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Inventory Management- With Reference To Duke Fashion India Limited, Ludhiana

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Abstract:

The inventory management is used in two ways- unit control and value control. Production and purchase officials use this word in term unit control whereas in accounting this word is used in term of value control. The cost of material used in production surpasses the wages and production overheads. Hence, the proper management and opportunity control of capital invested in the inventory should be the prime responsibility of accounting department because resources invested in inventory are not earning a return for the company. Established more than three decades ago "DUKE" today is a popular household name in India. Consistently providing the Indian consumers, their means of maximum satisfaction by giving them best quality products and services at affordable prices. Duke group of companies is leading the group. Duke is known as T-Shirts "King". It has left its impact not only in Indian market, but internationally too. In recent study of O.R.G. Duke is ranked as No.1 brand in T-Shirts. It was started by the name of Dee-Kay Knitwear around 44 years ago. Mr. Komal Kumar Jain along with Mr. Nirmal Jain and Mr. Anil Jain laid its foundation. Duke has its own dyeing, processing, mercerizing, knitting and stitching units with full infrastructure. The company has its offices in India, Dubai and Sri Lanka. Today it is a giant textile group with annual turnover about 365 crores. The objectives of the study is to find out the efficiency of Inventory management in Duke Fashion India Ltd, to have a practical experience of the functioning of the Finance Department of a Garments manufacturing company, to find out the difference between the theoretical and practical aspect of inventory management. At the end, we conclude that the Chi-Square Test by rejecting the null hypothesis reflects a relation between sales and inventory. In addition it supports the fact that the performance of inventory management is satisfactory. There had been significant differences between actual Inventory Turnover Ratio and trend Inventory Turnover ratio. At the same time there had been a significant difference between actual Inventory Holding Ratio and trend Inventory Holding Ratio.

1.Introduction

Inventory is the physical stock of goods maintained by an organization for its smooth running. In accounting language it may mean the stock of finished goods only. In a manufacturing concern, it may include raw materials, work-in-progress and stores etc. In the form of materials or supplies to be consumed in the production process or in the execution of services. In brief, Inventory is unconsumed or unsold goods purchased or manufactured.

2.Concept Of Inventory Management

The term inventory management is used in two ways- unit control and value control. Production and purchase officials use this word in term unit control whereas in accounting this word is used in term of value control. As investment in inventory represents in many cases, one of the largest asset items of business enterprises particularly those engaged in manufacturing, wholesale trade and retail trade. Sometimes the cost of material used in production surpasses the wages and production overheads. Hence, the proper management and opportunity control of capital invested in the inventory should be the prime responsibility of accounting department because resources invested in inventory are not earning a return for the company. Rather, on the other hand, they are costing the firm money both in terms of capital costs being incurred and loss of income that is being foregone.

3.Objectives Of Inventory Management

3.1.Operating Objectives

- Ensuring Availability of Materials:
- Avoidance of Abnormal Wastage:.
- Promotion of Manufacturing Efficiency:
- Avoidance of Out of Stock Danger:
- Better Service to Customers Designing poorer organization for inventory management:.

3.2.Financial Objectives

- Economy in purchasing
- Reasonable Price:.
- Optimal Investing and Efficient Use of capital:

4.Introduction To Company

The promoter Director of the Group Mr. KOMAL KUMAR JAIN made a humble beginning in the 1966. In course of time Mr. NIRMAL KUMAR JAIN & Mr. ANIL KUMAR JAIN younger brothers of Mr. KOMAL KUMAR JAIN also joined the business and the motto of the group has been to provide quality garments at competitive prices. The group has grown tremendously with the high growth rate during the last decade. In India our units located in Ludhiana (Punjab) which is only 375 kms. From Delhi (capital of India). Established more than three decades ago "DUKE" today is a popular household name in India. Consistently providing the Indian consumers, their means of maximum satisfaction by giving them best quality products and services at affordable prices. Duke group of companies is leading the group. Duke is known as T-Shirts "King". It has left its impact not only in Indian market, but internationally too. In recent study of O.R.G. Duke is ranked as No.1 brand in T-Shirts. It was started by the name of Dee-Kay Knitwear around 44 years ago. Mr. Komal Kumar Jain along with Mr. Nirmal Jain and Mr. Anil Jain laid its foundation. Duke has its own dyeing, processing, mercerizing, knitting and stitching units with full infrastructure. The company has its offices in India, Dubai and Sri Lanka. Today it is a giant textile group with annual turnover about 365 crores.

