"A Study on Inventory Management of Johnson & Johnson Company"

Prateeksha G Prabhuswamimath

MBA Student

K.L.E's Institute of Management Studies & Research. Hubli

prateekshagp19@gmail.com

Nitin M Bhasker

Professor

K.L.E's Institute of Management Studies & Research. Hubli

Email: nitimb@gmail.com

Abstract:

Inventory Management is important for businesses of any size. Inventory is defined as "the quantity of goods or materials on hand". The process of ordering, storing and using a company's inventory. This includes the management of raw materials, components and finished products, as well as warehousing and processing such items. It is defined as "the art and science of managing to have the RIGHT PRODUCT, at the RIGHT TIME and PLACE, in exactly the RIGHT AMOUNT, at the BEST POSSIBLE PRICE" .To study the impact of inventory on the company's performance and to analyze the effective use of inventory using ratio technique and to understand the different concepts related to Inventory Management. This study is based on Secondary data collection; the investigator does not collect data directly from the field. They are the data which he borrows from others who have collected them for some other purpose. Balance sheet, company records, internet and website of the company. The purpose of the research study is to understand and analyze the present inventory management system practiced in the company. And also to find new strategy tools to control inventory that have evolved over time. Inventory refers to the stockpile of the products that firm would sell in future in the normal course of business and the components that makes up the product. Inventory management is a very important function that determines the health of the supply chain as well as the impacts the financial health of the balance sheet. Inventory management is a vital function that helps and ensures the success of manufacturing companies. Successful implementation of inventory will improve the entire business significantly. The production and supply procedures adopted at organization are standard one. The Organization provides good work culture and also adopted some modern technologies and it has better growth opportunities. The products have in-fact, gained a wide acceptance from the customers and also good response from the potential market of other countries has continued. It is continuously striving to meet the needs of the customer by regularly introducing new products, and new features to the existing products. By Findings and Suggestions it reveals that the company has having good Inventory Management. It has fully computerized inventory documents so it is more efficient and effective tool. The organization manufactures and sale of a range of products in the healthcare field. This has sustained growth and future prospects in near future endeavors.

Keywords: Inventory, Product, Inventory management, Healthcare

1

Introduction:

Since its foundation in 1886, Johnson & Johnson has operated according to its belief in a shared responsibility to its customers, employees, stockholders, and the communities it serves. The organization constantly strives to deliver the highest quality products and fulfill customer orders promptly, while reducing costs in order to maintain reasonable prices and support its suppliers' ability to make a fair profit. This determination to support the various members of its community motivated Johnson & Johnson to pursue an enhanced customer experience.

In order to excel in an extremely competitive market, Johnson & Johnson recognized that it needed to satisfy customer demand quickly and deliver a best-in-class customer experience without exceeding its inventory targets. The organization looked to transform its demand planning function so that it could predict the needs of its customers faster, improve its forecast accuracy, and optimize its external manufacturing operations to maintain the correct level of stock availability. This transformation intended to improve Johnson & Johnson's forecast accuracy and Unit Fill Rate (UFR), which measures how many orders are filled via the available inventory.

The paper was taken to understand the impact of Inventory management and its analysis at Johnson and Johnson. Inventory management and its effective mechanism leads to profitability of business. In today modern day era, it is one of the toughest challenges for any business to identify how much inventory to be kept i.e. high, medium or low. The paper tries to identify the position of inventory of JOHNSON & JOHNSON.

Due to inventory buildup, Johnson and Johnson's inventory turnover ratio sequentially decreased to 3.01 in the third quarter 2020 below company average. Johnson and Johnson's Average inventory processing period in the Sep 27 2020 quarter, has increased to 121 days, from 120 days, in the Jun 28 2020 quarter.

Within Healthcare sector 134 other companies have achieved higher inventory turnover ratio. While Inventory turnover ratio total ranking has improved so far to 1171, from total ranking in previous quarter at 1355. Excessive stock increases inventory management costs & inadequate inventory leads to losses in business. Hence, inventory management is a critical success factor for many enterprises.

PACT inventory module helps organizations reduce all unnecessary costs related to inventory by stocking optimum levels of inventory. With real-time information & accurate forecasts, PACT guarantees uninterrupted supply of inventory for trading and also for production.

To achieve these objectives, Johnson & Johnson opted for a dual-pronged approach:

•   Improve demand planning accuracy – expanding on its existing statistical forecast models, introducing exception-based forecasting; enhancing the quality of master data, and increasing market collaboration across all EMEA markets would enable Johnson & Johnson to deliver a more accurate view of customer needs. This would also promote more effective utilization of time through exception-based planning driven by strong process rigor and forecast value add and exception-based planning.

- Enhance demand planning and external manufacturing planning management – introducing standardized operations in line with industry-proven best practices would empower Johnson & Johnson to enable enhanced processes and reduce loss of knowledge due to turnover.

Objectives of The Study:

- To understand the inventory management technique adopted by JOHNSON & JOHNSON.

- To understand different concepts related to Inventory Management.

Research Methodology:

It is a technique or a process used to collect the required data for research on the company. The tools used for collection of data for this project work are:

1. Secondary data: In this method of data collection, the investigator does not collect data directly from the field. They are the data which he borrows from others who have collected them for some other purpose.

- Company stores records

- Websites

- Materials provided by the company

Introduction to Inventory Management

Meaning of Inventory

Inventory is a list for goods and materials, or those goods and materials themselves, held available in stock by a business. It is also used for a list of the contents of a household and for a list for testamentary purpose of the possessions of someone who has died. In accounting inventory is considered an asset.

Nature of Inventory

Inventories are stock of the product a company is manufacturing for sale and components that make up the product.

1. Stock of manufacturing product and the material that make up the project.

2.   Raw material is those basic input that are converted into finished produced through the manufacturing process. Raw materials inventories exit are those unit which have been purchased and stored for further production.

3.   Work in process inventories are semi manufactured product, they represent product that need more work before finished product sale.

4.   Finished goods inventories are those completely manufacturing products which are ready for sale. Stock of raw materials and work in process facilitate production, while stock of finished goods is required for smooth marketing operation. Thus, inventories serve as alike between the production and consumption of goods.

5.   Stores and spares firm also maintain a fourth kind of inventory, supplier or stores and spares. Supplies include office and plant cleaning materials like soap, broom, oil, fuel, light, bulbs etc these production processes.

Types of Inventories

Inventories play a major role in a business or depending on nature of the businesses. The inventories may be classified as under.

(I)   Raw Materials
Materials and components scheduled for use in making a product. These are the basic inputs, which are converted into finished products through manufacturing process. Raw material inventories are those units, which have been purchased and stored for future production

(II)   Work in process / Progress
Materials and components that have begun their transformation to finished goods. Materials issued to the stop floor, which have not yet become finished products they are value added materials to the extent of labor cost incurred.

(III)   Finished Goods

A finished goods is a completed part that is ready for a customer order.

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. From this point, finished goods can be sold directly to their final user, sold to retailers, sold to wholesalers, sent to distribution centers, or held in anticipation of a customer order.

Need for Inventory

    Transaction motive:

Every firm has to maintain some level of inventory to meet the day-to-day requirement of sales, production process, customer demand etc. In the finished goods as well as raw material are kept as inventories for smooth production process of the firm.

    Precautionary motive:

A firm should keep some inventory for unforeseen circumstances also like loss due to natural calamities in a particular area, strikes, lay outs etc so the firm must have some finished goods as well as raw-materials to meet circumstances.

