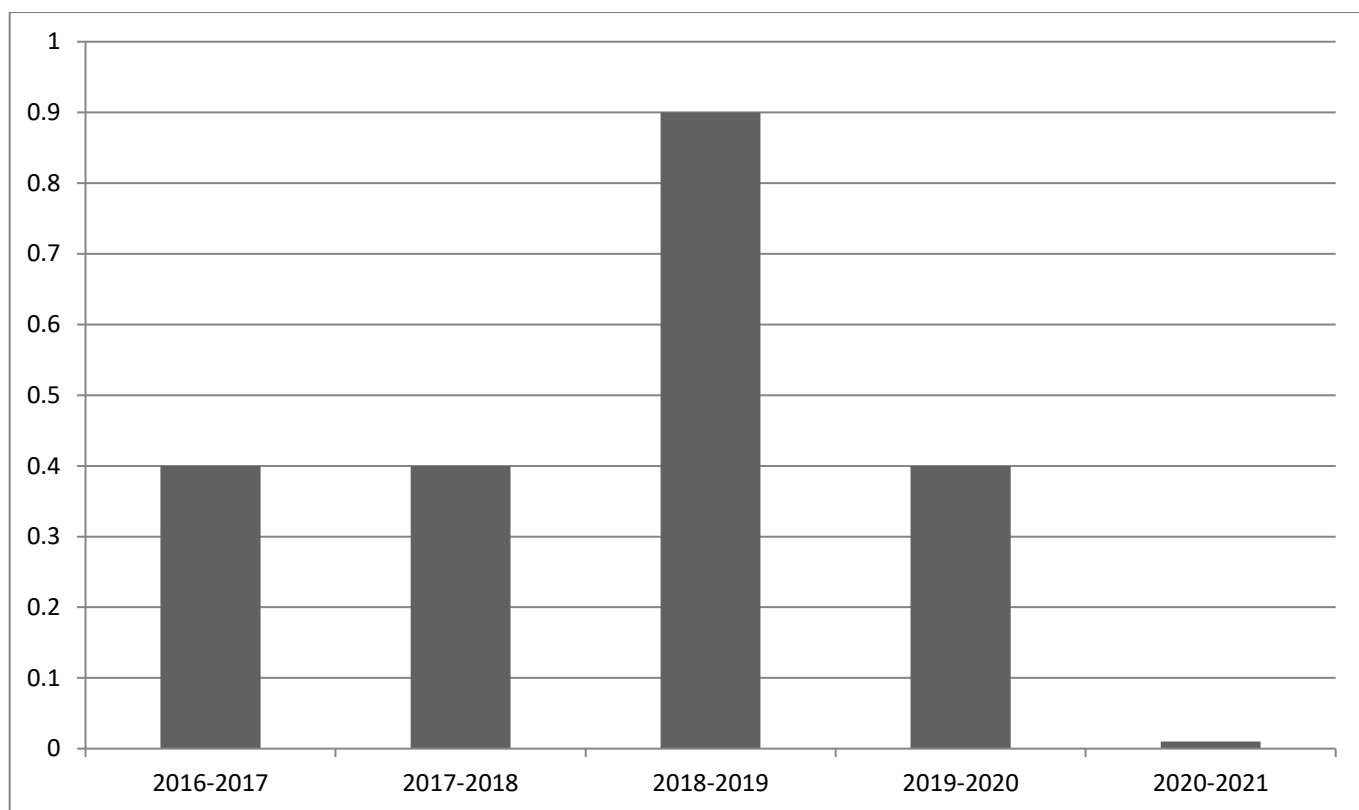


Fig 4.1.6 Work in progress conversion period

4.1.7 Finished goods conversion period

It refers to the time taken for the finished goods to be sold out or the time period between production and sales when the finished goods are kept in the warehouse before the actual sale is made.