5.Objectives Of The Study

- To find out the efficiency of Inventory management in Duke Fashion India Ltd.
- To have a first-hand experience of the functioning of a Garments manufacturing company
- To have a practical experience of the functioning of the Finance Department of a Garments manufacturing company
- To study how inventory management practices play an important role in supporting other activities of an organization.
- To judge the success of the management in balancing the production with the demand.
- To gain an in-depth knowledge of the tricks of the faster conversion of inventories into cash in Duke Fashion India Ltd.
- To find out the difference between the theoretical and practical aspect of inventory management.
- To study and come out with any solution for improvement of inventory management in Duke Fashion India Ltd.

6.Research Methodology

Basically our study is usually based on a research, which gives a concrete answer to a problem. This research may be Problem Solving or Problem Oriented. Both types of research are usually known as Applied Research. Accounts are a form of Applied research which proceeds with a certain problem, specifies alternative solutions and the possible outcomes of each alternative. It may be further named as "Decisional Research". The Accounts Research methodology involves a number of interrelated activities, which overlap and do not rigidly follow a particular sequence. An Account research involves the following major steps.

7.Formulating Research Problem

The first step in research is formulating a research problem. It is the most important stage in Applied Research as it rightly said "A problem well defined is half solved". In this study we have studied the concept of Inventory Management have carried the analysis of the same in DUKE FASHION (INDIA) LIMITED.

8.Determining The Source Of Data

The next step is to determine the source of data to be used. The Accounting research may be based on primary or secondary data or on both. In this report we have used the information gathered through secondary data which include internal data source mainly the:

- Sale Reports
- Cash Report
- Raw Materials Report
- Production Report
- Annual Reports

- Inventory Report
- Financial Year Book

9. Analysis

Financial analysis

Analysis of inventory of duke fashion india ltd.

Following are the figures of inventory in duke fashion india ltd. For the last five years with effect from the financial year 2007 to 2011.

YEAR	2007	2008	2009	2010	2011
Inventory	6.74	8.12	8.98	12.92	28.74
Average Inventory	6.74	7.43	8.55	10.95	20.83

Table 1: Analysis Of Inventory Of Duke Fashion India Ltd. (Rs In Crores)

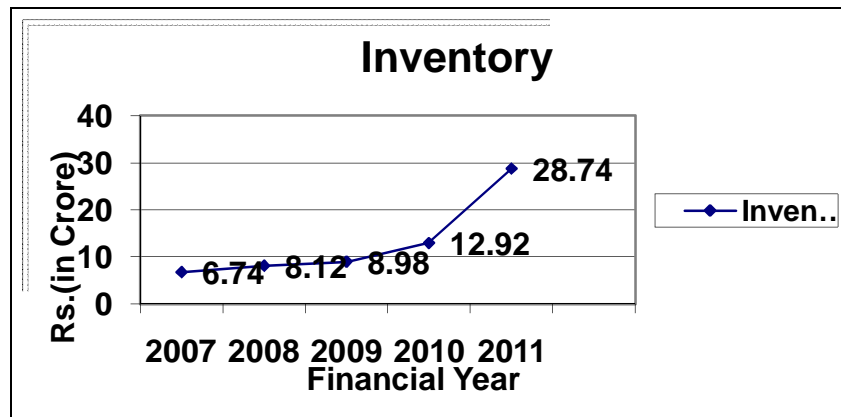


Figure 1: Inventory Turnover Ratio

YEAR	2007	2008	2009	2010	2011
Inventory Turnover Ratio (times)	7.19	9.22	9.242	10.11	7.06