    Speculative motive:

The firm may be made to keep some inventory in order to capitalize an opportunity to make profit due to price fluctuations

Basic Reasons to Keeping An Inventory:

There are three basic reasons for keeping an inventory:

1.   TIME: The time lags present in the supply chain, from supplier to user at every stage, requires that you maintain certain amount of inventory to use in this "lead time".

2.   UNCERTAINTY: Inventories are maintained as buffers to meet uncertainties in demand, supply and movement of goods.

3.   ECONOMIES OF SCALE: Ideal condition of "one unit at a time at a place where user needs it, when he needs it "principle tends to incur lots of costs in terms of logistics. So bulk buying, movement and storing brings.

Objectives Of Inventory:

The main aim objectives of inventory management are operational and financial. The operational objectives mean that the materials and spares should be available in sufficient quantity so that work is not disrupted for want of inventory. The financial objective means that investments in inventories should be remain idle and minimum working capital should be locked in it.

The following are the objectives of inventory management

1.   To ensure continuous supply of materials spares and finished goods so that production should no supper at any time and the customer demand should also be met.

2.   To avoid both over and under stocking of inventory.

3.   To maintain investment in inventories at the optimum level as required by the operational and sales activities.

4.   To keep material cost under control so that they contribute in reducing the cost of production and overall costs.

5.   To eliminate duplication in ordering stocks. This is possible with the help of centralizing purchases.

6.   To minimize losses by deterioration, pilferage, wastages and damages.

7.   To design proper organization for inventory management. Clear cut accountability should be fixed at various levels of the organization.

8.   To ensure perpetual inventory control so that materials shown in stock ledgers should be actually lying in the stores.

9.   To ensure right quality goods at reasonable prices. Suitable quality standards will ensure proper quality of stocks. The price analysis will ensure payment of proper prices.

10.   To facilitate furnishing of data for short term and long term planning and control of inventory

IMPORTANCE OF INVENTORY MANAGEMENT

1.   Counting Current Stock:-

All business must know what they have on hand and evaluate stock levels with respect to current and forecasted demands.

2.   Keeping accurate records:-

Any time arrive at or leave a warehouse, accurate paper work should be kept, itemizing the goods. When inventory arrives, this is when you will find breakage or loss on the goods you ordered. Inventory leaving your warehouse must be counted to prevent loss between the warehouse and the point of sale. Even samples should be recorded, making the salesperson responsible for the goods until they are returned to the storage facility. Records should be processed quickly, at least in the same day that the withdrawal of stock occurred

3.   Managing Employees:-

Buyers are the employees who make stock purchases for your company. Reward system should be set in place that encourage high levels of customer service and return on investment for the product lines the buyer managers.

Warehouse employees should be educated on the costs of improper inventory management. Be sure they understand that the lower you're your profit margin, the more sales must be generated to make up for lost goods. Incentives programs can help employees keep this in perspective. When they see a difference in their paychecks from poor inventory management, they are more likely to take precautions to prevent shrinkage.

Each stock item in your warehouse or back room should have its own procedure for replenishing the supply, find the best suppliers and storage location for each the record this information in official procedure that can easily be accessed by your employees.

Inventory management should be a part of your overall strategic business plan. As the business climate evolves toward a green economy, businesses are looking for ways to leverage this trend as part of the "big picture". This can mean re-evaluating supply chain and choosing products that are environmentally sound. it can also mean putting in place recycling procedures.

TECHNIQUES OF INVENTORY MANAGEMENT:

1.   Determination of stock levels:

Carrying of too much and too little of inventories is detrimental to the firm. If the inventory level is too little will face frequent stock outs involving heavy ordering cost and if the inventories level is too high it will be unnecessary tie-up of capital. Therefore, an efficient inventory management that a firm should maintain an optimum level of inventory where costs are the minimum and at the same time there is no stock - out which may results in loss of sale or stoppage of production. Various stock levels are discussed as such.

a)   Minimum Level

This represents the minimum quantity of the material must be maintained in hand at all times. The quantity is fixed so that production may not be held up due shortage of the material. In fixing this level, the following factors are taken into consideration.

Lead Time:

A purchasing firm requires some time to process the order and time is also required by the supplying firm to execute the order. The time taken in processing the order and then executing it is known as lead time. It is essential to maintain some inventory during this period.

Rate of consumption:

It is the average consumption of materials in the factory.

The rate of consumption will be decided on the basis of past experience and production plans.

Nature of materials:

The nature of material is also affects the minimum level. If a material is required only against special orders of the customer then minimum stock will not be required for such materials. Minimum stock level can be calculated with the help of following formula.

b)   Re-order level

It is the point at which if stock of a particular material stores approaches, the storekeeper should initiate the purchase requisition for fresh suppliers of that material this level is fixed somewhere between the maximum and minimum levels is such a way that the difference of quantity of the material between the re-ordering level and the minimum level will be sufficient to meet the requirements of production up to the time the fresh supply of the material is received. Re-ordering level is fixed with the help of following formula

Re-order Level = Maximum consumption * Maximum Reorder period.

c)   Maximum level:

It represents the maximum quantity of an item of material which can be held in stock at any time. Stock should not exceed this quantity. The quantity is fixed so that there may be no overstocking.

Maximum stock level = Re-ordering level + Re-ordering Quantity - (Minimum Consumption * Minimum Reordering period)

Maximum stock level is fixed by taking into account the following factor.

1.   Amount of capital available for maintaining factors.

2.   God own space available.

3.   Maximum requirement of the stores for production purposes at any point of time.

4.   Rate of consumption of the material during the lead time.

5.   The time lag between indenting and receiving of the material.

6.   Possibility of loss in stores by deterioration, etc. There are certain stores which deterioration in quality if they are stored over a long period.

7.   Cost of maintaining stores.

8.   Likely fluctuation in prices. For instance, if there is the possibility of a substantial increase in the coming period, a comparatively large maximum stock level will be fixed. On the other hand, if there is the possibility of decrease in prices in the near future, stocks are kept at a much reduced level. The seasonal nature of supply of material. Certain materials are available only during specific periods of the year, so these have to be stocked heavily during these periods.

9.   Restriction imposed by the government or local authority in regard to materials in which there are inherent risks e.g. fire and explosion.

10.   Possibility of change in fashion and habit which will necessitate change in requirements of materials.

d)   Danger Level:

This means a level at which normal issues of the material are stopped and issues are made only under specific instructions The purchase officer will make special arrangements to get the materials which reach at their danger levels so that the production may not stop due to shortage of materials. Danger level is determined with the following formula

Danger Level = Average Consumption * Maximum re-order period for emergency purchase

e)   Average stock level:

The average stock level is determined by the following formula, Average stock level = Minimum stock level + 1/2 of order quantity.

2.   Determination of safety stock level:

Safety stock is a buffer to meet some unanticipated increase in the usage. The usage of inventory can't be perfectly forecasted. It fluctuates over a period of time. The demand for materials may fluctuate and delivery of inventory may also be delayed and in such a situation the firm can face a problem of stock-out. The stock-out can prove costly by affecting the smooth working of company.

In order to protect against the stock-out arising out of usage fluctuations, firms usually maintain some margin of safety stocks. The basic problem is to determine the level of quantity of safety stocks. Two stocks are involved in the determination of this stock i.e.

opportunity cost of stock-outs and the carrying costs. The stock outs of raw materials cause production disruption resulting into higher cost of production. Similarly, the stock-outs of finished goods results into the failure of the firm in the competition, as the firm cannot provide proper customer services. If the firm maintains low level of safety frequent stockouts will occur resulting into the larger opportunity costs. On the other hand the larger quantities of safety stocks involve higher carrying costs.