Finished goods conversion period = Finished goods inventory / (Cost of goods sold / 365)

Table 4.1.7 Finished goods conversion period

Rs in Crores

Year	Finished good inventory	Cost of sales	Ratio(Days)
2016-2017	4096.56	147	674.88
2017-2018	3602.13	167	9479.28
2018-2019	4129.28	200	3710.04
2019-2020	4663.71	166	726.43
2020-2021	3293.71	179	369.25

Source of Data: Company annual report from 2016-2017 to 2020-2021

Interpretation

From the above table 4.1.7 shows that Finished goods conversion period of the company under study is decreasing year by year from 2016-2017 to 2020-2021 except 2017-2018

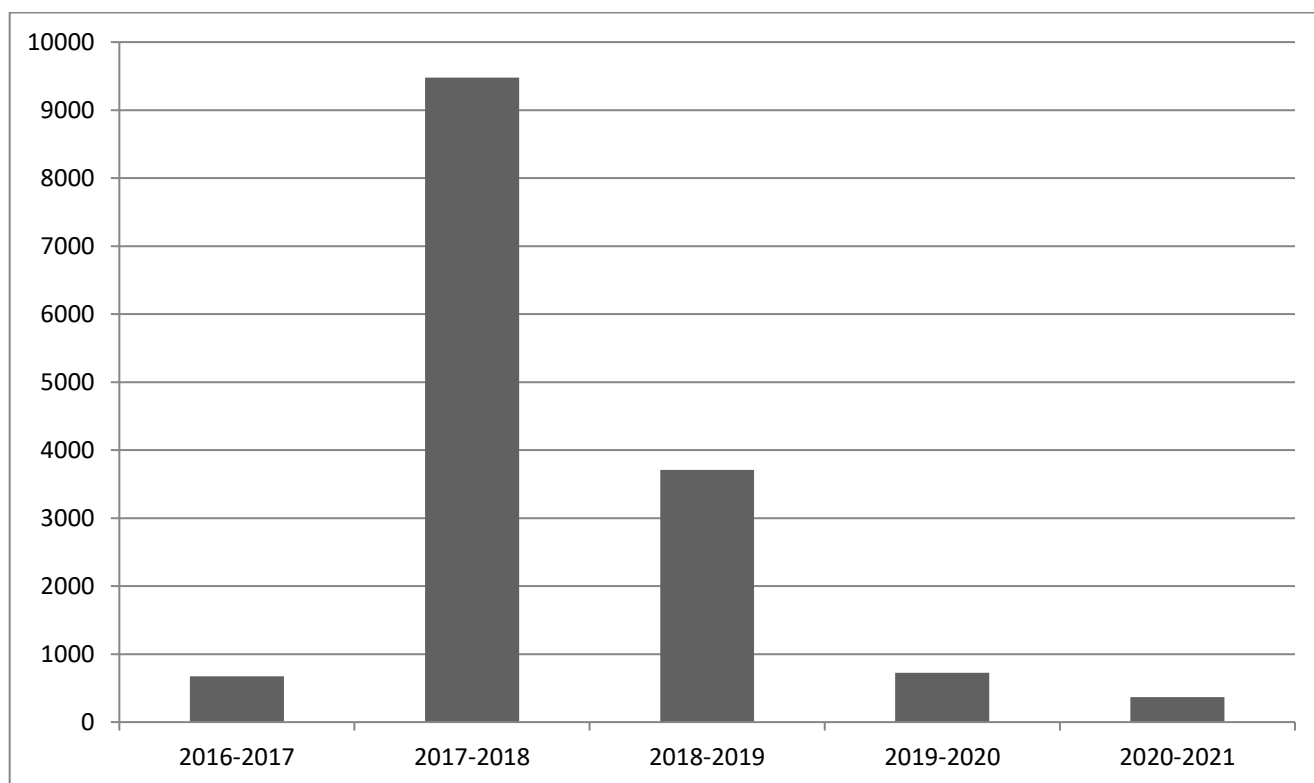


Fig 4.1.7 Finished goods conversion period

4.1.8 Days payable outstanding ratio

It is an efficiency ratio which measures the average number of days a company takes to pay its suppliers.

$$\text{Days Payable Outstanding Ratio} = \frac{\text{Accounts Payable} \times 365}{\text{Cost of Sales}}$$