Table 2: Inventory Turnover Ratio= Sales/Inventory

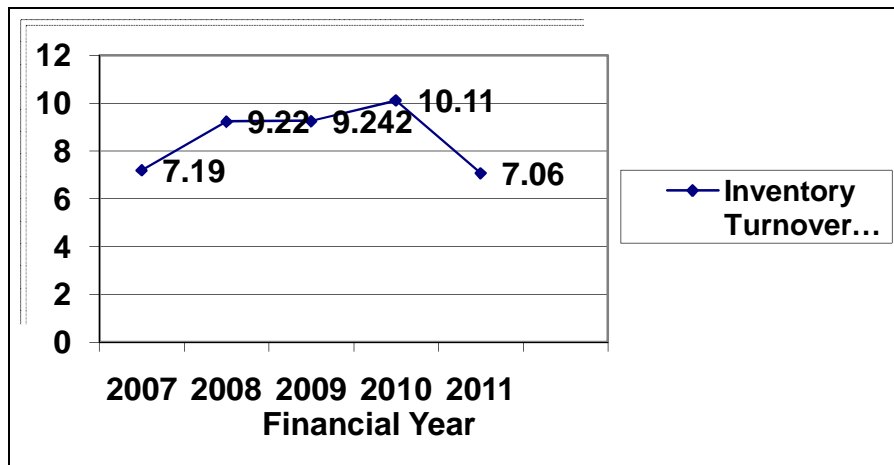


Figure 2

Interpretation:

According to the table and graph as shown above, it is observed that there is an increase in the Inventory Turnover ratio of 2008 as compared to 2007. In 2009 it slightly increases from 9.22 to 9.242. Then next year it will start rising but in the session 2010-2011 its fall down from 10.11 to 7.06. So the Inventory Turnover ratio of Duke Fashion India Limited is not satisfactory.

Inventory Holding Ratio

YEAR	2007	2008	2009	2010	2011
Inventory Holding Ratio (days)	50.76	39.59	39.49	36.10	51.70

Table 3: Inventory Holding Ratio (In Days) = 365/Inventory Turnover Ratio

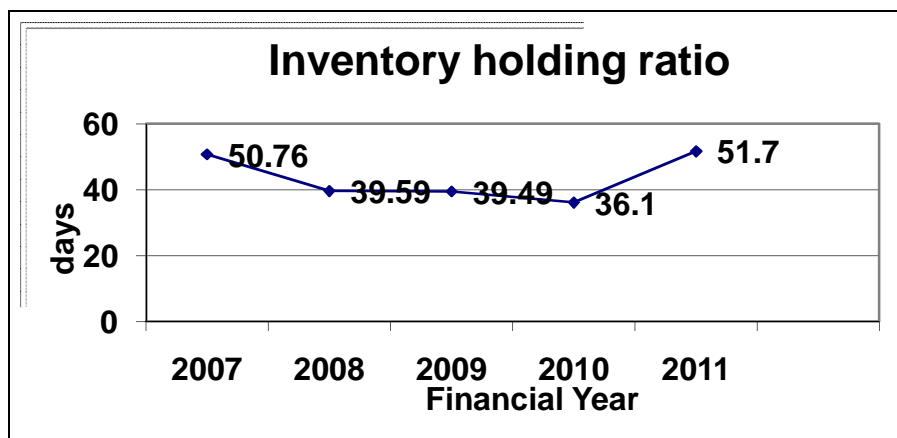


Figure 3

Interpretation:

The analysis of the above table shows that there has been an uneven trend in Inventory Holding Ratio. There has been a decreasing trend till 2007-08 after which it increased significantly in the following year 2008-09. Then it starts decreasing and it increased in recent year 2010-11. The company must focus on the reduction of carrying cost which will prove the effectiveness of a good system of inventory management. The management of the company needs to continue with the change the policy in the future and it should be as same as which it had followed in 2009-10.