3.   Ordering systems of inventory:

The basic problem of inventory is to decide the re-order point. Indicates when an order should be placed. The re-order point is determined with the help of these things.

a)   Average consumption rate.

b)   Duration of lead time.

c)   Economic order quantity.

When the inventory is depleted to lead time consumption, if order should be placed. There are three prevalent systems of ordering and a concern can choose any of these;

I.   Fixed order quantity system generally known an economic order quantity (EOQ) System.

II.   Fixed period order system, orders periodic reordering system or periodic review system.

III.   Single order and scheduled part delivery system.

4.   Economic order quantity (EOQ):

A decision about how much to order has great significant in inventory management. The quantity to be purchased should neither be small nor big because costs of buying and carrying materials are very high. Economic Order Quantity is the size of the lot to be purchased which is economically viable. This is the quantity of materials, which can be purchased at minimum cost. Generally, economic order quantity is the point at which inventory-carrying cost is equal to order cost. In determining EOQ, it is assumed that the cost managing inventory is made up solely of two parts,

-      Ordering cost, and

-      Carrying cost.

a)   Ordering cost:-

It is the cost of placing orders for the purchase of materials and includes:

1.   Cost of staff posted in the purchasing department, inspection section and payment department.

2.   Expense incurred on the transaction of goods purchased.

3.   Inspection of cost incoming materials.

4.   Cost of stationary, typing, postage, telephone charges, etc.

These costs are also known as buying cost and will arise only when the goods are purchased. When materials are manufactured in the concern then these costs will be known as set-up costs. These costs will include costs of setting up machinery for manufacturing materials, time taken up in setting, cost of tools, etc. The ordering costs are totaled up for the year and then divided by the number of orders placed each year. The planning commission on India has estimated these costs between Rs.10 to Rs.20 per order

b)   Carrying cost:

It is the cost of holding the materials in the store and includes :

1.   Cost of storage space which could have been utilized for some other purpose.

2.   Cost of bins and racks that have to be provided for the storage of materials.

3.   Cost of maintaining the materials to avoid deterioration.

4.   Amount of interest payable on the money locked up in the materials.

5.   Cost of spoilage in stores and handling.

6.   Transaction costs in relation to stock.

7.   Cost of obsolescence on account of some of the materials becoming obsolete after some time of storage either due to change in the process or product.

8.   Insurance cost.

9.   Clerical cost etc.

All these costs taken together, in India, amount to somewhere near about 20-25 percent of the cost of material per year. The ordering and carrying cost have a reverse relation the ordering cost goes up with the increase in number of orders placed. On the hand, carrying cost go down per unit with the increase in number of unit's purchased and stored. The ordering and carrying cost of materials being high, an effort should be made to minimize these costs. The quantity to be ordered should be large so that the economy may be made in transport cost and discounts may by earned. On the other hand, storing facilities, capital to be locked up, insurance cost also be taken into the account.

Assumption of EOQ:

2.   There are dynamic conditions of the supply which enable a firm to place as many orders as it needs.

3.   Prices of the item remain stable which keep carrying cost constant.

4.   The quantity of the item to be consumed during a particular period is totally known i.e. quantity to be consumed is certain.

When above mentioned conditions are satisfied, EOQ can be calculated with the help of following formula:

EOQ = 2CO I

Where; Q = Quantity to be ordered

C = Consumption of the material concerned in units during a year.

O = Cost of placing one order including the cost of receiving the goods i.e. costs of getting an item into the firm's inventory.

I = Interest payment including variable cost storing per unit per year i.e. holding costs of inventory.

JIT-Just In Time Inventory Control:-

The just in time inventory control system, originally developed by Taichi Okno of Japan, simply implies that the firm should maintain a minimal level of inventory and rely on suppliers to provide parts and components "Just In Time" to meet its assembly requirements. This may be contrasted with the traditional inventory management system which calls for maintaining a healthy level of safety stock to provide a reasonable protection against uncertainties of consumption and supply the tradition system may be referred to as a "Just In Case" under the "Just In Time" inventory system a concerted effort is made to lower ordering cost and also the safety stock by forging stronger long term relationship with the supplier.

5.   ABC (ALWAYS BETTER CONTROL) ANALYSIS:-

This technique is popularly known as —Always Better Control" has universal application in many areas. This method analysis the inventory item from its money value point to determine priority. In material management it has been used in areas which need selective control like inventory, purchase order, inspection etc. The ABC system is widely used classification technique to identify various items of inventory for purpose of inventory management.

Components of ABC Analysis:

In ABC Analysis all the items of inventory are divided into three components:

"A"-Items:- It is usually found that hardly 5-10% of the total items account for 70-75% of the total items account for 70-75% of the total money spent on materials. These items require detailed and rigid control and need to be stocked in smaller quantities. These items should be produce frequently, the quantity per occasion being small.

"B" Items:- Those are the intermediary items, which do not require a detailed and close control as items, but they do need more attention and control than

"C" items. These items usually represent 10% to 20% of the total quantity of the expenditures on materials. Generally they are as curtained on the residual basis i.e. first 'A' and 'C' items are scanned and the residual forms the B-items. "C"-Items:- These are numerous is expansive items. They generally represent 70% to 75% of the total quantity of the item involving only 5% to 10% of the total expenditure on materials. The control procedure for "C" items is exactly opposite to that of 'A' item. They are purchased in large quantities in order to secure quantity discount and to minims the number of order and the costs incidental to ordering. Though they are important items. There is neither risk of expenditure their replenishment or the shutting down of the operation due their stockiest outs. This usual mix of the items would be as under

6.   VED Analysis:

VED Analysis represents classification of item based on criticality. The analysis classifies the items into three groups called vital, essential and desirable. "Vital" category encompasses those items for want of which production would come to a halt. "Essential" group includes not cause any immediate loss of production. The stock-out of these items entail nominal expenditure and cause minor disruptions for a short duration. VED analysis is best suited for spare inventory. In fact, it is advantageous to use more than one method. E.g. ABC and VED analysis together would be helpful for inventory control of spares.