Table 4.1.8 Days payable outstanding ratio

Rs in Crores

Year	Trade payable	Cost of sales	Ratio(Days)
2016-2017	10717.44	147	1763.95
2017-2018	11217.27	167	29455.42
2018-2019	10820.07	200	9509.96
2019-2020	10482.34	166	1630.47
2020-2021	10479.93	179	1173.78

Source of Data : Company annual report from 2016-2017 to 2020-2021

Interpretation

From the above table 4.1.8 shows that Days payable outstanding ratio of the company under study is decreasing year by year from 2016-2017 to 2020-2021 except 2017-2018

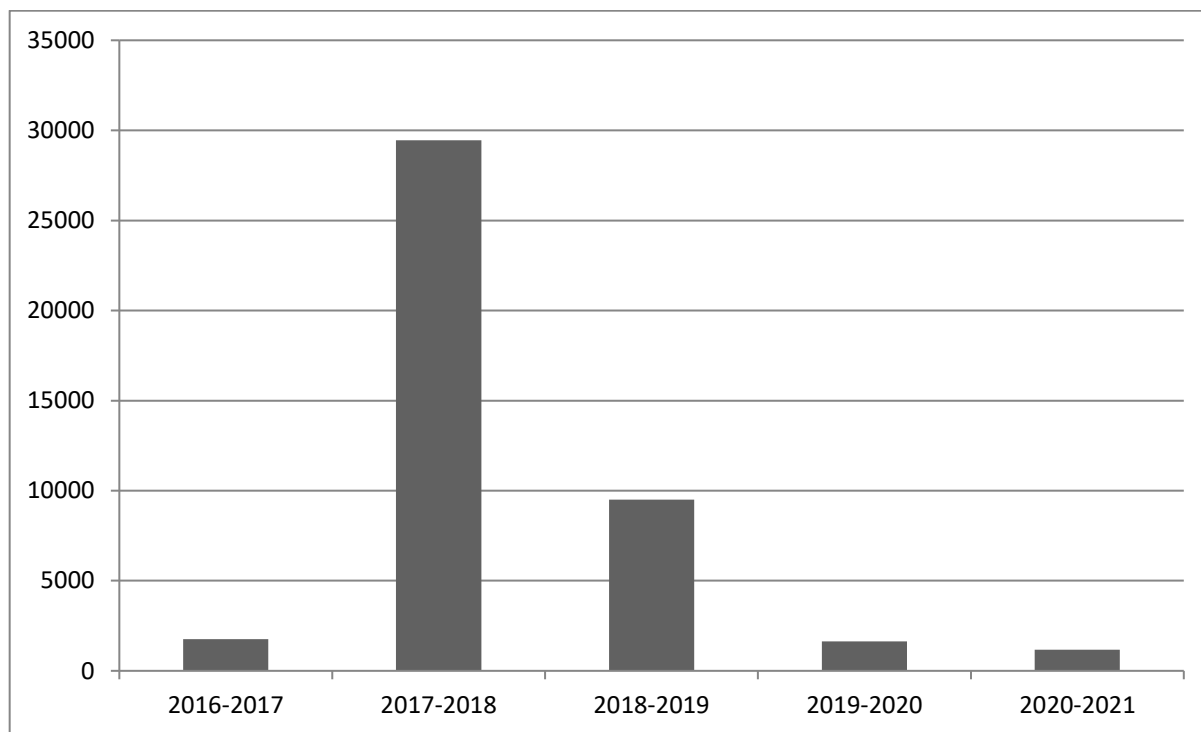


Fig 4.1.8 Days payable outstanding ratio

4.1.9 Current ratio

This ratio measures the company's ability to pay short-term obligations or those due within one year.

