

Chapter-IV

Analysis and Interpretation of Data

CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

4.1 INTRODUCTION:

The inventory management is related with all kind of Inventories and management means, 'managing, controlling and co -ordination all things.' So inventory management is arriving at a proper level between too much and to little stock. An effective inventory plays a critical role in the smooth and efficient running of any business. In manufacturing industry inventory management is very useful for the constant production process of the industry. In this chapter the data analysis is made about the topic "Inventory Management Performance in Small Scale Industries: A Comparative Study of Thorat Industry and Yash Industry in Palus." The data analysis is down for the last five years from year 2008-09 to 2012-13. The researcher used the data about inventory management which is collected from secondary sources. The analysis of inventory management of small scale industries was made to study the specific objectives of the study are as follows;

- 1) To study the comparative inventory management Performance of selected SSIs.
- 2) To analyze the technique of inventory control in selected both SSIs.
- 3) To examine the various problems of selected two industries.
- 4) To make necessary suggestion for improvement in inventory management performance of selected SSIs.

For the study researcher used different parameters such as Inventory Turnover Ratio, ABC analysis, VED analysis and ABC-VED Matrix analysis of the industries. The researcher makes comparative study of selected two SSIs industries by using statistical and graphical presentation.

The analysis and interpretation of data have been divided into four sections. In the first section, inventory turnover ratio, ABC analysis, VED analysis, ABC-VED matrix analysis and problems of Thorat industry have been analyzed. Whereas the similar, analysis for Yash industry has been done in the second.

Third section comprises a comparative analysis of these two SSIs. The hypotheses have been tested in the fourth section.

4.2 ANALYSIS OF THORAT INDUSTRY:

4.2.1 TURNOVER RATIOS ANALYSIS OF THORAT INDUSTRY:

1) Inventory Turnover Ratio (ITR):

The Inventory Turnover Ratio (also known as Stock Turnover Ratio) indicates whether investment in inventory is efficiently used or not. The objectives of calculating this ratio is checkup whether only the required minimum has been locked up in inventory. This ratio indicates the numbers of time inventory is replaced during the year. The inventory turnover ratio can be calculated by dividing the cost of goods sold by the average inventory.

Table No 4.1
Inventory Turnover Ratio

Year	Cost of Goods Sold	Average Inventory	Ratio
2008-09	2,52,48,601	6,96,147	36.26
2009-10	2,06,59972	7,53,467	27.42
2010-11	2,96,84,093	5,95,642	49.84
2011-12	3,03,14,751	18,79,475	16.13
2012-13	2,84,83,842	17,64,475	16.14

(Sources: Annual Report of Thorat Industry from year 2008-09 to 2012-13)

Figure No 4.1

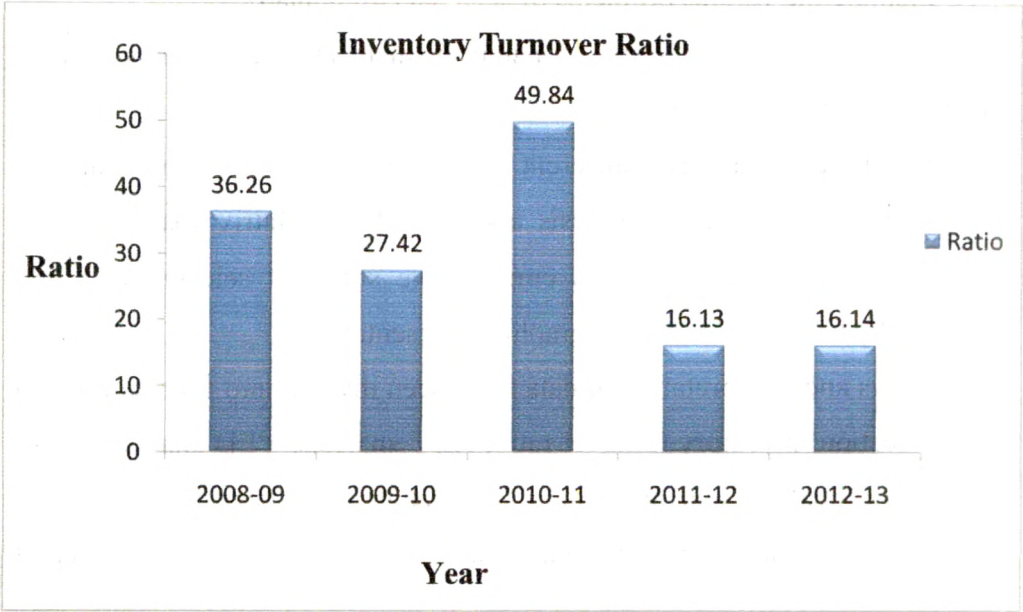


Table no 4.1 and figure 4.1 shows the inventory turnover ratio of Thorat industry from year 2008-09 to 2012-13. The table shows that inventory turnover ratio in year 2008-09 it was 36.26 times. It was reduced in next year and become to 27.42 times. In year 2010-11 the turnover ratios was highly increased and reach to 49.84 times. It shows that the performance of inventory of the industry was increased. But in last two years it was again reduced and goes down to 16.14 times in year 2012-13. It indicates the poor performance of the industry.

2) Inventory Holding Days Ratio (IHDR):

This ratio is calculated as the relationship between 365 days and inventory turnover ratio of the industry. The changes in either sales or inventory can cause a high amount of inventory days.

Table No 4.2
Inventory Holding Days Ratio

Year	Day's	Inventory Turnover Ratio	Ratio
2008-09	365	36.26	10.06
2009-10	365	27.42	13.31
2010-11	365	49.84	7.32
2011-12	365	16.13	22.63
2012-13	365	16.14	22.61

(Sources: Annual Report of Thorat Industry from year 2008-09 to 2012-13)

Figure No 4.2



It is understood from table no 4.2 and figure 4.2 show the Inventory Holding Days Ratio of Thorat industry from year 2008-09 to 2012-13. The table shows that inventory holding day's ratio in 2008-09 it was 10 days and in the year 2009-10 it was reached to 13.31 days. In the year 2010-11 it was reduced to 7.32 days, which shows good performance of the industry. In last two years the holding day's ratio was increased and become 22.61 days in year 2012-13 which was not good sign for the inventory performance of the industry.

3) Raw Material Turnover Ratio (RMTR):

The Raw Material Turnover Ratio is calculated as cost of raw material divided by average stock of raw material. The increasing raw material turnover ratio shows the decreasing trend in holding day's ratio.

Table No 4.3

Raw Material Turnover Ratio

Year	Cost of R.M	Average Stock of R.M	Ratio
2008-09	2,17,02,649	6,96,147.	31.18
2009-10	1,73,18,137	7,53,467	22.98
2010-11	2,24,20,596	5,95,642	37.64
2011-12	2,42,13,586	18,79,475	12.88
2012-13	2,37,30,919	17,64,475	13.45

(Sources: Annual report of Thorat Industry for year 2008-09 to 2012-13)

Figure No 4.3

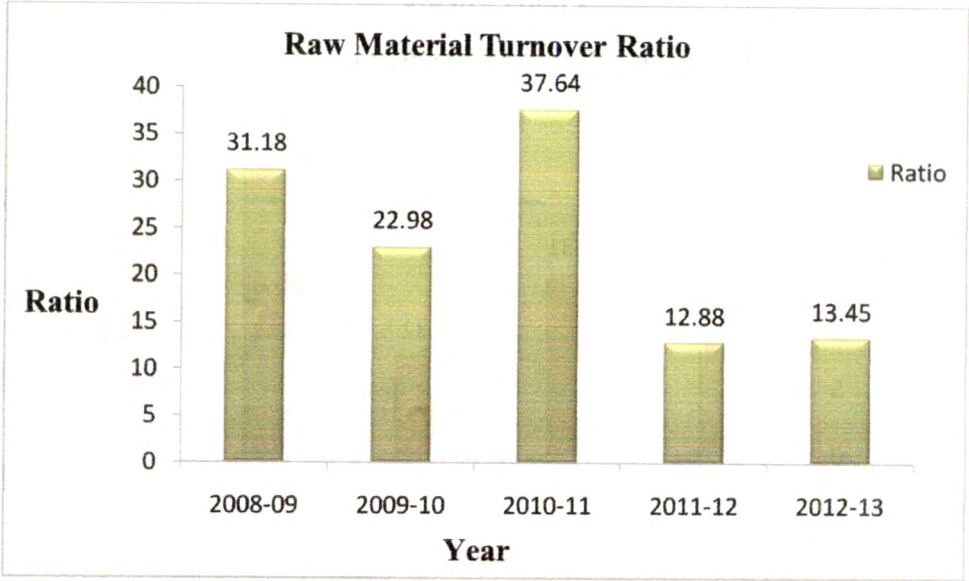


Table No 4.3 and figure 4.3 shows the raw material turnover ratio of Thorat Industry from year 2008-09 to 2012-13. In year 2008-09 the raw material turnover ratio was 31.18 times which shows good position of raw material turnover but in next year 2009-10 it was reduced and become 22.98 times. This ratio was 37.64 times in year 2010-11 it shows highest performance of raw material turnover of the industry in study period. In last year this ratio was very poor and goes down to 13.45 times in year 2012-13.