1.   Inventory turnover ratio:

It indicates the efficiency of inventory management inventory turnover directly affects the profitability of the firm. The higher the ratio indicates that the firm has performed well during the year and increased sales, with proportionately less investment in inventory.
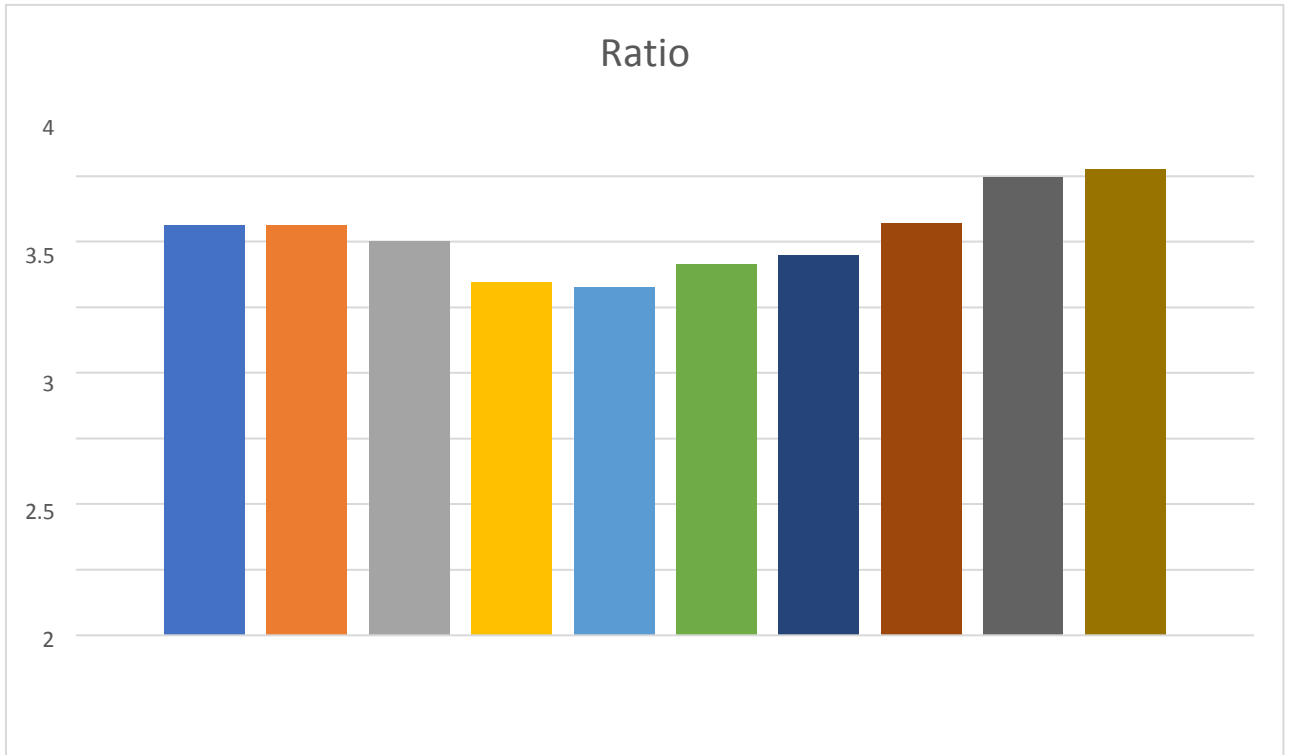
Inventory Turnover ratio: Cost of goods sold

_____

Average inventory

Cost of goods sold = sales-gross profit

Average inventory = opening stock +closing stock

2

Years	Cost of goods sold	Average Inventory	Ratio
2019	27,556	8809.5	3.12
2018	27,091	8682	3.12
2017	25,439	8454.5	3.00
2016	21,789	8098.5	2.69
2015	21,536	8118.5	2.65
2014	22,746	8031	2.83
2013	22,342	7686.5	2.90
2012	21,658	6890	3.14
2011	20,360	5831.5	3.49
2010	18,792	5279	3.55

## Ratio

Interpretation:

The above graph depicts that the Inventory Turnover ratio was very high in previous ten years and it has reduced to 2.65 in the year 2015, due to decrease in cost of goods sold and increase in average inventory.

Inventory conversion period:

$$\text{Inventory conversion period} = \frac{360}{\text{Inventory turnover ratio}}$$

| Year	Inventory Turnover Ratio	Day
2019	3.12	115
2018	3.12	115
2017	3.00	120
2016	2.69	133
2015	2.65	135
2014	2.83	127
2013	2.90	124
2012	3.14	114
2011	3.49	103
2010	3.55	101
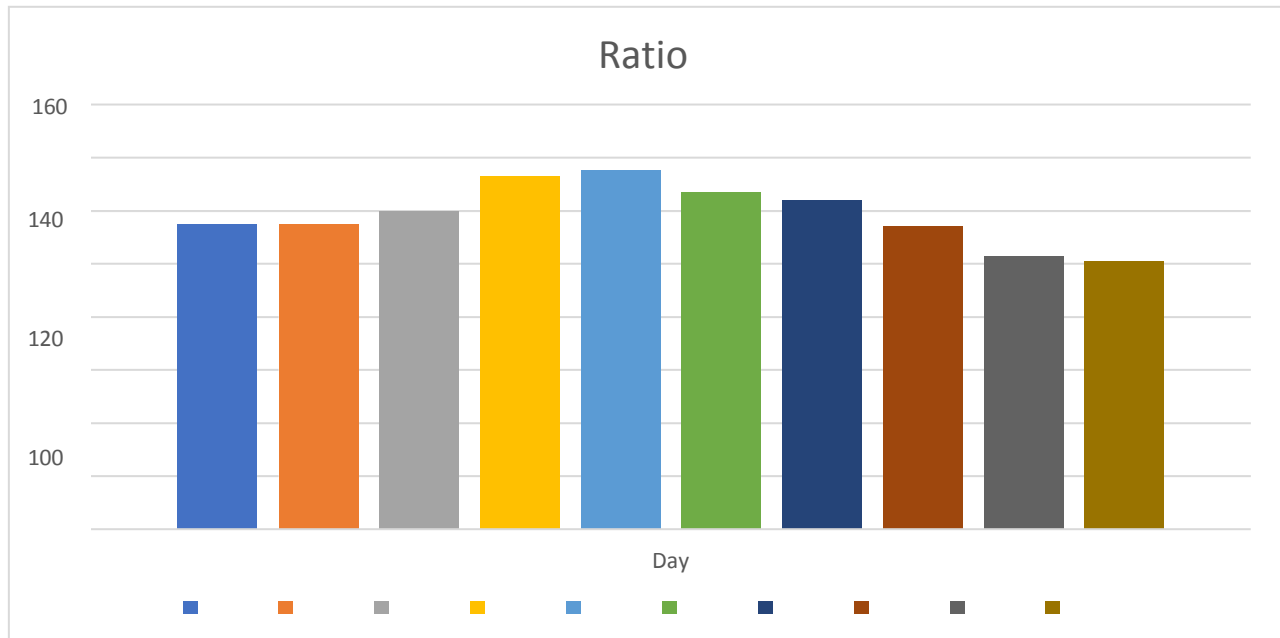
Interpretation:

The inventory conversion period constantly increased from 2010 to 2015 due to long holdings of inventory. It's been reducing since 2016, which reflects the focus of company to reduce the long holding period of inventory.

2. Raw Material Turnover Ratio

The raw material turnover ratio shows the efficiency of the management in turning raw materials into next process