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Table 4.1.9 Current ratio

Rs in Crores

Year	Current asset	Current liabilities	Ratio
2016-2017	1225.48	23056.80	0.053
2017-2018	34643.91	25607.34	0.7391
2018-2019	17035.58	25593.65	1.502
2019-2020	19959.03	30871.30	1.54
2020-2021	23372.68	29313.3	1.25

Source of Data: Company annual report from 2016-2017 to 2020-2021

Interpretation

From the above table 4.1.9 shows that current ratio of the company under study is increasing year by year from 2016-2017 to 2020-2021 except 2020-2021

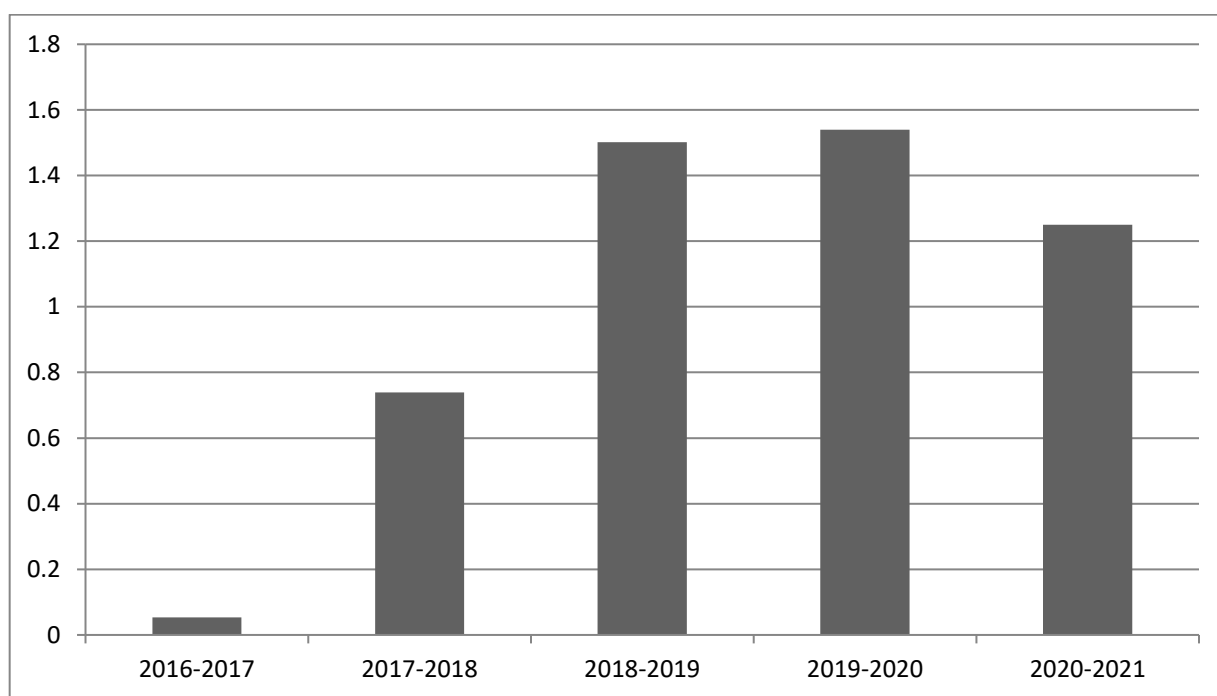


Fig 4.1.9 Current ratio

COMPARATIVE BALANCE SHEET OF THE YEAR MARCH 2020- 2021

Particulars	March21	March20	Increase/ Decrease	Percentage Change
Assets				
Non-current assets				
Property, plant and equipment	64032.32	66392.35	-2360.03	-1
Capital work in progress	10057.18	8070.41	1986.77	1
Intangible assets	839.33	727.72	111.61	1
Intangible assets underdevelopment	408.79	176.64	232.15	1
Investment in subsidiaries associates and joint ventures	28444.61	26578.41	1866.20	1
Financial assets				
Investments	22621.66	20282.50	2339.16	1
Loans	7509.33	199.26	7310.07	37
Derivative assets	42.52	162.46	-119.94	1
Other financial assets	91.66	60.42	31.24	1
Income tax assets	1645.10	1557.82	87.28	1
Other assets	1681.22	2062.07	-380.85	1
Total Non-current assets	141279.69	130383.37	10895.63	1
Current assets				
Inventories	8603.79	10716.66	-2112.87	-1
Financial assets				
Investment	6404.46	3235.16	3169.30	1
Trades receivable	3863.31	1016.73	2846.58	3