4) Raw Material Holding Days Ratio (RMHDR):

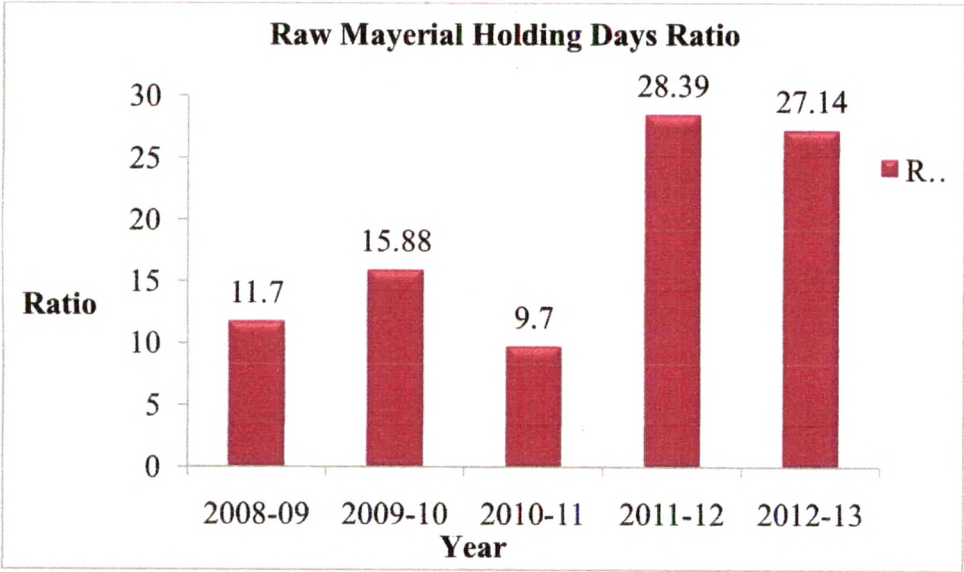
Raw material holding day’s ratio is the relationship between overall days and raw material turnover ratio. The high RMHD ratio indicates not sufficient performance of the industry and low RMHD ratio show sufficient performance of the industry.

Table No 4.4
Raw Material Holding Days Ratio

Year	Day's	Raw Material Turnover Ratio	Ratio
2008-09	365	31.18	11.70
2009-10	365	22.98	15.88
2010-11	365	37.64	9.70
2011-12	365	12.88	28.39
2012-13	365	13.45	27.14

(Sources: Annual Report of Thorat Industry from year 2008-09 to 2012-13)

Figure No 4.4



A look into table no 4.4 and figure 4.4 reveals that the raw material holding days Ratio of Thorat Industry for the study period from year 2008-09 to 2012-13. In the table it shows that raw material holding day's ratio in year 2008-09 was 11.70 days which shows good performance of the industry but in next year it was slightly increased and become 15.88 days. In year 2010-11 this ratio was 9.7 days which shows more efficient performance of the industry. But in last two years this ratio was highly increased and goes up to 27.14 day in year 2012-13. It shows the not sufficient performance of the Thorat industry.

5) Work-In-Progress Turnover Ratio (WIPTR):

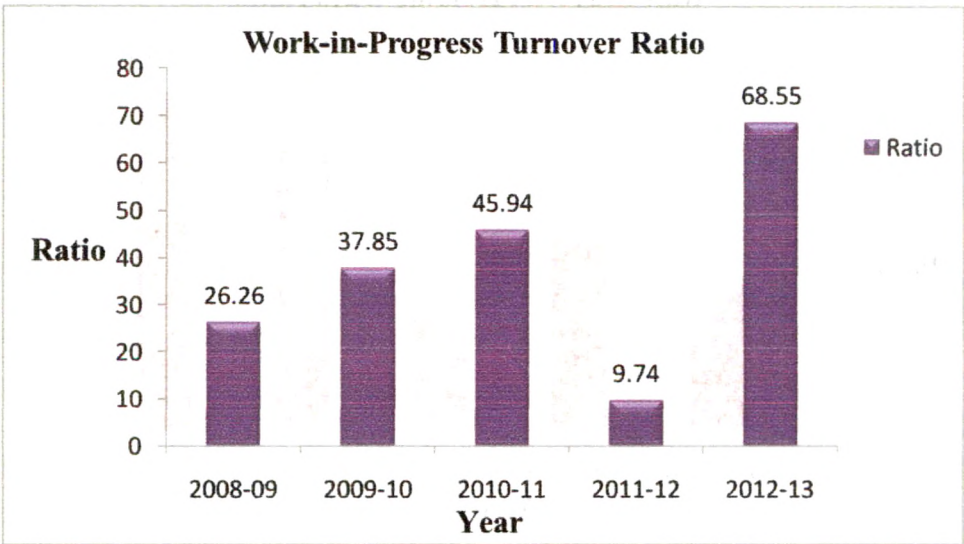
Work-in-progress ratio defined as factory cost divided by average work-in-progress. The high WIPT ratio shows the better position of industry and low WIPT ratio indicates the poor performance of the industry.

Table No 4.5
Work-In -Progress Turnover Ratio

Year	Factory Cost	Average WIP	Ratio
2008-09	2,52,48,600	9,61,650	26.26
2009-10	2,06,59,971	5,45,784	37.85
2010-11	2,96,54,092	6,45,500	45.94
2011-12	3,03,14,750	31,13,450	9.74
2012-13	2,84,83,840	4,15,500	68.55

(Sources: Annual Report of Thorat Industry form year 2008-09 to 2012-13)

Figure No 4.5



It is understood from table no 4.5 and figure 4.5 shows the Work-in-progress turnover ratio of Thorat industry from year 2008-09 to 2012-13. In first three years this ratio shows increasing trend in year 2008-09. It was 26.26 times which was become 45.94 times in year 2010-11. It shows the increasing performance of the industry. In year 2011-12 this ratio highly goes down to 9.74 times and that time it shows very bad performance of the industry. But in last year this ratio suddenly increased highly and goes up to 68.55 times which was very impressive performance of the industry.

6) Work in Progress Holding Days Ratio (WIPHDR):

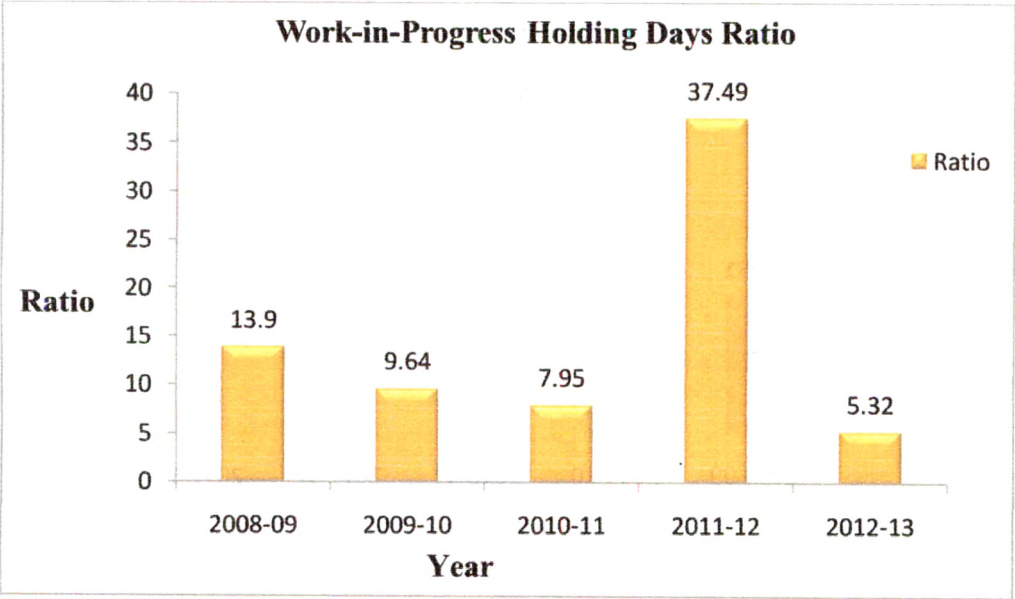
Work-in-progress holding day's ratio is the relationship between overall day's and work-in-progress turnover ratio. The high ratio indicates not sufficient or poor performance of the industry but low ratio shows the better performance of the industry.

Table No 4.6
Work in Progress Holding Days Ratio

Year	Day's	Work-in-Progress Turnover Ratio	Ratio
2008-09	365	26.26	13.90
2009-10	365	37.85	9.64
2010-11	365	45.94	7.95
2011-12	365	9.74	37.49
2012-13	365	68.55	5.32

(Sources: Annual Report of Thorat Industry from year 2008-09 to 2012-13)

Figure No 4.6



A look into table no 4.6 reveals that the work-in-progress holding days ratio for the period of five years from 2008-09 to 2012-13. The WIPHD ratio was 13.90 days in year 2008-09 and in next two year it was reduced and become 7.95 days in year 2010-11. It shows good performance of the industry. But in year 2011-12 it was highly increased and goes up to 37.49 days. It shows week WIP performance. In last year 2012-13 this ratio was so small i.e. 5.32 days it indicates quick WIP of the industry.

7) Inventory to Sales Ratio (I to SR):

Inventory to sales ratio defined as the amount of inventory divided by the sales. The increase in inventory to sales ratio may signal an oncoming cash flow problem. Likewise, a decrease in the inventory to sales ratio from one month to next indicates that one of these is occurring.

Table No 4.7
Inventory to Sales Ratio

Year	Inventory	Sales	Ratio
2008-09	13,92,295	2,72,31,492	0.051
2009-10	15,06,934	2,34,97,108	0.064
2010-11	11,91,284	3,46,94,328	0.034
2011-12	37,58,950	3,56,15,169	0.106
2012-13	35,28,950	3,44,59,548	0.102

(Sources: Annual Report of Thorat Industry from year 2008-09 to 2012-13)

Figure No 4.7

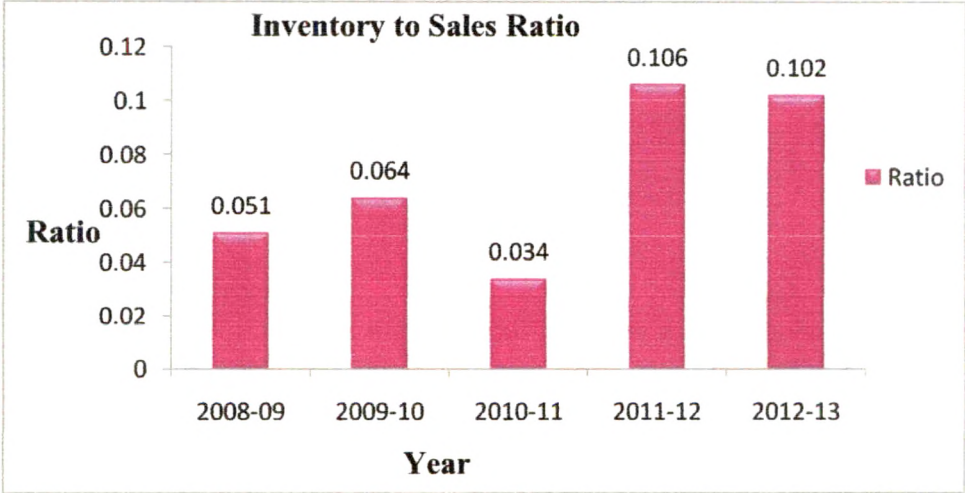


Table no 4.7 reveals that the inventory to sales ratio of Thorat industry from year 2008-09 to 2012-13. In year 2008-09 and 2010-11 the inventory to sales ratio decline was 0.051 and 0.034 respectively, which shows good sales performance of industry. But in last two year showing increasing trend i.e. 0.106 and 0.102 respectively. It shows the oncoming cash flow problem of the industry and adversely affects the performance of the industry.