Raw Material Turnover Ratio = Raw material consumed /Average raw material

| Year	Material Consumed	Average Material	Ratio
2019	7903	1115.5	7.08
2018	7485	1127	6.64
2017	7625	1046	7.28
2016	7192	944	7.61
2015	7117	1075	6.62
2014	6970	1219	5.71
2013	6654	1320	5.04
2012	6079	1311	4.63
2011	5079	1139.5	4.45
2010	4305	1108.5	3.88
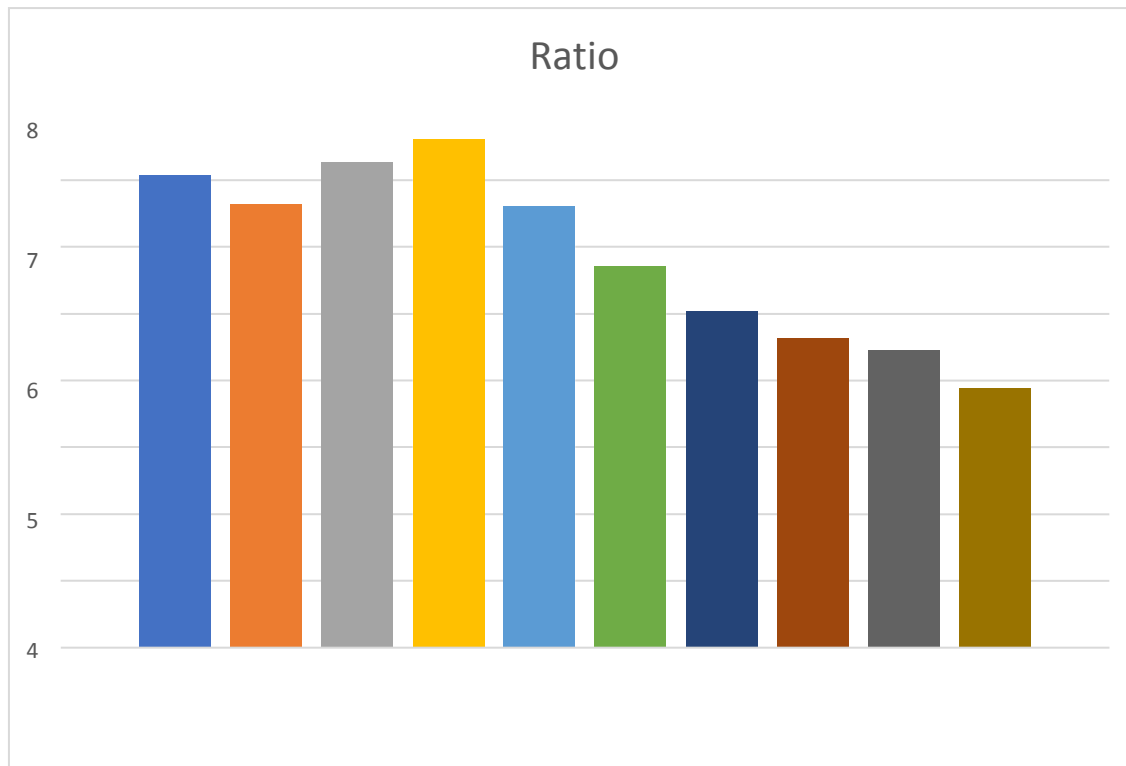
Interpretation:

If raw material ratio is high then company is efficiency converting finished goods. The raw material ratio is less in the year 2010-11. In the year 2016 & 2017 raw material ratio was high but in the year 2019, 2018 & 2015 it was slightly less. From this we can say that it goes under variations, which shows consistency in converting raw materials into finished goods. It is due to variations in the production.

3.   Inventory to current assets turnover ratio:

Inventory/ Current assets

| Year	Inventory	Current Assets	Ratio
2019	9020	45274	0.19
2018	8599	46033	0.18
2017	8765	43088	0.20
2016	8144	65032	0.12
2015	8053	60210	0.13
2014	8184	55744	0.14
2013	7878	56407	0.13
2012	7495	46116	0.16
2011	6285	54316	0.11
2010	5378	47307	0.11
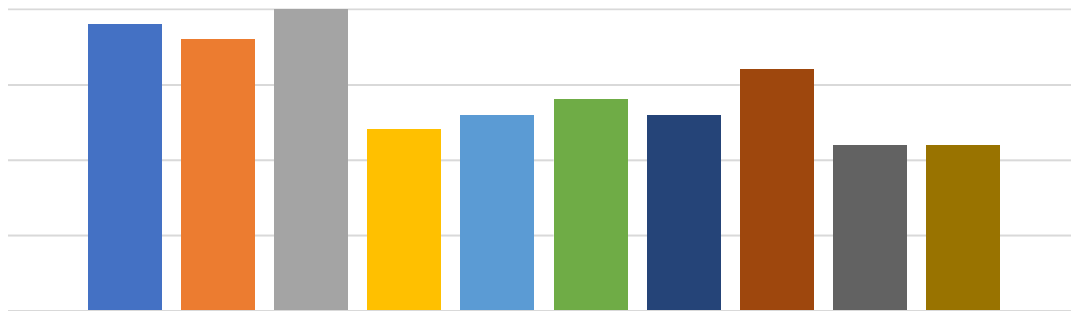
Interpretation:

This ratio indicates the efficiency of the company in utilizing the current assets. Here inventory comes as current asset. Utilizing of current asset (which included inventory) is very important for the better management of inventories. Due to increase in the year 2017 was at

0.20 as compared to previous years. From this we can ascertain that the firm is fairly utilizing its resources.

4.   Inventory to total assets turnover ratio:

Inventory / Total assets

| Year	Inventory	Total Assets	Ratio
2019	9020	157728	0.057
2018	8599	152954	0.056
2017	8765	157303	0.055
2016	8144	141208	0.057
2015	8053	133411	0.060
2014	8184	130358	0.062
2013	7878	132683	0.059
2012	7495	121347	0.061
2011	6285	113644	0.055
2010	5378	102908	0.052
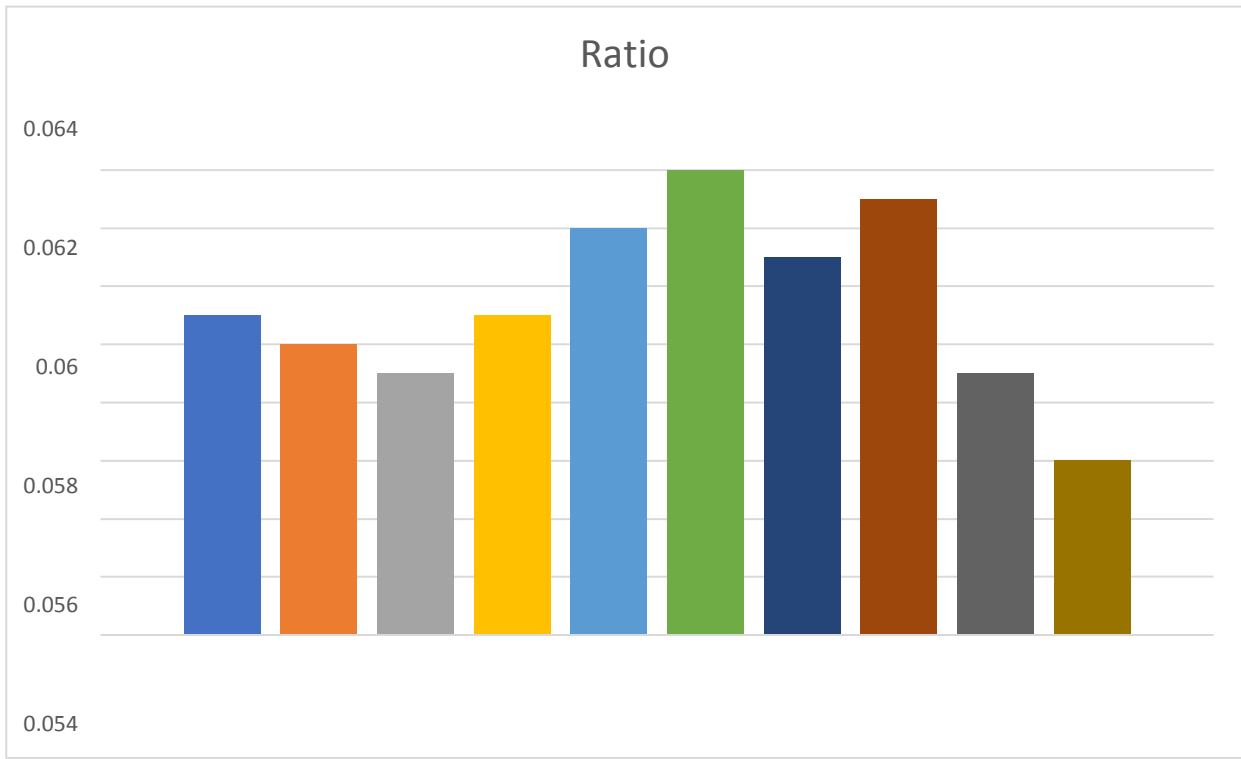
Ratio