Cash and cash equivalents	1501.71	993.64	508.07	1
Other balance with bank	170.00	233.23	-63.23	-1
Loans	1555.95	1607.32	-51.37	-1
Derivative assets	66.93	209.96	-143.03	-1
Other financial assets	351.54	230.41	121.13	1
Other assets	854.99	1715.92	-860.93	-1
Total current assets	23372.68	19959.03	3413.65	1
Total assets	165035.99	150392.56	14643.43	1
Equity and liabilities				
Equity				
Equity share capital	1198.78	1146.13	52.65	1
Hybrid perpetual securities	775.00	2275.00	-1500.00	-1
Other equity	89293.33	73,416.99	15876.34	1
Total equity	91267.11	76838.14	14428.97	1
Non-current liabilities				
Financial liabilities				
Borrowings	27313.80	31381.96	-4068.16	-1
Derivate liabilities	71.20	122.55	-51.35	-1
Other financial liabilities	413.66	293.59	120.7	1
Provisions	2543.94	2113.56	430.38	1
Retirement benefit obligations	2087.86	2224.44	-136.58	-1
Deferred income	-	-	-	
Deferred tax liabilities(ne t)	6111.70	5862.28	249.42	1
Other liabilities	5913.40	684.75	5228.65	8
Total non-current liabilities	44455.56	42683.14	1772.42	1
Current liabilities				

Financial liabilities				
Borrowings	-	7857.27	-7857.27	1
Trade payable	10,638.59	10,600.96	37.63	1
Derivate liabilities	69.39	81.69	-12.3	-1
Other financial liabilities	5274.11	5401.55	-127.44	-1
Provisions	1074.43	663.86	410.57	1
Retirement benefit obligations	116.10	106.61	9.49	1
Income tax liabilities(net)	4093.26	277.26	3816.00	14
Other liabilities	8013.00	5875.95	2137.05	31
Total current liabilities	29313.32	30871.30	-1557.68	-1
Total equity and liabilities	165035.99	150392.56	14643.43	1

COMPARATIVE BALANCE SHEET OF THE YEAR MARCH 2019-2020

Particulars	March20	March19	Increase/ Decrease	Percentage Change
Assets				
Non-current assets				
Property, plant and Equipment	66392.35	70416.82	-4024.47	-1
Capital working Progress	8070.41	5686.02	2384.39	1
Intangible assets	727.72	805.20	-77.48	-1
Intangible assets underdevelopment	176.64	110.27	66.37	1
Investment in subsidiaries associates and joint ventures	26578.41	4437.76	22140.65	5
Financial assets				
Investments	20282.50	34491.49	-14208.99	-1
Loans	199.26	231.16	-31.90	-1
Derivative assets	162.46	9.05	153.41	17
Other financial Assets	60.42	310.65	-250.23	-1

Income tax assets	1557.82	1428.38	129.44	1
Other assets	2062.07	2535.98	-473.91	-1
Total Non-current Assets	130383.37	120462.78	9920.59	1
Current assets				
Inventories	10716.66	11255.35	-538.69	-1
Financial assets				
Investment	3235.16	477.47	2757.69	6
Trades receivable	1016.73	1363.04	-346.31	-1
Cash and cash Equivalents	993.64	544.85	448.79	1
Other balance with Bank	233.23	173.26	59.97	1
Loans	1607.32	55.92	1551.40	1
Derivative assets	209.96	14.96	195.00	13
Other financial assets	230.41	940.76	-710.35	-1
Other assets	1715.92	2209.98	-494.06	-1
Total current assets	19959.03	17035.58	2923.45	1
Total assets	150392.56	137498.36	12894.20	1
Equity and liabilities				
Equity				
Equity share capital	1146.13	1146.12	0.01	1
Hybrid perpetual securities	2275.00	2275.00	0	0
Other equity	73.416.99	69308.59	10108.4	1
Total equity	76838.14	72729.71	-4108.43	-4