8) Inventory to Current Assets (I to CA):

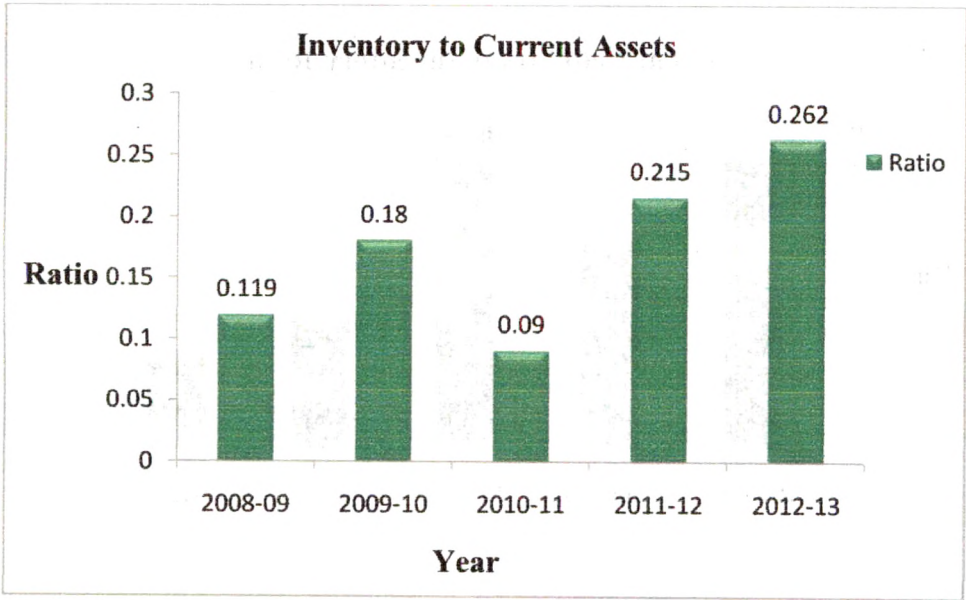
Inventory to current assets ratio is the relationship between inventory and current assets. The inventory is less liquid as compared to other current assets of a company. A high ratio indicates less liquidity position of the company and low ratio shows the high liquidity position of the company.

Table no 4.8
Inventory to Current Assets

Year	Inventory	Current Assets	Ratio
2008-09	13,92,295	1,16,40,975	0.119
2009-10	15,06,934	83,43,416	0.180
2010-11	11,91,284	1,31,50,192	0.090
2011-12	37,58,950	1,74,36,134	0.215
2012-13	35,28,950	1,34,36,421	0.262

(Sources: Annual Report of Thorat Industry from year 2008-09 to 2012-13)

Figure No 4.8



A look into table no 4.8 reveals that the inventory to current assets ratio of Thorat industry. This ratio was 0.119 in year 2008-09 which shows less part of inventory in current assets but in next year this ratio was increasing and become 0.180. In year 2010-11 ratio was very low i.e. 0.09 it indicate the good position of the industry. In last two year the liquidity position was not good because this ratio was increased very high year by year.

9) Current Liabilities to Inventory Ratio (CL to IR):

Current liabilities to inventory ratio shows the relationship between current liabilities to inventory ratio. The low ratio indicates the firm will be able to meet short-term obligations and a high ratio may be cause for concern and single a potential cash shortage.

Table No 4.9
Current Liabilities to Inventory Ratio

Year	Current Liabilities	Inventory	Ratio
2008-09	1,02,45,353	13,92,295	7.35
2009-10	80,55,873	15,06,934	5.34
2010-11	9,67,9,559	11,91,284	8.12
2011-12	1,30,07,146	37,58,950	3.46
2012-13	88,92,035	35,28,950	2.51

(Sources: Annual Report of Thorat Industry from year 2008-09 to 2012-13)

Figure No 4.9

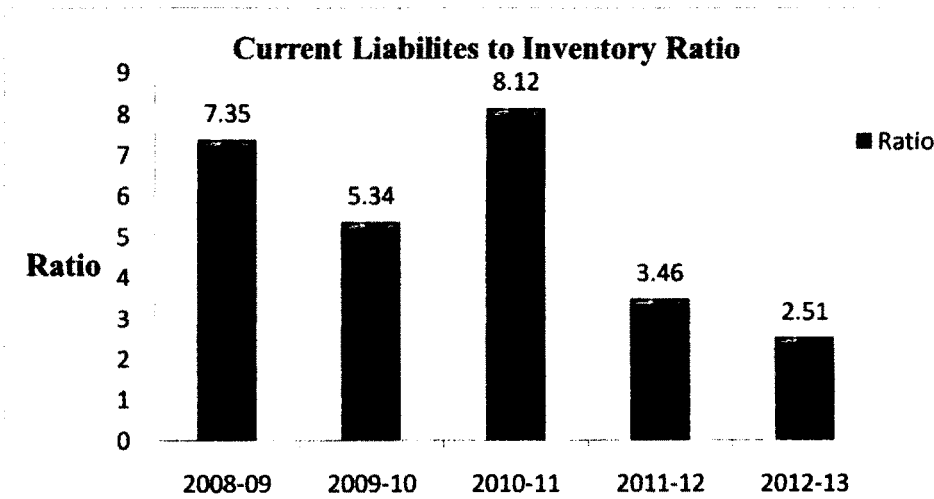


Table no. 4.9 denotes that the current liabilities to inventory ratio of Thorat industry for the study period of five years from 2008-09 to 2012-13. The overall ratio shows fluctuating trend over the study period. In year 2010-11 ratio shows highest trend it was 8.12. It indicates the shortage of cash and affects the financial performance of the industry. But in next two year shows decreasing ratio i.e. 3.46 and 2.51 in year 2011-12 and 2012-13 respectively. It shows the good time for funds returns.

10) Inventory to Net Working Capital Ratio (I to NWCR):

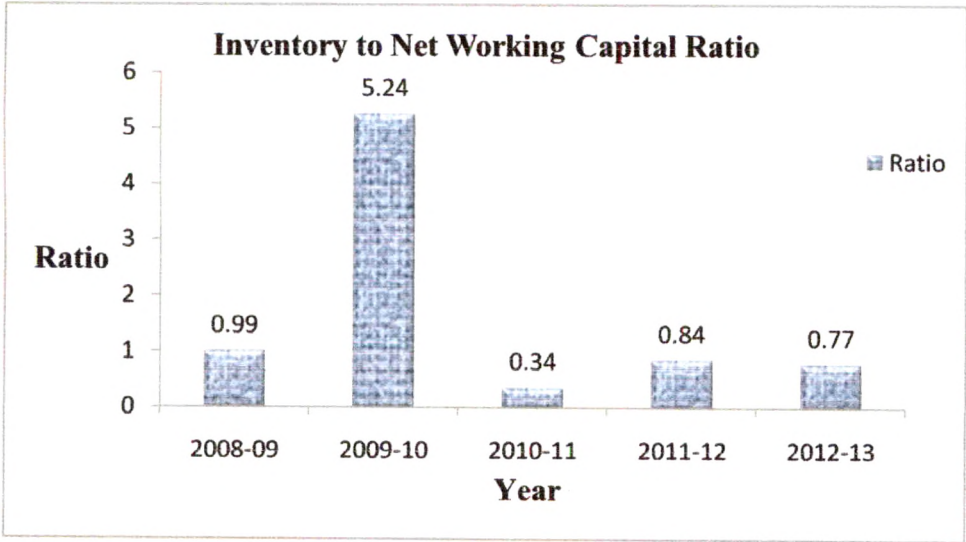
Inventory to net working capital shows the relationship between investments made in inventory and total net investment in working capital. Every business organization should have sufficient working capital for day to day running of the business. Inventory is an important part of working capital because of the direct impact which to have the organizations profits.

Table no 4.10
Inventory to Net Working Capital Ratio

Year	Inventory	Working Capital	Ratio
2008-09	13,92,295	13,95,622	0.99
2009-10	15,06,934	2,87,543	5.24
2010-11	11,91,284	34,70,633	0.34
2011-12	37,58,950	44,28,988	0.84
2012-13	35,28,950	45,44,386	0.77

(Sources: Annual Report of Thorat Industry from year 2008-09 to 2012-13)

Figure No 4.10



It is understood from table 4.10 shows the inventory to net working capital ratio of Thorat industry from year 2008-09 to 2012-13. In year 2009-10 shows highest ratio it was 5.24, it indicates the not good performance of the industry. But in year 2010-11 it was low ratio and become 0.34, it shows the better management of inventory and working capital of the industry.

4.2.2 ABC ANALYSIS OF THORAT INDUSTRY:

The ABC inventory control technique is based on the principle that a small portion of the items may typically represent the bulk of money value of the total inventory used in the production process, while a relatively large number of items may form a small part of the money value of stores. The money values are ascertained by multiplying the quantity of material of each item by its unit price.

According to this approach to inventory control high value items are more closely controlled than low value items. Each item of inventory is given A, B, or C denomination depending upon the amount spent for that particular item. "A" or the "highest value items" should be under the tight/high control and under responsibility of the most experienced personnel, while "C" or the "lowest value items" may be under simple physical control.

It may also be clear with the help of the following criteria:

"A" Category – 10% of the items represent 70% of the money value.

"B" Category – 20% of the items represent 20% of the money value.