Interpretation:

As per above table the inventory to total assets ratio has increased from 0.062 in 2014 to 0.061 in 2012, it reflects the portion the inventory as a percentage of the total assets, which helps the management deciding the utilization remaining resources profitably, since the inventory will lock up the huge funds and reduces the profitability of the organization

5.   Inventory to working capital ratio:

Inventory / working capital

Working capital = Current assets – Current liability

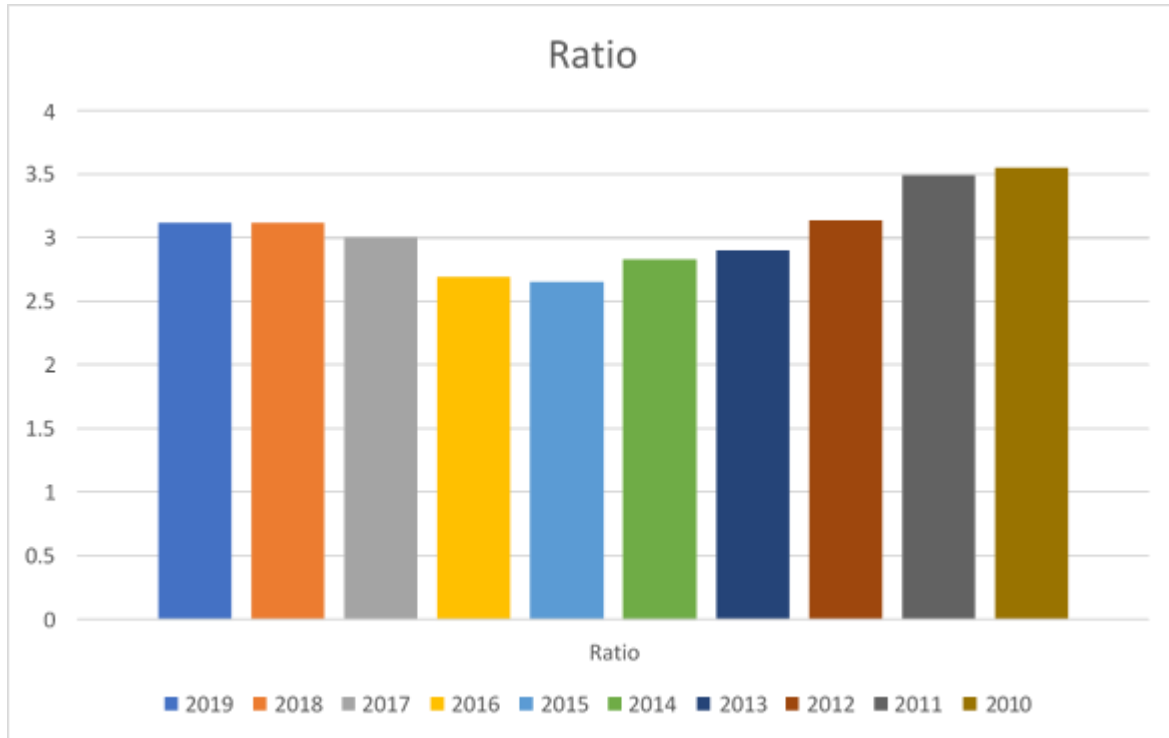| Year	Inventory	Working Capital	Ratio
2019	9020	9310	0.96
2018	8599	14803	0.58
2017	8765	12551	0.69
2016	8144	38745	0.21
2015	8053	32463	0.24
2014	8184	30713	0.26
2013	7878	30732	0.25
2012	7495	21854	0.34
2011	6285	31505	0.19
2010	5378	24235	0.22
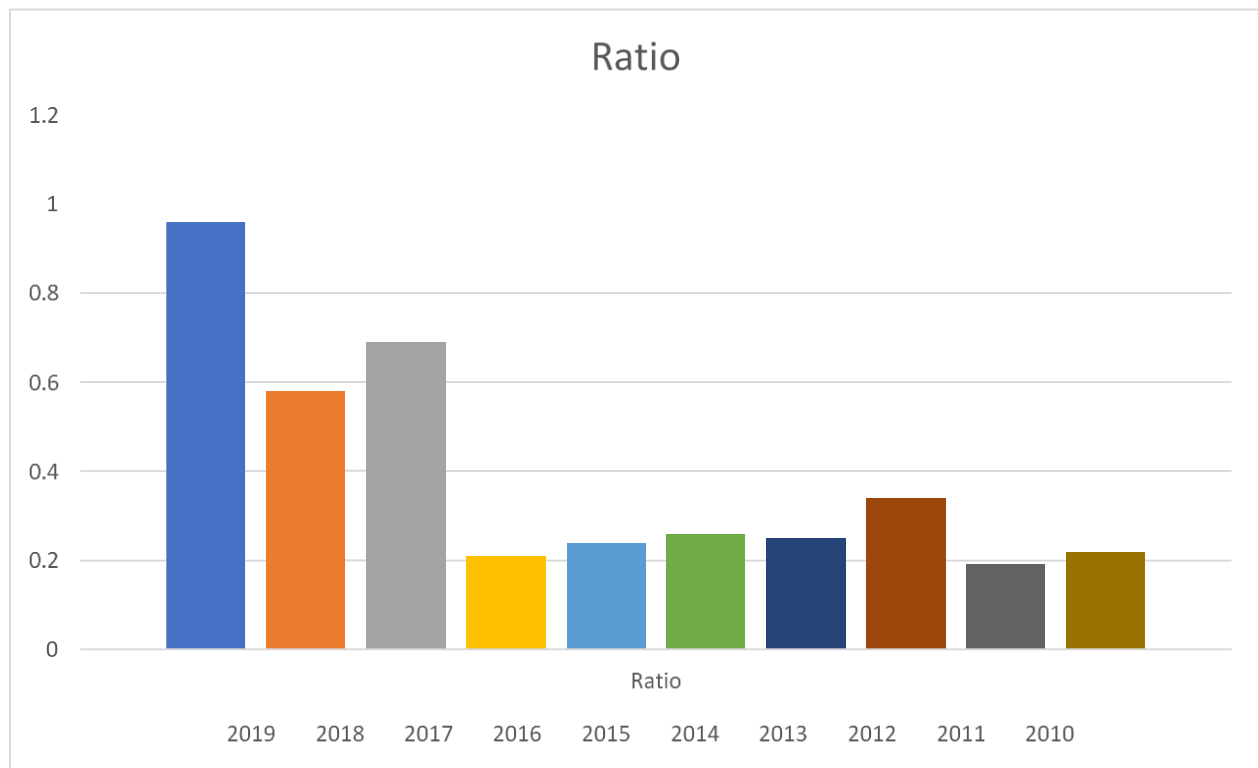
Interpretation:

As per the table, the ratio has decreased from 0.96 in 2019 to 0.69 in 2017. It indicates that firm investing huge amount in inventory. The amount to inventory tied up in the working capital and it also shows the efficiency of inventory management.