COMPARATIVE BALANCE SHEET OF THE YEAR 2019-2018

Particulars	March19	March18	Increase /decrease	Percentage change
Assets				
Non-current assets				
Property, plant and equipment	70416.82	70,942.90	-526.08	-1
Capital work in progress	5686.02	5,641.50	5303.52	1
Intangible assets	805.20	786.18	19.02	1

Intangible assets underdevelopment	110.27	31.77	78.5	2
Investment in subsidiaries as sociates and joint ventures	4437.76	3,666.24	771.52	1
Financial assets				
Investments	34491.49	5970.32	28521.17	5
Loans	231.16	213.50	17.66	1
Derivative assets	9.05	12.13	-3.08	-3
Other financial assets	310.65	21.21	289.44	14
Income tax assets	1428.38	1043.84	384.54	1
Other assets	2535.98	2140.84	395.14	1
Total Non-current assets	120462.78	90470.43	29992.35	1
Current assets				
Inventories	11255.35	11023.41	231.94	1
Financial assets				
Investment	477.47	14640.37	-14162.9	-1
Trades receivable	1363.04	1875.63	-512.59	-1
Cash and cash equivalents	544.85	4588.89	-4044.04	-1
Other balance with bank	173.26	107.85	65.41	1
Loans	55.92	74.13	-18.21	-1
Derivative assets	14.96	30.07	-15.11	-1
Other financial Assets	940.76	480.62	460.14	1
Other assets	2209.98	1822.94	387.04	1
Total current assets	17035.58	34643.91	-17608.33	-1

Total assets	137498.36	125114.34	12384.02	1
Equity and liabilities				
Equity				
Equity share capital	1146.12	1146.12	0	0
Hybrid perpetual securities	2275.00	2275.00	0	0
Other equity	69308.59	60368.72	8939.75	1
Total equity	72729.71	63789.84	8939.87	1
Non-current liabilities				
Financial liabilities				
Borrowings	26651.19	24568.95	2082.24	1
Derivate liabilities	59.82	70.08	-10.26	-1
Other financial liabilities	125.07	19.78	105.29	5
Provisions	1918.18	1961.21	-43.03	-1
Retirement benefit obligations	1430.35	1247.73	182.62	1
Deferred income	747.23	1365.65	-618.42	-1
Deferred tax liabilities(ne t)	7807.00	6259.09	1547.91	1
Other liabilities	436.16	224.71	211.45	1
Total non-current liabilities	39175.00	35717.16	3457.84	1
Current liabilities				
Financial liabilities				
Borrowings	8.09	669.88	-661.79	-1
Trade payable	10,969.56	11242.75	-273.19	-1
Derivate liabilities	139.57	16.41	123.16	7

Other financial liabilities	6872.35	6541.40	330.95	1
Provisions	778.23	735.28	687.62	1
Retirement benefit obligations	102.12	90.50	11.62	1
Income tax liabilities(net)	358.14	454.06	-95.92	-1
Other liabilities	6365.59	5857.06	508.53	1
Total current Liabilities	25593.65	25607.34	-99520.69	4
Total equity and liabilities	137498.36	125114.34	12384.02	1

COMPARATIVE BALANCE SHEET OF THE YEAR 2017-2018

Particulars	March18	March17	Increase/decrease	Percentage change
Assets				
Non-current assets				
Property ,plant and equipment	70,942.90	71,778.97	-836.07	-1
Capital work in progress	5,641.50	6,125.35	-483.85	-1
Intangible assets	786.18	788.18	-2	-1
Intangible asset under development	31.77	38.61	-6.84	-1
Investment in subsidiaries associates and Joint ventures	3,666.24	3,397.57	268.67	1
Financial assets				
Investments	5970.32	4958.33	1011.99	1
Loans	213.50	211.97	1.53	1
Derivative assets	12.13	0.12	12.01	100
Other financial assets	21.21	79.49	-58.28	-1
Income tax assets	1043.84	867.75	176.09	1044
Other assets	2140.84	3121.64	-980.8	-1