"C" Category – 70% of the items represent 10% of the money value.

The relative position of these items show that items of category A should be under the maximum control items or category B may not be given that much attention and item C may be under a loose control.

The researcher have been used 50 items in ABC analysis, these are as follows;

Table No 4.11
ABC Analysis of Thorat Industry

No.	Particular	Quantity	Rate	Total Rs.	Qty. %	Value %	Categories
	A) Cast Iron :						
1	Pig Iron	480	31	14880	1.20	1.28	B
2	M. S. Scrap/CRC	88	29	2552	0.22	0.22	B
3	C. I. Boring	480	30	14400	1.21	1.24	B
4	Pet. Coke	520	26	13520	1.30	1.17	B
5	Fe. SI	80	25	2000	0.20	0.17	B
6	Fe. MN	98	80	7840	0.25	0.68	B
7	Fe. CR	3000	2	6000	7.54	0.52	C
8	Supersede/ CI Inoculants	125	5	625	0.31	0.05	C
9	ductile iron	350	313	109550	0.88	9.47	A
	B) S. H. C. S. :						
10	S. H. C. S. M10 X 30 mm	975	99	96525	2.45	8.34	A
11	S. H. C. S. M10 X 25 mm	1045	98	102410	2.62	8.85	A
12	S. H. C. S. M8 X 25 mm	3896	26	101296	9.83	9	B
13	S. H. C. S. M6 X 25 mm	2065	3	6195	5.18	0.53	C
14	S. H. C. S. M6 X 12 mm	5080	2	10160	12.76	0.88	C
	C) HEX NUT :						
15	HEX NUT 5 mm	5000	2	10000	12.56	0.86	C
16	HEX NUT 6 mm	1425	3	4275	3.58	0.37	C
17	HEX NUT 16 mm	250	35	8750	0.63	0.75	B
18	HEX NUT 8 mm	1650	4	6600	4.15	0.57	C
	D) Screw:						
19	Grub Screw M8 X 20	1360	5	6800	3.41	0.59	C
20	Grub Screw M10 X 10	1740	25	43500	4.37	4	B
21	Grub Screw M6 X 20	960	6	5760	2.41	0.50	C
	E) Stud:						
22	Stud M- 12	650	8	5200	1.63	0.45	C
23	Stud M - 16	875	9	7875	2.20	0.68	C
24	Stud Nut (316) M - 20	945	8	7560	2.37	0.65	C
	F) Bolt:						
25	Bolt M - 10	350	5	1750	0.88	0.15	C
26	Bolt M - 16	385	8	3080	0.96	0.27	C

27	Ball Bearing	420	278	116760	1.05	10.09	A
28	Stampings	125	25	3125	0.31	0.27	B
	G)Allen :						
29	Allen Cap M10 X 30	115	16	1840	0.28	0.16	C
30	Allen Cap M6 X 25	98	18	1764	0.25	0.15	C
31	Alloy - 20	425	11	4675	1.06	0.40	C
32	Aluminum	120	1050	126000	0.30	10.89	A
	H) Spring Washer :						
33	Spring Washer m 8	67	3	201	0.16	0.02	C
34	Spring Washer m 10	52	5	260	0.13	0.02	C
35	Spring Washer m 16	45	8	360	0.11	0.03	C
36	Spring Washer m 20	32	10	320	0.08	0.02	C
	I) Casting and Dia - Casting :						
37	Bronze	180	886	159480	0.45	13.78	A
38	Nodular Cast Iron	126	20	2520	0.32	0.22	B
39	Ductile Iron. B	140	25	3500	0.35	0.30	B
	J) Steel :						
40	Stainless Steel & Tuned Component	601	158	94958	1.52	8.21	A
41	Carbon Steel	110	9	990	0.27	0.08	C
42	13% Cr-Steel	250	17	4250	0.63	0.37	C
43	Stainless Steel (316 L)	300	20	6000	0.75	0.52	C
44	Cast Steel	166	35	5810	0.42	0.50	B
	K) Other Materials :						
45	Polyester Sling Belt 2 Ton Capacity X2 MTR Lift	1050	7	7350	2.65	0.64	C
46	Gunmetal	410	13	5330	1.03	0.46	C
47	Hostelry - C	340	16	5440	0.85	0.47	C
48	Duplex	80	7	560	0.20	0.05	C
49	PTMT (Thermoplastic Polyesters)	390	13	5070	0.98	0.43	C
50	Seals	82	12	984	0.20	0.08	C
	Total	39596		1156650	100	100	

(Source: Annual Report of Thorat Industry in Palus)

A look into table 4.11 denotes the ABC analysis of Thorat industry there 50 items with corresponding quantity and their values. The items divided into A, B, C categories.

“A” Category – 9.27% of the items represent 69.63% of the money value.

“B” Category –20.61% of the items represent 19.80% of the money value.

“C” Category – 69.57% of the items represent 10.97% of the money value.

Calculation of ABC Analysis:

1] In the table, the total amount of particular items calculated as following ways- e.g. Pig Iron.

$$\text{TotalAmount} = \text{Quantity} \times \text{Rs. PerUnit}$$

$$= 480 \times 31$$

$$= \text{Rs. } 14880.$$

2] The Percentages of Quantity:

$$\% \text{ of Quantity} = \frac{\text{Quantity}}{\text{Total Quantity}} \times 100$$

$$= \frac{480}{39596} \times 100$$

$$= 1.20 \%$$

3] The Percentages of Total Amount:

$$\% \text{ of Value} = \frac{\text{Total Value}}{\text{Total Value (all items)}}$$

$$= \frac{14880}{1156650} \times 100$$

$$= 1.28\%$$

I] 'A' Categories Items:

Table No 4.12

'A' Categories

Sr. No	Particular	Total Rs	Qty %	Value %
1)	Ductile Iron	109550	0.88	9.47
2)	S.H.C.S M10*30mm	96525	2.45	8.34
3)	S.H.C.S.M10*25mm	102410	2.62	8.85
4)	Ball Bearing	116760	1.05	10.09
5)	Aluminum	126000	0.3	10.89
6)	Bronze	159480	0.45	13.78
7)	Stainless Steel & Turned Component	94958	1.52	8.21
	Total	805683	9.27	69.63

(Source: Annual Report of Thorat Industry in Palus)

Table no 4.12 shows those 7 numbers of different items classified into 'A' groups. These items constitute 9.27% out of total quantity items. They invested 69.63% of total value of inventory holding which is maximum level of investment. According to the since the greatest monetary benefit will come by controlling 'A' items. These items are not easily available in local market and the industry should give more focus on these items for more benefits.

II] 'B' Categories Items:

Table No 4.13

'B' Categories

Sr. No	Particular	Total Rs	Qty %	Value %
1)	Pig Iron	14880	1.2	1.28
2)	M.S.Scrap/CRC	2552	0.22	0.22
3)	C.I. Boring	14400	1.21	1.24
4)	Pet Coke	13520	1.3	1.17
5)	Fe.SI	2000	0.2	0.17
6)	Fe.MN	7840	0.25	0.68
7)	S.H.C.SM8*25mm	101296	9.83	9
8)	HEX NUT 16mm	8750	0.63	0.75
9)	Grub Screw m10*10	43500	4.37	4
10)	Stampings	3125	0.31	0.27

11)	Nodular Cast Iron	2520	0.32	0.22
12)	Ductile Iron. B	3500	0.35	0.3
13)	Cast Steel	5810	0.42	0.5
	Total	223693	20.61	19.8

(Source: Annual Report of Thorat Industry Palus)

It is understood from table no 4.13 shows that 13 numbers of different items classified into 'B' groups. These items constitutes 20.61% out of total quantity items, they invested 19.80% of total value of inventory holding which is moderate level investment according to the table. Since the medium financial benefit comes by controlling 'B' items.

III] 'C' Categories Items:

Table No 4.14

'C' Categories

Sr. No	Particular	Total Rs	Qty %	Value %
1)	Fe. CR	6000	7.54	0.52
2)	Supersede/CI Inoculants	625	0.31	0.05
3)	S.H.C.S.M6*25mm	6195	5.18	0.53
4)	S.H.C.S.M6*12mm	10160	12.76	0.88
5)	HEX NUT 5 mm	10000	12.56	0.86
6)	HEX NUT 6 mm	4275	3.58	0.37
7)	HEX NUT 8 mm	6600	4.15	0.57
8)	Grub Screw m8*20	6800	3.41	0.59
9)	Grub Screw m6*20	5760	2.41	0.5
10)	Stud M-12	5200	1.63	0.45
11)	Stud M -16	7875	2.2	0.68
12)	Stud Nut (316)m20	7560	2.37	0.65
13)	Bolt M – 10	1750	0.88	0.15
14)	Bolt M – 16	3080	0.96	0.27
15)	Allen Cap M10*30	1840	0.28	0.16
16)	Allen Cap M6*25	1764	0.25	0.15
17)	Alloy – 20	4675	1.06	0.4
18)	Spring Washer m8	201	0.16	0.02
19)	Spring washer m 10	260	0.13	0.02

20)	Spring washer m 16	360	0.11	0.03
21)	Spring washer m20	320	0.08	0.02
22)	Carbon Steel	990	0.27	0.08
23)	13% Cr-Steel	4250	0.63	0.37
24)	Stainless Steel (316 L)	6000	0.75	0.52
25)	Polyester Sling Belt 2 Ton Capacity X2 MTR Lift	7350	2.65	0.64
26)	Gunmetal	5330	1.03	0.46
27)	Hostelry – C	5440	0.85	0.47
28)	Duplex	560	0.2	0.05
29)	PTMT (Thermoplastic Polyesters)	5070	0.98	0.43
30)	Seals	984	0.2	0.08
	Total	127274	69.57	10.97

(Source: Annual Report of Thorat Industry Palus)

A look into table no 4.14 shows that 30 numbers of different items classified into 'C' group. These items constitute 69.57% out of total quantity of items. They invested 10.97% of total value of inventory holding, which is minimum level of investment is according to the table since the low monetary come by 'C' items. These items are easily available in local market. But product of consumption value is low or minimum investment of inventory.