6.   Work-In-Progress Turnover Ratio

Work-In-Progress Turnover Ratio = Cost of production /Average inventory

Year	Cost of production	Average inventory	Ratio
2019	27,556	8809.5	3.12
2018	27,091	8682	3.12
2017	25,439	8454.5	3.00
2016	21,789	8098.5	2.69
2015	21,536	8118.5	2.65
2014	22,746	8031	2.83
2013	22,342	7686.5	2.90
2012	21,658	6890	3.14
2011	20,360	5831.5	3.49
2010	18,792	5279	3.55

Interpretation:

The work –in-progress ratio in the year 2010 was 3.55 and in the 2019 it has been decreased to 3.12 again in between years it is slightly decreased & increase in the year 2019 to 2010. In further year it was increased from 2.69 to 3.12. This shows that company is showing good performance.

### Inventory Conversion Period (ICP):

The time taken to convert the inventory into revenue. To calculate this we have to find the sum of, Raw Material Conversion Period (RMCP), Finished Goods Inventory conversion period (FGCP), Work in Process Inventory conversion period (WIPCP) by this calculation we can measure the efficiency of company to convert the raw material to further stage. I.e. raw material consumed for production.

a.   Raw Material Conversion Period (RMCP)

$$RMCP = \frac{Raw\ Material\ Inventory * 360}{Raw\ Material\ Consumed}$$

| Year	Days
2019	50
2018	53
2017	53
2016	47
2015	47
2014	62
2013	66
2012	83
2011	85
2010	89

25
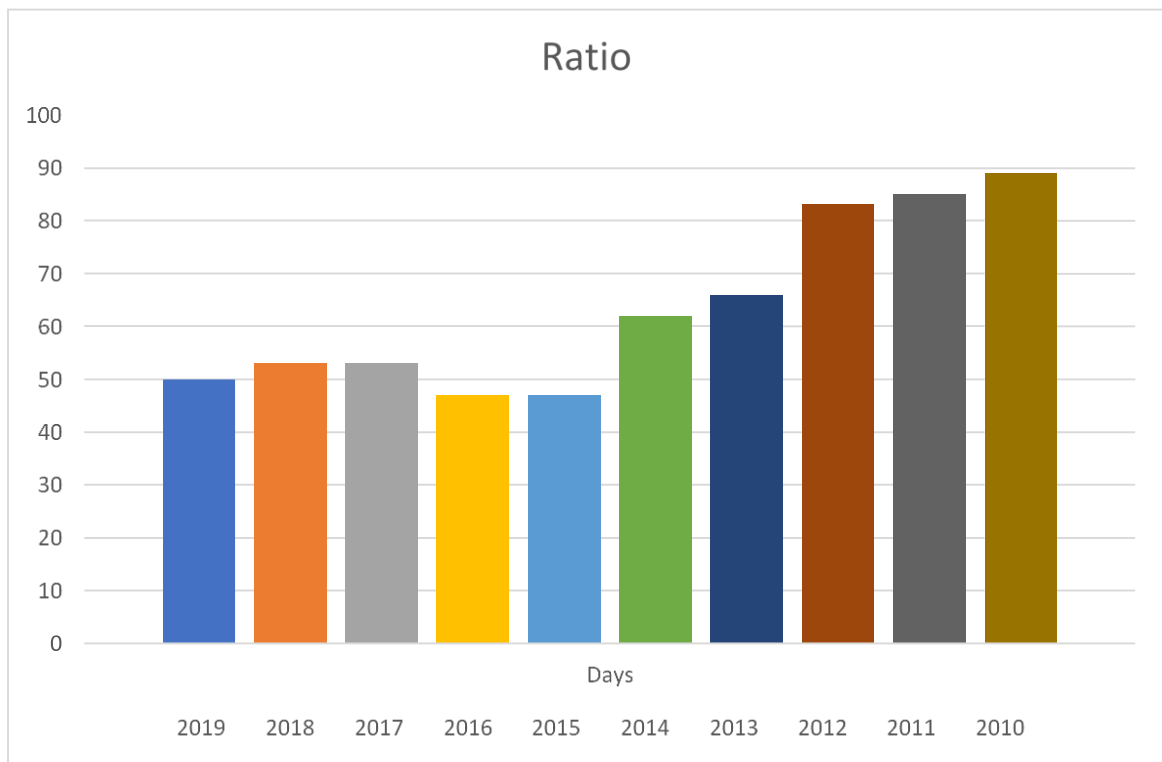
Interpretation:

The conversion time taken for raw material is 89 days in 2010 which is very high and it has decreased more in the next years 2014 and 2015 to 47 days and in 2018 it has increased to 53 days which shows that the stock of raw material is very high and therefore the investment is too high.

b.   Finished Goods Inventory conversion period (FGCP)

From this calculation we can find out the efficiency of converting the finished goods to sales. The faster conversion indicates good management by department.

$$FGCP = \frac{\text{Finished goods Inventory x 360}}{\text{Cost of Goods Sold}}$$

| Year	Days
2019	79
2018	71
2017	75
2016	82
2015	81
2014	71
2013	65
2012	63
2011	60
2010	54
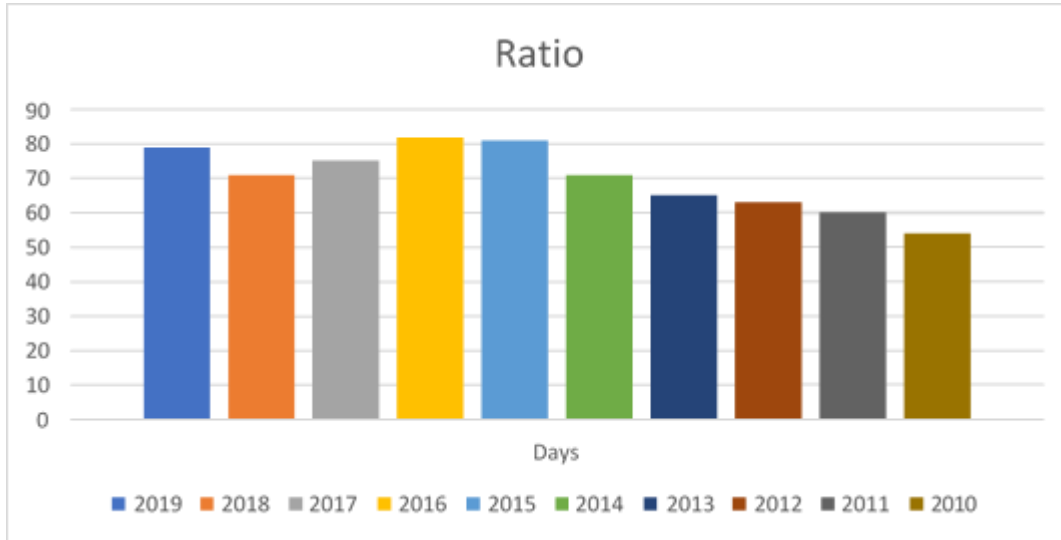
Interpretation:

Finished goods conversion for 2010 was 54 days which improved to 3 years after 2013 and in the year 2016 it increased to 82 days respectively, which shows the company has to make a lot of efforts to improve its performance.

c.   Work in Process Inventory conversion period:

By this we can ascertain the efficiency of the company in conversion of its work in process goods to finished goods. Higher period indicates longer time taken for production process.