Total Non-current assets	90470.43	91367.98	-897.55	-1
Current assets				
Inventories	11023.41	10236.85	786.56	1
Financial assets				
Investment	14640.37	5309.81	9330.56	2
Trades receivable	1875.63	2006.52	-130.89	-1
Cash and cash equivalents	4588.89	905.21	36833.68	41
Other balance with bank	107.85	65.10	42.75	1
Loans	74.13	27.14	46.99	2
Derivative assets	30.07	6.26	23.81	4
Other financial assets	480.62	315.06	165.56	1
Other assets	1822.94	1225.48	597.46	1
Total current assets	34643.91	20097.43	14546.48	1
Total assets	125114.34	1,11,465.41	13648.93	1
Equity and liabilities				
Equity				
Equity share capital	1146.12	971.41	174.71	2
Hybrid perpetual securities	2275.00	2,275.00	0	0
Other equity	60368.72	48,687.60	11681.12	1
Total equity	63789.84	51,934.01	11855.83	1
Non-current liabilities				
Financial liabilities				
Borrowings	24568.95	24,694.37	-125.42	-1
Derivate liabilities	70.08	179.33	-109.25	-1
Other financial liabilities	19.78	18.22	1.56	1
Provisions	1961.21	2,024.74	-63.53	-1
Retirement benefit	1247.73	1484.21	123288.79	83

obligations				
Deferred income	1365.65	1,885.19	-4745.62	-3
Deferred tax liabilities (ne)t	6259.09	6,111.27	147.82	1
Other liabilities	224.71	77.74	-7549.29	-97
Total non-current liabilities	35717.16	36,475.07	-757.91	-1
Current liabilities				
Financial liabilities				
Borrowings	669.88	3,239.67	-2569.79	-1
Trade payable	11242.75	10,717.44	525.31	1
Derivate liabilities	16.41	270.17	-253.76	-1
Other financial liabilities	6541.40	4,062.35	2479.05	1
Provisions	735.28	700.60	34.68	1
Retirement benefit obligations	90.50	56.58	33.92	1
Income tax liabilities(net)	454.06	465.72	-11.66	-1
Other liabilities	5857.06	3,543.80	2313.26	1
Total current liabilities	25607.34	23,056.33	2551.01	1
Total equity and liabilities	125114.34	1,11,465.41	13648.93	1

CHAPTER 5

FINDINGS, CONCLUSION

5.1FINDINGS

1. Inventory turnover ratio of the company under study is decreasing year by year from 2016-2017 to 2020-2021 except 2017-2018
2. Inventory Holding period of the company under study is increasing year by year from 2016-2017 to 2020-2021 except 2017-2018
3. Inventory conversion period of the company under study is decreasing year by year from 2016-2017 to 2020-2021 except 2019-2020 .
4. Average day to sell inventory ratio of the company under study is decreasing year by year from 2016-2017 to 2020-2021 except 2019-2020
5. Work in progress of the company under study is increasing year by year from 2016-2017 to 2020-2021 except 2018-2019 and 2020-2021.
6. Raw materials conversion period of the company under study is increasing year by year from 2016-2017 to 2020-2021except 2018-2019 and 2019-2020
7. Current ratio of the company under study is increasing year by year from 2016-2017 to 2020-2021 except 2020-202

Conclusion

The overall performance of the company regarding inventory management is satisfactory in terms of efficient utilization of the inventories during the period under the study..Inventory management has to do with keeping accurate records of finished goods that are ready for shipment. This often means positioning the production of newly completed goods to the inventory totals as well as subtracting the most recent shipments of finished goods to buyers. When the company has a return policy in place, there is usually a sub-category contained in the finished goods inventory to account for any returned goods inventory makes it possible to quickly convey information to sales personnel as to what is available and ready for shipment at any given time. Inventory management is important for keeping costs down, while meeting regulation. Supply and demand is delicate balance, and inventory management hopes to ensure that the balance is undisturbed. Highly trained Inventory management and high quality software will help to make Inventory management a success. The ROI of Inventory management will be seen in the form of increased revenue and profits, positive employee atmosphere, and on overall increase of customer satisfaction. In relation to main objective of the study , it can be concluded from the above results that the company is efficient in management of inventory during the period of study and may required to maintain this level of efficiency in coming years

REFERENCE

Gaur, V., Fisher, M. & Raman, A. (2005).” An econometric analysis of inventory turnover performance in retail services”. Management Science, vol.5,iss.2, pp.181–194.