4.2.3 VED ANALYSIS OF THORAT INDUSTRY:

VED Analysis attempts to classify the items used into three broad categories, namely Vital, Essential, and Desirable. The analysis classifies items on the basis of their criticality for the industry or company. This classification is applicable only for spare parts and components. It based on the price, availability etc. In fact, in the inventory control of spare parts and components it is advisable, for the organization to use a combination of ABC and VED Analysis. Such control system would be found to be more effective and meaningful.

Vital: Vital category items are those items without which the production activities or any other activity of the company, would come to a halt, or at least be drastically affected.

Essential: Essential items are those items whose stock – out cost is very high for the company.

Desirable: Desirable items are those items whose stock-out or shortage causes only a minor disruption for a short duration in the production schedule. The cost incurred is very nominal.

For **V** items, a reasonable large volume of stocks might be necessary, while for **D** items, no Stocks are, perhaps, required be kept.

For **V** items of **A** classification a close control should be kept on stock levels, but if it is a **C** items, than large quantities mat be stored.

Table No 4.15
VED Analysis of Thorat Industry

Sr. No.	Particular	Quantity	Rate	Total Rs.	Qty %	Value %	Categories
	A) Cast Iron :						
1	Pig Iron	480	31	14880	1.2	1.28	D
2	M. S. Scrap/CRC	88	29	2552	0.22	0.22	D
3	C. I. Boring	480	30	14400	1.21	1.24	D
4	Pet. Coke	520	26	13520	1.3	1.17	V
5	Fe. Sl	80	25	2000	0.2	0.17	D
6	Fe. MN	98	80	7840	0.25	0.68	D
7	Fe. CR	3000	2	6000	7.54	0.52	D
8	Supersede/ CI Inoculants	125	5	625	0.31	0.05	D
9	ductile iron	350	313	109550	0.88	9.47	V
	B) S. H. C. S. :						
10	S. H. C. S. M10 X 30 mm	975	99	96525	2.45	8.34	E
11	S. H. C. S. M10 X 25 mm	1045	98	102410	2.62	8.85	D
12	S. H. C. S. M8 X 25 mm	3896	26	101296	9.83	9	D
13	S. H. C. S. M6 X 25 mm	2065	3	6195	5.18	0.53	V
14	S. H. C. S. M6 X 12 mm	5080	2	10160	12.76	0.88	D
	C) HEX NUT :						

15	HEX NUT 5 mm	5000	2	10000	12.56	0.86	D
16	HEX NUT 6 mm	1425	3	4275	3.58	0.37	D
17	HEX NUT 16 mm	250	35	8750	0.63	0.75	V
18	HEX NUT 8 mm	1650	4	6600	4.15	0.57	D
	D) Screw:						
19	Grub Screw M8 X 20	1360	5	6800	3.41	0.59	D
20	Grub Screw M10 X 10	1740	25	43500	4.37	4	D
21	Grub Screw M6 X 20	960	6	5760	2.41	0.5	D
	E) Stud:						
22	Stud M- 12	650	8	5200	1.63	0.45	D
23	Stud M – 16	875	9	7875	2.2	0.68	V
24	Stud Nut (316) M - 20	945	8	7560	2.37	0.65	D
	F) Bolt:						
25	Bolt M – 10	350	5	1750	0.88	0.15	D
26	Bolt M – 16	385	8	3080	0.96	0.27	D
27	Ball Bearing	420	278	116760	1.05	10.09	E
28	Stampings	125	25	3125	0.31	0.27	D
	G) Allen :						
29	Allen Cap M10 X 30	115	16	1840	0.28	0.16	D
30	Allen Cap M6 X 25	98	18	1764	0.25	0.15	D
31	Alloy – 20	425	11	4675	1.06	0.4	D
32	Aluminum	120	1050	126000	0.3	10.89	D
	H) Spring Washer :						
33	Spring Washer m 8	67	3	201	0.16	0.02	E
34	Spring Washer m 10	52	5	260	0.13	0.02	D
35	Spring Washer m 16	45	8	360	0.11	0.03	E
36	Spring Washer m 20	32	10	320	0.08	0.02	D
	I) Casting and Dia - Casting :						
37	Bronze	180	886	159480	0.45	13.78	D
38	Nodular Cast Iron	126	20	2520	0.32	0.22	E

9	Ductile Iron. B	140	25	3500	0.35	0.3	E
	J) Steel :						
0	Stainless Steel & Turned Component	601	158	94958	1.52	8.21	D
1	Carbon Steel	110	9	990	0.27	0.08	D
2	13% Cr-Steel	250	17	4250	0.63	0.37	D
3	Stainless Steel (316 L)	300	20	6000	0.75	0.52	D
4	Cast Steel	166	35	5810	0.42	0.5	E
	K) Other Materials :						
5	Polyester Sling Belt 2 Ton Capacity X2 MTR Lift	1050	7	7350	2.65	0.64	D
5	Gunmetal	410	13	5330	1.03	0.46	D
7	Hostelry – C	340	16	5440	0.85	0.47	D
3	Duplex	80	7	560	0.2	0.05	V
9	PTMT (Thermoplastic Polyesters)	390	13	5070	0.98	0.43	D
50	Seals	82	12	984	0.2	0.08	E
	Total	39596		1156650	100	100	

(Source: Annual Report of Thorat Industry in Palus)

Ij 'V' (Vital) Items:

Table No 4.16

'V' (Vital) Items

Sr. No	Particular	Total Rs	Qty %	Value %
1)	Pet Coke	13520	1.3	1.17
2)	Ductile Iron	109550	0.88	9.47
3)	S. H. C. S. M6 X 25 mm	6195	5.18	0.53
4)	HEX NUT 16 mm	8750	0.63	0.75
5)	Stud - 16	7875	2.2	0.68
6)	Duplex	560	0.2	0.05

(Source: Annual Report of Thorat Industry in Palus)

Table no 4.16 shows that the 6 number of different items classified into 'V' groups. After detail analysis it was found that 6 items of inventory has 'V'

category that is vital. If the vital items are not available in time the production have gain very high loss due to shortage of production or a very high cost due to emergency purchases.

II] ‘E’ (Essential) Items:

Table No 4.17
‘E’ (Essential) Items

Sr No	Particular	Total Rs	Qty %	Value %
1)	S.H.C.SM10*30mm	96525	2.45	8.34
2)	Ball Bearing	116760	1.05	10.09
3)	Spring Washer m8	201	0.16	0.02
4)	Spring Washer m 16	360	0.11	0.03
5)	Nodular Cast Iron	2520	0.32	0.22
6)	Ductile Iron. B	3500	0.35	0.3
7)	Cast Steel	5810	0.42	0.5
8)	Seals	984	0.2	0.08

(Source: Annual Report of Thorat Industry in Palus)

Table no 4.17 shows that 8 numbers of different items classified into ‘E’ groups. After detail analysis it was found that 8 items of inventory has ‘E’ category that is essential. If the ‘E’ category items are not available it will directly not affected the production in huge manner but affect the production in some cases.

III] ‘D’ (Desirable) Items:

Table No 4.18
‘D’ (Desirable) Items

Sr No	Particular	Total Rs	Qty %	Value %
1)	Pig Iron	14880	1.2	1.28
2)	M. S. Scrap/CRC	2552	0.22	0.22
3)	C. I. Boring	14400	1.21	1.24
4)	Fe. Sl	2000	0.2	0.17
5)	Fe. MN	7840	0.25	0.68
6)	Fe. CR	6000	7.54	0.52
7)	Supersede/ CI Inoculants	625	0.31	0.05
8)	S. H. C. S. M10 X 25 mm	102410	2.62	8.85
9)	S. H. C. S. M8 X 25 mm	101296	9.83	9

10)	S. H. C. S. M6 X 12 mm	10160	12.76	0.88
11)	HEX NUT 5 mm	10000	12.56	0.86
12)	HEX NUT 6 mm	4275	3.58	0.37
13)	HEX NUT 8 mm	6600	4.15	0.57
14)	Grub Screw M8 X 20	6800	3.41	0.59
15)	Grub Screw M10 X 10	43500	4.37	4
16)	Grub Screw M6 X 20	5760	2.41	0.5
17)	Stud M- 12	5200	1.63	0.45
18)	Stud Nut (316) M - 20	7560	2.37	0.65
19)	Bolt M - 10	1750	0.88	0.15
20)	Bolt M - 16	3080	0.96	0.27
21)	Stampings	3125	0.31	0.27
22)	Allen Cap M10 X 30	1840	0.28	0.16
23)	Allen Cap M6 X 25	1764	0.25	0.15
24)	Alloy - 20	4675	1.06	0.4
25)	Aluminum	126000	0.3	10.89
26)	Spring Washer m 10	260	0.13	0.02
27)	Spring Washer m 20	320	0.08	0.02
28)	Bronze	159480	0.45	13.78
29)	Stainless Steel & Tuned Component	94958	1.52	8.21
30)	Carbon Steel	990	0.27	0.08
31)	13% Cr-Steel	4250	0.63	0.37
32)	Stainless Steel (316 L)	6000	0.75	0.52
33)	Polyester Sling Belt 2 Ton Capacity X2 MTR Lift	7350	2.65	0.64
34)	Gunmetal	5330	1.03	0.46
35)	Hostelry - C	5440	0.85	0.47
36)	PTMT (Thermoplastic Polyesters)	5070	0.98	0.43

(Source: Annual Report of Thorat Industry in Palus)

Table no 4.18 shows that the 36 number of different items classified in to 'D' group. After detail analysis it was found that 36 items of inventory has 'D' category that is desirable. According to that if these items are not available it will not affected the production of business in any manner.

4.2.4 ABC-VED MATRIX ANALYSIS OF THORAT INDUSTRY:

The basic principle of inventory control is ABC based on cost criteria and VED on criticality. The ABC-VED matrix was formulated by cross-tabulating the ABC and VED analysis. From the resultant combination, three categories were classified (I, II and III). Category-I was constituted by items belonging to AV, AE, AD, BV and CV subcategories. The BE, CE and BD subcategories constituted category-II, and the remaining items in the CD subcategory constituted category-III. In these subcategories, the first alphabet denotes its place in the ABC analysis, while the second alphabet stands for its place in the VED analysis.