WIPCP = $\dfrac{\text{WIP Inventory x 360}}{\text{Cost of Production}}$

Year	Days
2019	23
2018	28
2017	32
2016	36
2015	37
2014	38
2013	42
2012	37
2011	28
2010	27

Ratio
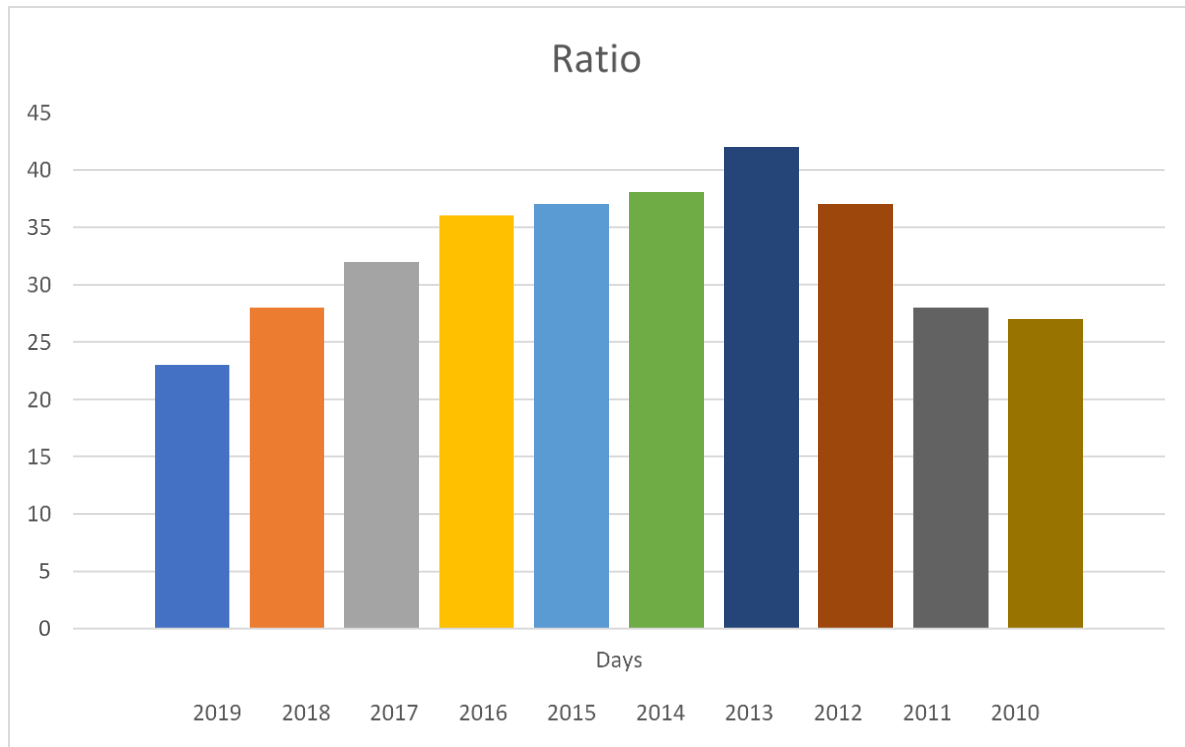
Interpretation:

WIP conversion period was 42 days during 2013 which has much decreased in 2019 to 23 days. As the company outsource its some of the job to contractors for saving cost and quality work the time taken for the production process has decreased.

FINDINGS:

⬚ The graph-1 depicts that the inventory turnover ratio of the firm is being increasing trend which is good for the company. In the year 2010 the ratio is increased to 3.55.

⬚ The inventory conversion period has increased from 127 days in 2014 to 135 days in 2015, by this analysis it is found that due to holding the inventory in large that contributes towards a very higher conversion period.

⬚ The inventory to current assets turnover ratio indicates the efficiency of the company in utilizing the current assets here inventory comes as current asset. It increased in the year 2017 at 0.20 as compared to previous years. From this we can ascertain that the firm is fairly utilizing its resources.

☐ The work –in-progress ratio in the year 2010 was 3.55, in the 2019 it has been decreased to 3.12, in further year it was increased from 2.69 to 3.12. The above graph shows that company is showing good performance.

☐ Finished goods conversion for 2016 was 82 days which improved to 75 days in the year 2017 and in the year 2019 it increased to 79 days respectively, which shows the company has to make a lot of efforts to improve its performance.

☐ WIP conversion period was 42 days during 2013 which has much decreased in 2019 to 23 days. As the company outsource its some of the job to contractors for saving cost and quality work the time taken for the production process has decreased.

☐ From the study of raw material conversion period we can observe that there is an improvement in efficiency of control and adequate supply of material.

Conclusion:

Inventory management is a vital function that helps and ensures the success of manufacturing companies. Successful implementation of inventory will improve the entire business significantly. JOHNSON & JOHNSON Limited enjoys a good stand in the global market and it has continued to adopt changes to face competition in the market. The production and supply procedures adopted at Johnson & Johnson are standard one.

The Organization provides good work culture and also adopted some modern technologies and it has better growth opportunities.

The products of the JOHNSON & JOHNSON, has in-fact, gained a wide acceptance from the customers and also good response from the potential market of other countries has continued. Johnson & Johnson is continuously striving to meet the needs of the customer by regularly introducing new products, and new features to the existing products. By Findings and Suggestions it reveals that the company has having good Inventory Management. It has fully computerized inventory documents so it is more efficient and effective tool. Thus, finally we conclude that JOHNSON & JOHNSON is manufacture and sale of a range of products in the healthcare field. This has sustained growth and future prospects in near future endeavors. It has efficient inventory management financial strategies implemented by the finance officers of the company.

References:

1) L. Ling, Supply chain management: concepts, techniques and practices enhancing the value through

Collaboration. NJ: World Scientific, 2007. 372 p.

2) M. Leseure, Key Concepts in Operations Management, 2010.

3)   D. Plinere, L. Aleksejeva, "Agent system application as a tool for inventory management improvement," in 8th Int. Conf. on Soft Computing, Computing with Words and Perceptions in System Analysis, Decision and Control, 3–4 Sep., 2015. Antalya, Turkey, pp. 157–166.

4)   D.S. Plinere, A.N. Borisov, L. Ya. Aleksejeva, "Interaction of Software Agents in the Problem of Coordinating Orders," Automatic Control and Computer Sciences, 2015, vol. 49, no. 5, pp. 268–276.

5)   http://dx.doi.org/10.3103/S0146411615050089

6)   D.C.U. Cadavid, C.C. Zuluaga, "A framework for decision support system in inventory management area,"

7)   Ninth LACCEI Latin American and Caribbean Conf., LACCEI'2011, Aug. 3–5, 2011, Medellin, Colombia.

8)   D. Dhoka, Y.L. Choudary "ABC Classification for Inventory Optimization," IOSR Journal of Business and Management, vol. 15, Issue 1, Nov. – Dec. 2013, pp. 38–41. http://dx.doi.org/10.9790/487X- 1513841

9)   Life cycle engineering [Online] Available: http://www.lce.com/pdf/ abcclassification.pdf [Accessed: Sept.25, 2015]

10)   ABC analysis (Inventory) By Joffrey Collignon, Joannes Vermorel, and Feb. 2012 [Online] Available:http://www.lokad.com/abc-analysis- (inventory)-definition [Accessed: Sept. 25, 2015]

11)   [ABC Inventory Analysis using Excel. Posted on October 1st, 2014. [Online] Available:http://chandoo.org/wp/2014/10/01/abc-inventory-analysis-using-excel [Accessed: Sept. 25, 2015]

12)   ABC analysis. [Online] Available: https://www.brookes.ac.uk/ Documents/Students/Upgrade/ABC analysis[Accessed: Sept. 25, 2015]

13)   J.J. Liu, Supply Chain Management and Transport Logistics. Routledge, 2012. 560 p. Demand Forecasting. [Online] Available: http://www.smetoolkit.org/Smetoolkit/en/content/en/416/Demand-forecasting [Accessed: Sept. 25, 2015]