Lal, A.B (1981), “Inventory Models and Problems of Price Fluctuation”, Shree Publishing House, New Delhi, 1981.

Pradeep Singh (2008),” Inventory and Working Capital Management- An Empirical Analysis”, The ICFAI Journal of Accounting and Research, Vol.VII, NO.2, pp.53-73.

Singh, Sukhdev. (2006). Inventory control practices in IFFCO. The Management Accountant, vol.41,iss.7, pp.577–582.

Srinivasa Rao Kasisomayajula (2014) “An Analytical Study on Inventory Management in Commercial Vehicle Industry in India”, International Journal of Engineering Research, Vol.3, Iss.6, pp.378-383.

Books

Maheshwari S.N Financial Management 9th Edition 2004.

Moorthy. A Financial Management 9th Edition 2018

Websites; www.tatasteel.com

APPENDIX

BALANCE SHEET OF TATA STEEL FROM 2016-2021

Particulars	March21	March20	March19	March18	March17
Assets					
Non-current assets					
Property ,plant and equipment	64032.32	66392.35	70416.82	70,942.90	71,778.97
Capital work in progress	10057.18	8070.41	5686.02	5,641.50	6,125.35
Intangible assets	839.33	727.72	805.20	786.18	788.18
Intangible assets under development	408.79	176.64	110.27	31.77	38.61
Investment in subsidiaries associates And joint ventures	28444.61	26578.41	4437.76	3,666.24	3,397.57
Financial assets					
Investments	22621.66	20282.50	34491.49	5970.32	4958.33
Loans	7509.33	199.26	231.16	213.50	211.97
Derivative assets	42.52	162.46	9.05	12.13	0.12
Other financial assets	91.66	60.42	310.65	21.21	79.49
Income tax assets	1645.10	1557.82	1428.38	1043.84	867.75
Other assets	1681.22	2062.07	2535.98	2140.84	3121.64
Total Non-current assets	141279.69	130383.37	120462.78	90470.43	91367.98
Current assets					
Inventories	8603.79	10716.66	11255.35	11023.41	10236.85
Financial assets					
Investment	6404.46	3235.16	477.47	14640.37	5309.81
Trades receivable	3863.31	1016.73	1363.04	1875.63	2006.52
Cash and cash equivalents	1501.71	993.64	544.85	4588.89	905.21
Other balance with bank	170.00	233.23	173.26	107.85	65.10
Loans	1555.95	1607.32	55.92	74.13	27.14
Derivative assets	66.93	209.96	14.96	30.07	6.26
Other financial assets	351.54	230.41	940.76	480.62	315.06
Other assets	854.99	1715.92	2209.98	1822.94	1225.48
Total current assets	23372.68	19959.03	17035.58	34643.91	20097.43
Total assets	165035.99	150392.56	137498.36	125114.34	1,11,465.41
Equity and liabilities					
Equity					
Equity share capital	1198.78	1146.13	1146.12	1146.12	971.41
Hybrid perpetual securities	775.00	2275.00	2275.00	2275.00	2,275.00

Other equity	89293.33	73.416.99	69308.59	60368.72	48,687.60
Total equity	91267.11	76838.14	72729.71	63789.84	51,934.01
Non-current liabilities					
Financial liabilities					
Borrowings	27313.80	31381.96	26651.19	24568.95	24,694.37
Derivate liabilities	71.20	122.55	59.82	70.08	179.33
Other financial liabilities	413.66	293.59	125.07	19.78	18.22
Provisions	2543.94	2113.56	1918.18	1961.21	2,024.74