YEAR	2007	2008	2009	2010	2011
SALES	48.50	68.47	82.99	110.65	147.15

Table 4: Trend Of Sales (In Cr.)

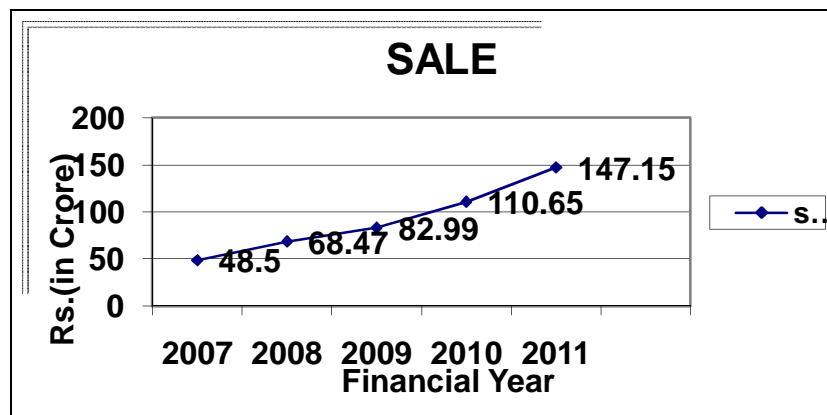


Figure 4

The Sale in all the year showing an increasing trend. The sale in all the year is satisfactory in Duke Fashion India Limited. It means the revenue of the company is in increasing trend.

YEAR	2007	2008	2009	2010	2011
DEBTORS	9.07	11.03	13.54	16.09	18.76

Table 5: Trend Of Debtors (In Cr.)

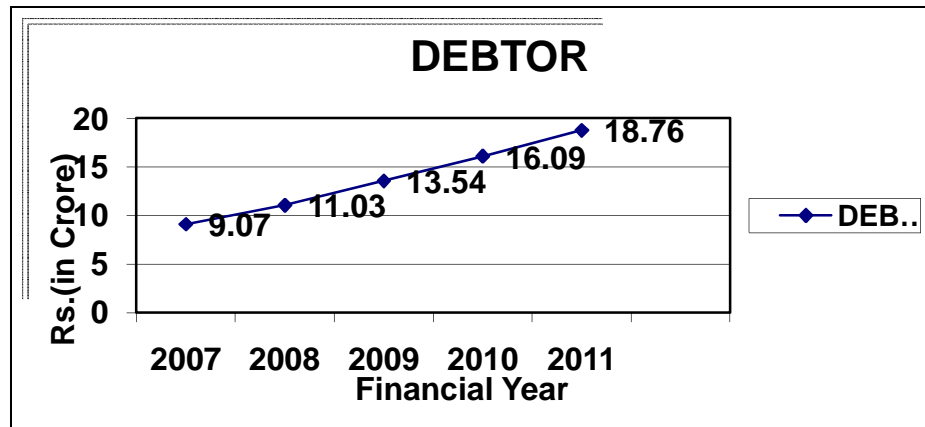


Figure 5

Interpretation:

There is an increasing trend in debtor which shows company using liberal credit policy and it may result in tying up substantial funds of the company in the form of trade debtors. The liquidity position of a concern to pay its short term obligations in time depends upon the quality of its trade debtors.

YEAR	2007	2008	2009	2010	2011
Average Debtor	9.07	10.05	12.29	14.82	17.43
Debtor Turnover Ratio	5.35	6.81	6.75	7.46	8.44

Table 6: Trend Of Debtor Turnover Ratio

Debtor's Turnover Ratio = Net Sale / Average Debtors (In Times)