Table No 4.19
ABC-VED Matrix Analysis

Class	V	E	D	Total
A	1	2	4	7
B	2	3	8	13
C	3	3	24	30
Total	6	8	36	50

(Source: Annual Report of Thorat Industry in Palus)

ABC-VED Matrix Analysis:

Table no. 4.19 shows the ABC-VED matrix analysis of Thorat industry. The classifications of raw material in three categories are as follows;

Class I: AV+BV+CV+AE+AD

$$= 1 + 2 + 3 + 2 + 4 = 12 \text{ Items (24\%)}$$

Class II: BE+CE+BD

$$= 3 + 3 + 8 = 14 \text{ Items (28\%)}$$

Class III: CD

$$= 24 = 24 \text{ Items (48\%)}$$

Table no. 4.19 shows the ABC-VED matrix analysis of Thorat industry. This analysis are classified into three categories i.e. Class-I items (AV+BV+CV+AE+AD), Class-II (BE+CE+BD) and Class-III (CD).

Class-I:

Table no. 4.19 reveals that the class-I items of Thorat industry is 12 items (24%) of total items (i.e. 50 items). It indicates that the management of Thorat industry should give more focus on these items because it was not easily available and more costly. If these items are not available in timely the production process is breakdown.

Class-II:

In class-II there is 14 items (28%) of total items of Thorat industry. It shows that the class-II items are moderately important and essential to production process. These items are not available in timely the temporary losses of the production. So management should careful about these class-II items.

Class-III:

In class-III there is 24 items (48%) of total items (50 items) of Thorat industry. It shows that the class-III items are least important and desirable items for management. If this class items are easily available and necessary for production process, but which are not available in timely they directly does not affect the production. The overall ABC-VED matrix analysis shows the satisfactory performance of inventory management in Thorat industry.

4.2.5 PROBLEMS OF THORAT INDUSTRY:

A) Problems of Raw Materials:

- 1) High cost of raw material is the main problem of the Thorat Industry.
- 2) The Thorat industry there is not timely available transportation facility the mean reason of this problem to high transportation rate.
- 3) Thorat industry faced the problem of shortage of raw material in finished product.

4) There is no proper adoption on ABC and VED analysis of Thorat industry.

B) Problems of Workers:

- 1) Thorat industry not provide safety facilities (i.e.: Glufs, Goggles, Dress, Helmet, Shoes etc.) to the workers.
- 2) Industry not provides training facility to the workers.
- 3) Thorat industry provides service to workers but mostly workers are not satisfied.

C) Problems of Finance:

- 1) Industry used modern technology but it was not sufficient in currently situation.
- 2) There is problem of loan provided by the banks only because of industry is related to small industry.
- 3) There is problem of payment from the customers after supply of production.

4.3 ANALYSIS OF YASH INDUSTRY:

4.3.1 TURNOVER RATIOS ANALYSIS OF YASH INDUSTRY:

1) Inventory Turnover Ratio (ITR):

The Inventory Turnover Ratio (also known as Stock Turnover Ratio) indicates whether investment in inventory is efficiently used or not. The objectives of calculating this ratio is checkup whether only the required minimum has been locked up in inventory. This ratio indicates the numbers of time inventory is replaced during the year. The inventory turnover ratio can be calculated by dividing the cost of goods sold by the average inventory.

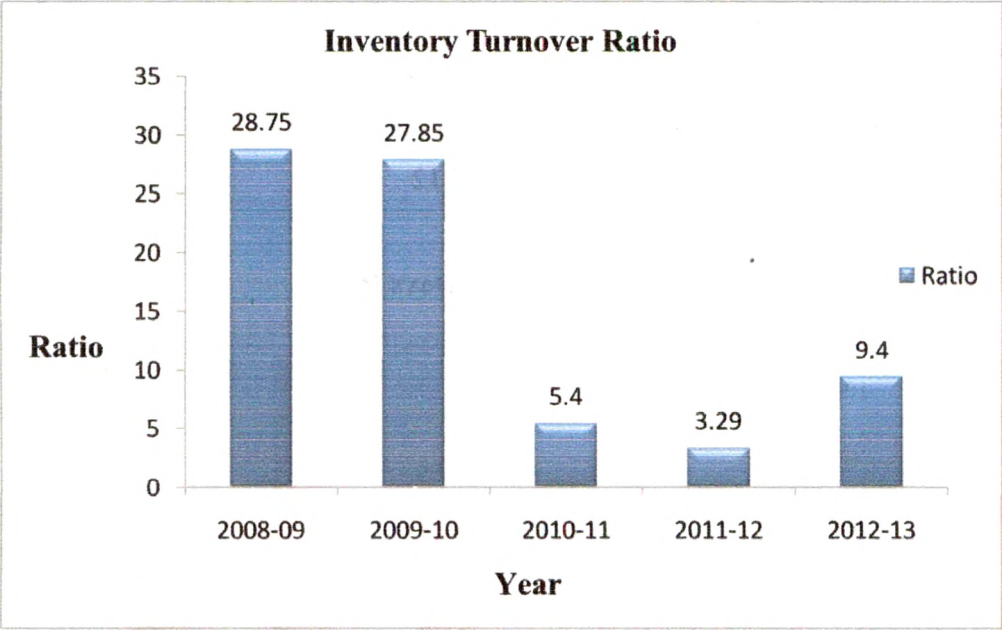
Table no 4.20
Inventory Turnover Ratio

Year	Cost of Goods Sold	Average Inventory	Ratio
2008-09	34,80,200	1,21,045	28.75
2009-10	38,92,222	1,39,740	27.85

2010-11	90,27,196	16,68,910	5.40
2011-12	1,24,03,578	37,62,822	3.29
2012-13	2,49,18,880	26,50,249	9.40

(Sources: Annual Report of Yash Industry from Year 2008-09 to 2012-13)

Figure No 4.11



It is understood that table no 4.20 shows that the inventory turnover ratio of Yash industry from year 2008-09 to 2012-13. In year 2008-09 this was 28.75 times which shows good performance of inventory turnover of the industry. In next year 2009-10 it was slightly decreased and goes to 27.85 times, but in last three year this ratio was very poor. It was 5.40 times, 3.29 times and 9.40 times in respectively years. It indicates the in last inventory performance of Yash industry is very poor not better management of stock.

2) Inventory Holding Days Ratio (IHDR):

This Ratio is calculated as the relationship between 365 days and inventory turnover ratio of the industry. The changes in either sales or inventory can cause a high amount of inventory days.

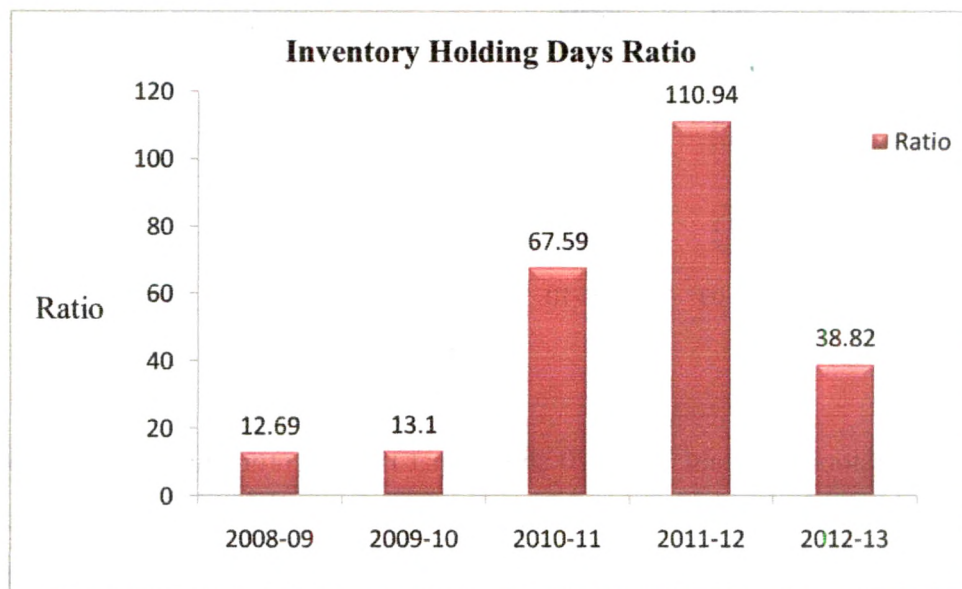
Table no 4.21

Inventory Holding Day's Ratio

Year	Day's	Inventory Turnover Ratio	Ratio
2008-09	365	28.75	12.69
2009-10	365	27.85	13.10
2010-11	365	5.40	67.59
2011-12	365	3.29	110.94
2012-13	365	9.40	38.82

(Sources: Annual Report of Yash Industry from Year 2008-09 to 2012-13)

Figure No 4.12



A look into table no 4.21 reveals that the inventory holding days ratio of Yash industry. This ratio was 12.69 days and 13.10 days in year 2008-09 to 2009-10 respectively. It shows the good performance of Yash industry in this year. After two year increasing IHD ratio was 67.59 days and 110.94 days respectively. But in last year in 2012-13 it was 38.82 days in IHD ratio. It shows the change in inventory ultimately changes in holding day's ratio of the industry.

3) Raw Material Turnover Ratio (RMTR):

The Raw Material Turnover Ratio is calculated as cost of raw material divided by average stock of raw material. The increasing raw material turnover ratio shows the decreasing trend in raw material holding day's ratio.

Table no 4.22
Raw Material Turnover Ratio

Year	Cost of R.M	Average Stock of R.M	Ratio
2008-09	20,97,910	1,21,045	17.33
2009-10	23,05,697	1,39,740	16.49
2010-11	74,66,789	16,68,910	4.47
2011-12	1,07,00,162	37,62,822	2.84
2012-13	2,24,98,852	26,50,249	8.48

(Sources: Annual Report of Yash Industry from Year 2008-09 to 2012-13)

Figure No 4.13



Table no 4.22 reveals that the raw material turnover ratio of Yash industry decreasing trend in first four year but last year shows increasing trend. In first two years ratio shows good inventory performance of the industry. It was 17.33 times and 16.49 times respectively years. But in year 2011-12 goes down 2.84 times in RMT ratio. It indicates that the poor performance of Yash industry.