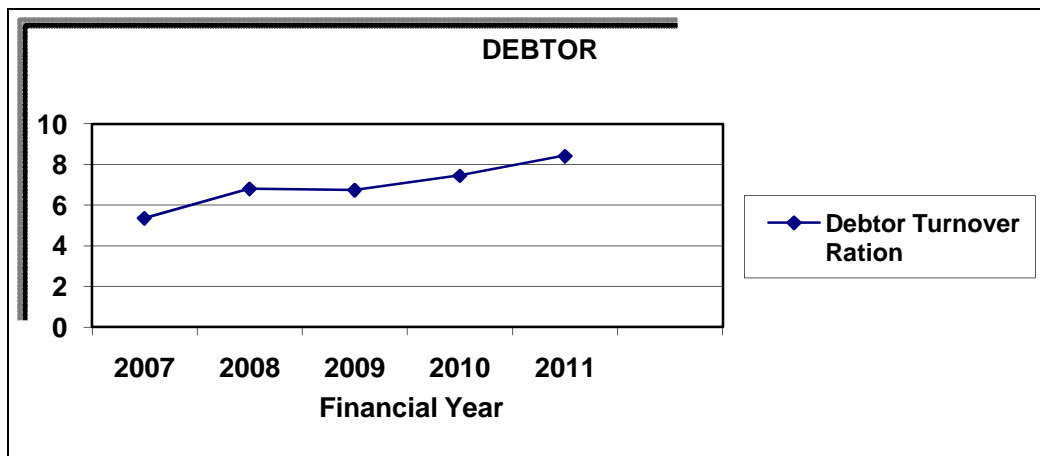


Figure 6

Interpretation:

Debtor Turnover Ratio indicates the number of times the debtors are turned over during the year. The debtor turnover ratio of Duke Fashion India Limited is satisfactory. There is an increasing trend of the debtor turnover ratio in Duke Fashion India Limited. Generally that indicates the more efficient in debtor management/sale or more liquid are the debtor.

Trend Of Average Collection Period

The Average Collection period represents the average number of days for which a firm has to wait before their receivables are converted into cash.

YEAR	2007	2008	2009	2010	2011
Average Collection Period	68	53	52	48	43

Table 7: Average Collection Period = Days In The Year (365) / Debtors Turnover Ratio (In Days)

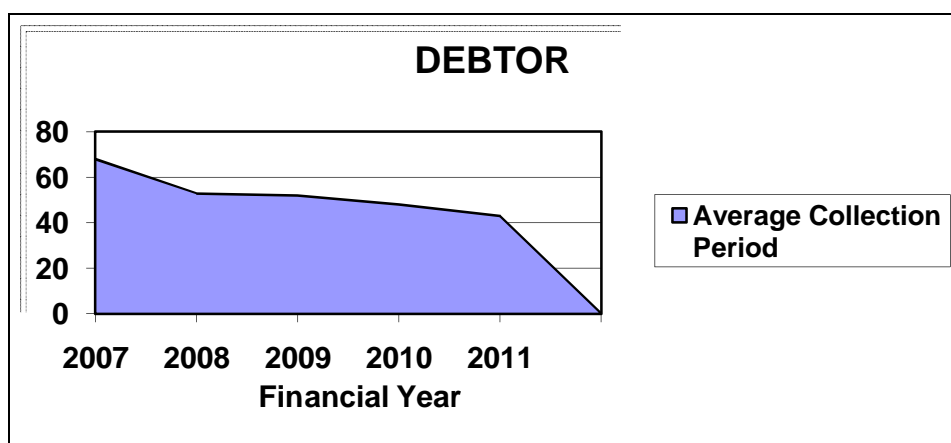


Figure 7

Interpretation:

The Average Collection period in Duke Fashion India Limited is shorter in each year means decreasing trend in Average Collection Period as shown above. It shows the better quality of Duke Fashion India’s Debtors as a short collection period implies quick payment by debtors. It also implies the better short-term paying capacity of the company.

Measurement Of Trend-Method Of Least Squares

To avoid stock out associated with a high ratio as well as the cost of carrying excessive inventory associated with a low ratio, a firm should have neither too high nor too low Inventory Turnover Ratio. So, to judge the reasonableness of this ratio during the period under study, it is compared on the basis of trend analysis during the study period.