4) Raw Material Holding Days Ratio (RMHDR):

Raw material holding day's ratio is the relationship between overall days and raw material turnover ratio. The high RMHD ratio indicates not sufficient performance of the industry and low RMHD ratio show sufficient performance of the industry.

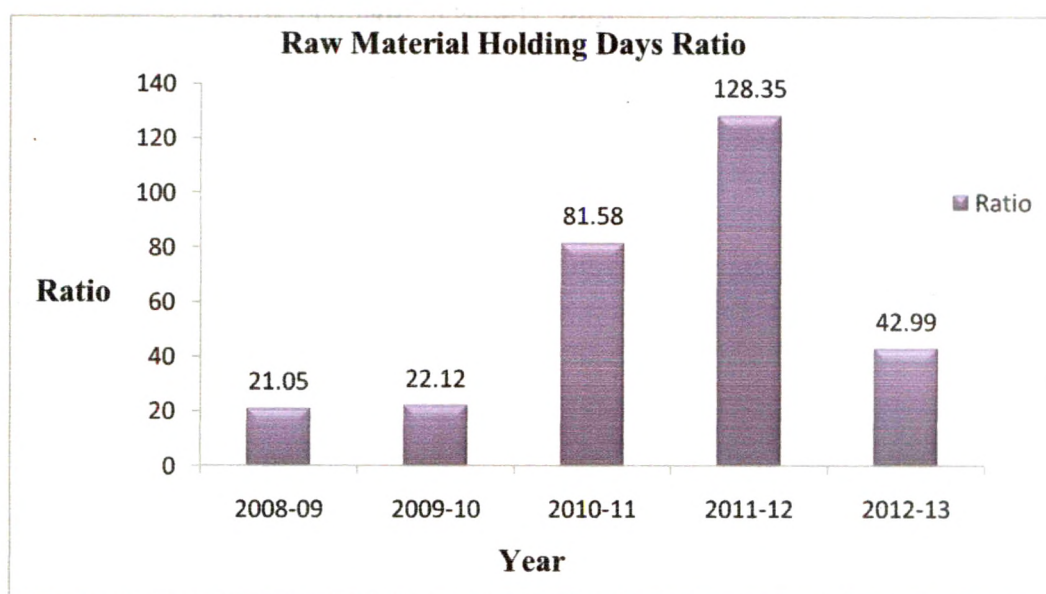
Table no 4.23

Raw Material Holding Ratio

Year	Day's	Raw Material Turnover Ratio	Ratio
2008-09	365	17.33	21.05
2009-10	365	16.49	22.12
2010-11	365	4.47	81.58
2011-12	365	2.84	128.35
2012-13	365	8.48	42.99

(Sources: Annual Report of Yash Industry from Year 2008-09 to 2012-13)

Figure No 4.14



It is understood from table no 4.23 it shows that the raw material holding days ratio of Yash industry from year 2008-09 to 2012-13. The RMHD ratio in year 2008-09 was 21.05 days; it shows the sufficient performance of the industry. But in year 2011-12 this ratio was reaches to 128.35 days, it shows that the very poor and not sufficient material management of the industry.

5) Work-In-Progress Turnover Ratio (WIPTR):

Work-in-progress ratio defined as factory cost divided by average work-in-progress. The high WIPT ratio shows the better position of industry and low WIPT ratio indicates the poor performance of the industry.

Table No 4.24

Work-In-Progress Turnover Ratio

Year	Factory Cost	Average WIP	Ratio
2008-09	36,11,210	1,22,090	29.58
2009-10	38,92,222	1,57,390	24.73
2010-11	90,43,600	31,80,430	2.84
2011-12	1,24,03,578	43,45,215	2.85
2012-13	2,50,18,880	9,55,283	26.19

(Sources: Annual Report of Yash Industry from Year 2008-09 to 2012-13)

Figure No 4.15



Table no 4.24 denotes the work-in-progress turnover ratio of Yash industry for the period of five years from 2008-09 to 2012-13. This ratio was 29.58 times and 24.73 times in year 2008-09 to 2009-10 respectively. It shows good work-in-progress performance of the industry. After next two year was goes down to 2.84 times and 2.85 times in year 2010-11 to 2012-13 respectively. It express very bad performance of the industry about WIP.

6) Work in Progress Holding Days Ratio (WIPHDR):

Work-in-progress holding day's ratio is the relationship between overall day's and work-in-progress turnover ratio. The high ratio indicates not sufficient or poor performance of the industry but low ratio shows the better performance of the industry.

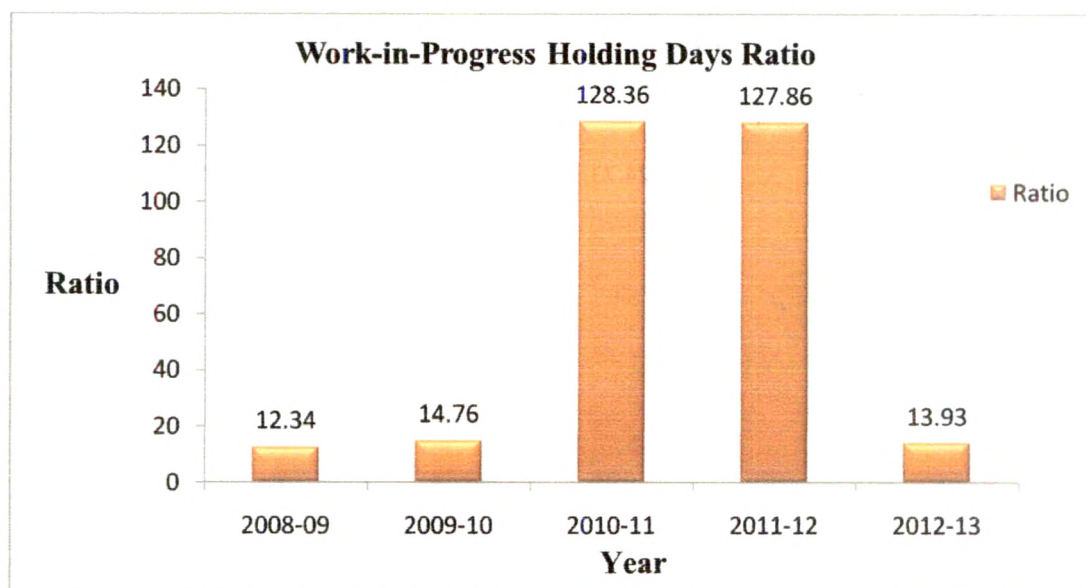
Table No 4.25

Work-In-Progress Holding Day's Ratio

Year	Day's	Work-in-Progress Turnover Ratio	Ratio
2008-09	365	29.58	12.34
2009-10	365	24.73	14.76
2010-11	365	2.84	128.36
2011-12	365	2.85	127.86
2012-13	365	26.19	13.93

(Sources: Annual Report of Yash Industry from Year 2008-09 to 2012-13)

Figure No 4.16



It is understood from table no 4.25 It shows that the work-in-progress holding days ratio of Yash industry from year 2008-09 to 2012-13. This ratio shows the good performance of WIP of the industry in first two years because; WIPHD ratio was 12.34 days and 14.76 days in year 2008-09 to 2009-10 respectively. But after two year this ratio shows very high i.e. 128.36 days and 127.86 days respectively. It shows that the work-in-progress take lot many time and it not good for the industry. In last year this ratio was reduced and become 13.93 days in year 2012-13.

7) Inventory to Sales Ratio (I to SR):

Inventory to sales ratio defined as the amount of inventory divided by the sales. The increase in inventory to sales ratio may signal an oncoming cash

flow problem. Likewise, a decrease in the inventory to sales ratio from one month to next indicates that one of these is occurring.

Table No 4.26
Inventory to Sales Ratio

Year	Inventory	Sales	Ratio
2008-09	2,42,090	35,40,000	0.07
2009-10	2,79,480	52,35,880	0.05
2010-11	33,37,820	1,04,87,573	0.32
2011-12	75,25,645	1,40,81,577	0.53
2012-13	53,00,498	2,79,43,205	0.19

(Sources: Annual Report of Yash Industry from Year 2008-09 to 2012-13)

Figure No 4.17



Table no 4.26 denotes the inventory to sales ratio of Yash industry for the study period from year 2008-09 to 2012-13. This ratio was 0.07 times in year 2008-08 it shows the sufficient available of fund. In year 2011-12 higher ratio it was 0.53 times. It indicates signal of oncoming cash flow problem of the industry. But last year this ratio reduced and become 0.19 times it shows the sufficient management of inventory of the Yash industry.

8) Inventory to Current Assets (I to CA):

Inventory to current assets ratio is the relationship between inventory and current assets. The inventory is less liquid as compared to other current assets of a company. A high ratio indicates less liquidity position of the company and low ratio shows the high liquidity position of the company.