For this purpose, let $Y = a + bX$ be the equation of the straight with origin at the year 2007-08, where X is independent variable relating to time period under (X unit is 1 year) and Y is dependent variable in Rs. to be predicted. By the method of least squares, the normal equations for finding the values of a and b is:

$$\sum Y = Na + b\sum X \dots\dots\dots (I)$$

$$\text{And } \sum XY = a\sum X + b\sum X^2 \dots\dots\dots (II)$$

The above two equations are reduced and we get,

$$a = \frac{\sum Y}{N} \text{ and } b = \frac{\sum XY}{\sum X^2}$$

Here N=number of years=5

YEAR	Sales (Rs in Crores) Y	X	X ²	XY
2007	48.50	-2	4	-97
2008	68.47	-1	1	-68.5
2009	82.99	0	0	0
2010	110.65	1	1	110.65
2011	147.15	2	4	294.3
TOTAL	457.76=ΣY	0=ΣX	10=ΣX ²	239.45=ΣXY

Table 8: Calculation For Finding The Equation Of Best Fitted Straight Line In Case Of Sales Is Given Below

Y= a + bX and $a = \frac{\sum Y}{N}$ and $b = \frac{\sum XY}{\sum X^2}$
 $a = 457.76/5 = 91.55$ and $b = 239.45/10 = 23.95$
 The equation is $Y = 91.55 + 23.95X$

YEAR	X	Trend Values
2007	-2	$91.55 + 23.95 \times -2 = 43.65$
2008	-1	$91.55 + 23.95 \times -1 = 67.06$
2009	0	$91.55 + 23.95 \times 0 = 0$
2010	1	$91.55 + 23.95 \times 1 = 115.50$
2011	2	$91.55 + 23.95 \times 2 = 139.45$

Table 9

YEAR	Inventory (Rs in Crores) Y	X	X ²	XY
2007	6.74	-2	4	-13.48
2008	8.12	-1	1	-8.12
2009	8.98	0	0	0
2010	12.92	1	1	12.92
2011	28.74	2	4	10.24
TOTAL	65.5=ΣY	0=ΣX	10=ΣX ²	1.56=ΣXY

Table 10: Calculation For Finding The Equation Of Best Fitted Straight Line In Case Of Inventory Is Given Below

Y= a + bX
 $a = \frac{\sum Y}{N}$ and $b = \frac{\sum XY}{\sum X^2}$
 $a = 65.5/5 = 13.1$
 And $b = 1.56/10 = 0.156$
 The equation is $Y = 13.1 + 0.156X$

YEAR	X	Trend Values
2007	-2	$13.1 + 0.156 \times -2 = 12.788$
2008	-1	$13.1 + 0.156 \times -1 = 12.944$
2009	0	$13.1 + 0.156 \times 0 = 13.1$
2010	1	$13.1 + 0.156 \times 1 = 13.256$
2011	2	$13.1 + 0.156 \times 2 = 13.412$

Table 11

Regression Analysis Of Sales And Application Of Chi-Square Test

To assess the association between sales and inventory of the company, Regression Equation of Sales on inventory was used and in order to test the statistical significance at the 5 % level between these two variables, Chi- Square was applied. The Regression Equation of sales (Y) on Inventory (X) is computed below:

Calculation of Regression Equation

The Regression Equation of sales (Y) on inventory (X) is computed as per equation $Y - \bar{Y} = b_{YX}(X - \bar{X})$

Year	2007	2008	2009	2010	2011
Inventory (X)	6.74	8.12	8.92	12.92	28.74
Sales (Y)	48.5	68.47	82.99	110.65	147.15

Table 12

$$\bar{X} = \sum X/n = 65.5/5 = 13.1 \text{ And } \bar{Y} = \sum Y/n = 457.76/5 = 91.55$$

$$b_{YX} = \frac{\sum XY - (\sum X)(\sum Y)/N}{\sum X^2 - (\sum X)^2/N} = \frac{7281.83 - 5991.163}{1183.842 - 858.05} = 3.96$$

Thus the Regression Equation is $y - 91.55 = 3.96x - 13.1$

$$y = 3.96x + 39.67$$

By applying the above equation we get the figures of expected sales as 57.50 crores for 2003-04, 71.78 crores for 2004-05, 98.98 crores for 2005-06, 90.63 crores for 2006-07 and 94.88 crores for 2007-08.

Chi-Square Test:-

Let the null hypothesis be H_0 such that there is no significant relation between sales and inventory. Then, the alternative H_A implies that a significant relation between sales and inventory exists. The value of χ^2 is calculated as follows:

YEAR	$O_i =$ Actual Sales	$E_i =$ Expected Sales	$O_i - E_i$	$(O_i - E_i)^2$	$(O_i - E_i)^2/E_i$
2007	48.5	66.36	-17.86	318.97	4.80
2008	68.47	71.82	-3.35	11.22	0.15
2009	82.99	75.23	7.76	60.21	0.80
2010	110.65	90.83	19.82	392.83	4.32
2011	147.15	153.48	-6.33	40.06	0.26
Total					$\sum (O_i - E_i)^2 / E_i = 10.33$

Table 13

Assuming that the value of H_0 is true, we have

$$\chi^2 = \sum (O_i - E_i)^2 / E_i = 10.33$$

Degree of freedom is $n-1 = 5-1 = 4$

The tabulated value of Chi-Square at the 5 % level of significance with degree of freedom (d.f=4) is 9.49

Since the calculated value of Chi-Square or $\chi^2 >$ the tabulated value of χ^2 at the 5 % level with d. f. =4, we reject the null hypothesis.

Hence, the alternative hypothesis is accepted and a significant relation between sales and inventory exists. It shows that the performance in respect of inventory management of the company during the period under study is good.

10. Recommendations

- The Inventory Turnover Ratio may be improved if the management takes actions to investigate the causes of differences/ shortages of Stores and spares and thus remove the losses from the accounts, if any.
- The computation of Inventory Turnover Ratio for individual components of inventories may help the management of DUKE to detect the imbalanced investments in various inventory components.
- The company needs to have a standard in respect of minimum and maximum level of inventory. This will help the company in having a better inventory control and continuous flow of production.
- Proper storage facilities are recommended to prevent loss of inventory due to the lack of it or faulty methods of storage.
- The company must look for more buyers of its products to enable quick conversion of inventory into cash.
- The management of the plant should try to maintain the reduced Inventory to Total Current Assets Ratio in the future course of production.
- The management must try to find out the causes of differences between actual sales and expected sales as shown by Chi-Square Test.
- In store department items should be placed in their proper sequence & acknowledgement.
- There should be a proper record of wastage. It is good for the company.
- Store manager gives the proper knowledge about engineering & raw materials.
- The company is using just-in time technique; they should also consider the economic order quantity techniques while ordering the material to the supplier.

11. Conclusion

- The overall performance in respect to utilization of inventories is satisfactory during the study period.
- The Chi-Square Test by rejecting the null hypothesis reflects a relation between sales and inventory. In addition it supports the fact that the performance of inventory management is satisfactory.
- The inventory level may also be reduced to the possible level in order to release idle funds absorbed in inventories.
- The efficiency of the company in turning the inventories into cash is fair as reflected by its Inventory Turnover Ratio.
- The analysis of the Inventory Holding Ratio of the company shows that it had been successful in reducing the holding period of the inventory.
- The proportion of inventory out of total current assets had been efficiently reduced by the management thereby reflecting a better inventory management.
- There had been significant differences between actual Inventory Turnover Ratio and trend Inventory Turnover ratio. At the same time there had been a significant difference between actual Inventory Holding Ratio and trend Inventory Holding Ratio.
- The Chi-Square Test also exhibits the difference between actual sales and expected sales.

12. References

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