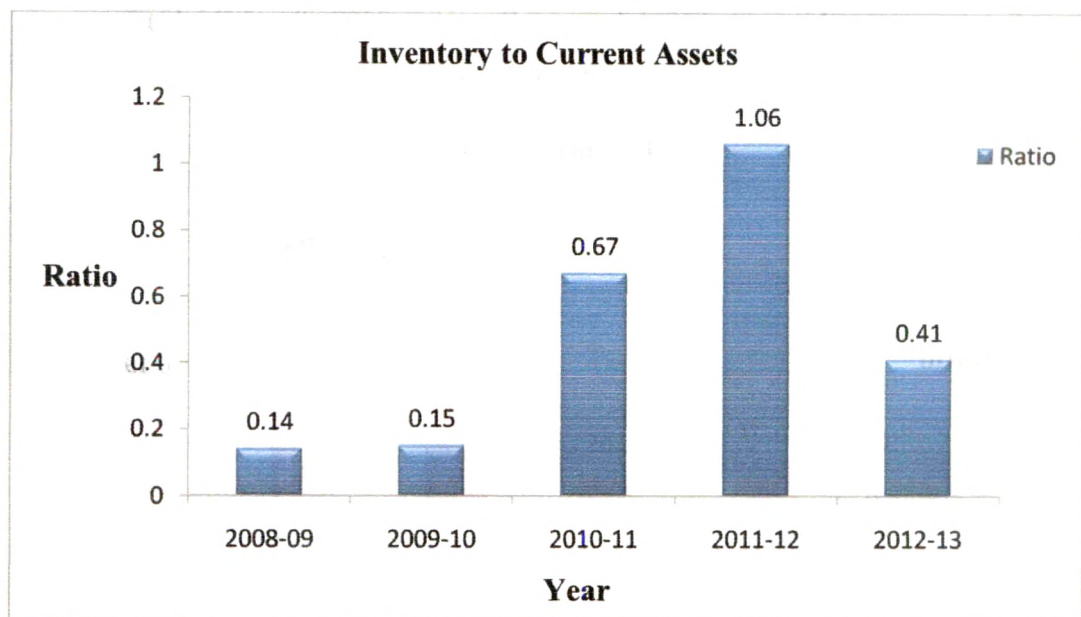
Table No 4.27

Inventory to Current Assets Ratio

Year	Inventory	Current Assets	Ratio
2008-09	2,42,090	17,66,080	0.14
2009-10	2,79,480	18,10,798	0.15
2010-11	33,37,820	50,75,852	0.67
2011-12	75,25,645	71,09,986	1.06
2012-13	53,00,498	1,28,42,533	0.41

(Sources: Annual Report of Yash Industry from Year 2008-09 to 2012-13)

Figure No 4.18



A look into table no 4.27 reveals that the inventory to current assets ratio of Yash industry. In this table it was found that inventory to current assets ratio of the industry was 0.14 times in year 2008-09 and it was increased year after year goes up to 1.06 times in year 2011-12. It shows that the liquidity position of the industry lacking down. In last year this ratio reduced and become 0.41 times.

9) Current Liabilities to Inventory Ratio (CL to IR):

Current liabilities to inventory ratio shows the relationship between current liabilities to inventory ratio. The low ratio indicates the firm will be able to meet short-term obligations and a high ratio may be cause for concern and single a potential cash shortage.

Table No 4.28
Current Liabilities to Inventory Ratio

Year	Current Liabilities	Inventory	Ratio
2008-09	81,322	2,42,090	0.34
2009-10	33,7,502	2,79,480	1.21
2010-11	54,64,924	33,37,820	1.64
2011-12	59,43,977	75,25,645	0.79
2012-13	91,07,118	53,00,498	1.72

(Sources: Annual Report of Yash Industry from Year 2008-09 to 2012-13)

Figure No 4.19

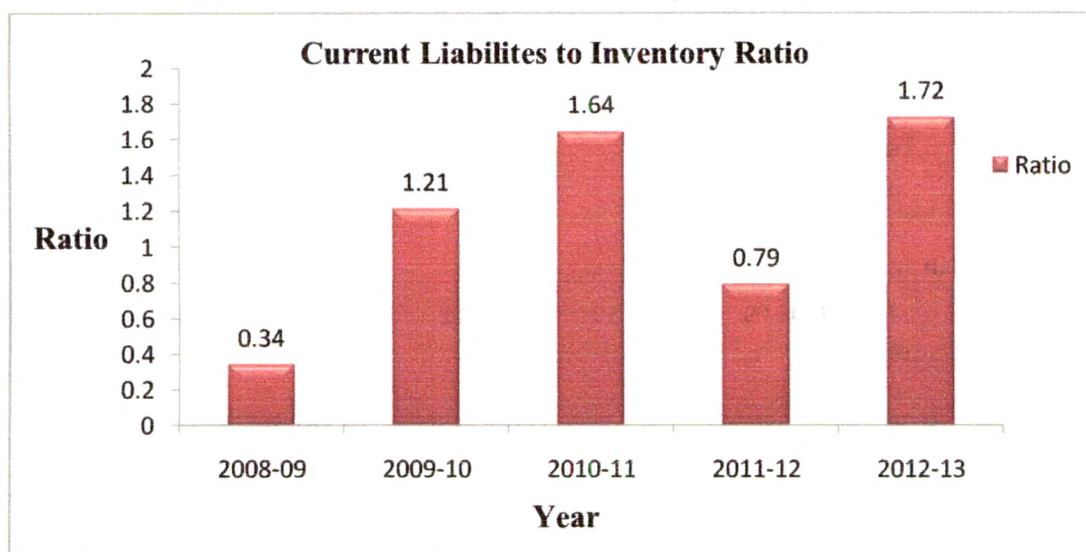


Table no 4.28 denotes that the current liabilities to inventory ratio of Yash industry from year 2008-09 to 2012-13. In year 2008-09 ratios was 0.34 times, it shows that industry can paid their liabilities in time. But next two ratios was increased and become 1.64 times which shows the problem about the payment of liabilities. In year 2011-12 this ratio was reduced and become 0.79 but after year 2012-13 it was increased 1.72 times.

10) Inventory to Net Working Capital Ratio (I to NWCR):

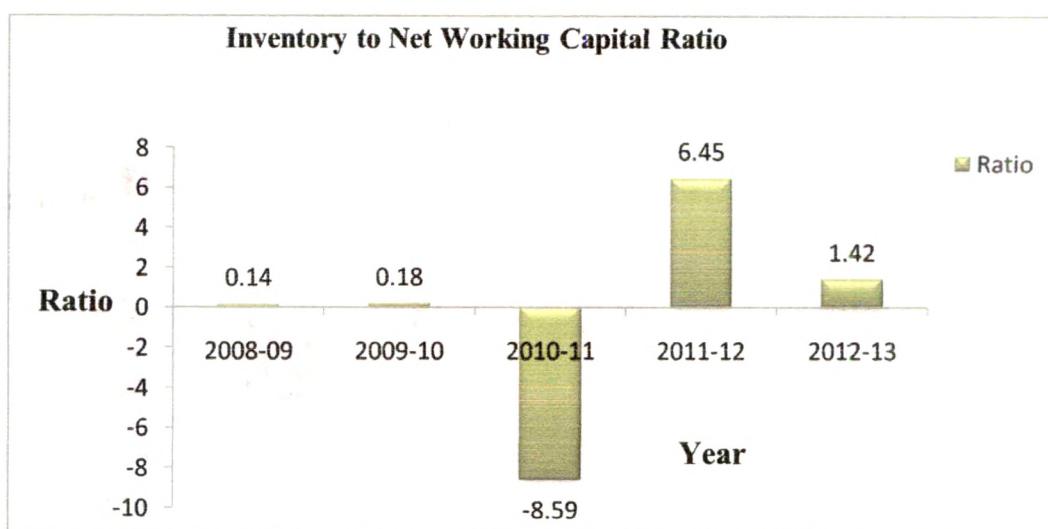
Inventory to net working capital shows the relationship between investments made in inventory and total net investment in working capital. Every business organization should have sufficient working capital for day to day running of the business. Inventory is an important part of working capital because of the direct impact which to have the organizations profits.

Table No 4.29
Inventory to Net Working Capital Ratio

Year	Inventory	Working Capital	Ratio
2008-09	2,42,090	16,84,758	0.14
2009-10	2,79,480	14,73,296	0.18
2010-11	33,37,820	-3,89,072	-8.59
2011-12	75,25,645	11,66,009	6.45
2012-13	53,00,498	37,35,415	1.42

(Sources: Annual Report of Yash Industry from Year 2008-09 to 2012-13)

Figure No 4.20



It is understood table No 4.29 shows that the inventory to net working capital ratio of Yash industry. This ratio was 0.14 times in year 2008-09 and 0.18 in year 2009-10. It indicates the working capital includes fewer inventories which is sound working capital position of the industry. But in year 2010-11 ratio was -8.59 times because the working capital in that year negative. In next year it was increase and become 6.45 times it shows bad working capital position of the industry.

4.3.2 ABC ANALYSIS OF YASH INDUSTRY:

The ABC inventory control technique is based on the principle that a small portion of the items may typically represent the bulk of money value of the total inventory used in the production process, while a relatively large number of items may from a small part of the money value of stores. The money values are ascertained by multiplying the quantity of material of each item by

its unit price. “A” or the “highest value items” should be under the tight control and under responsibility of the most experienced personnel, while “C” or the “lowest value items” may be under simple physical control. The items of category A should be under the maximum control items or category B may not be given that much attention and item C may be under a loose control. The researcher has been used 50 items in ABC analysis of Yash industry, these are as follows;

Table No 4.30
ABC Analysis of Yash Industry

No	Particular	Quantity	Rate	Total Rs	Qty %	Value %	Categories
	A) SS410-T Round Bar (Black)						
)	100 mm Dai	44	56	2464	0.39	0.20	C
)	90 mm Dai	174	85	14790	1.54	1.21	B
)	95 mm Dai	108	45	4860	0.95	0.40	C
)	85 mm Dai	170	95	16150	1.50	1.33	B
)	110 mm Dai	198	22	4356	1.75	0.36	C
)	75 mm Dai (SS410-T)	878	11	9658	7.77	0.79	C
)	70 mm Dai	120	125	15000	1.06	1.23	B
)	80 mm Dai	194	80	15520	1.72	1.27	B
)	125 mm Dai	90	58	5220	0.80	0.43	C
))	56 mm Dai	138	899	124062	1.22	10.20	A
	B) SS410 Round Bar (Black)						
1)	150 mm Dai *2560 mm. lg	174	763	132762	1.54	10.92	A
2)	65 mm Dai	719	12	8628	6.36	0.71	C
3)	70 mm Dai	548	17	9316	4.84	0.76	C
4)	90 mm Dai	70	40	2800	0.62	0.23	C
5)	160 mm Dai	98	1142	111916	0.87	9.20	A
5)	170 mm Dai	98	684	67032	0.87	5.51	A
7)	190 mm Dai	115	125	14375	1.01	1.18	B
3)	75 mm Dai (SS410)	878	11	9658	7.77	0.79	C
9)	85 mm Dai	450	19	8550	3.98	0.70	C
))	95 mm Dai	334	100	33400	2.95	2.75	B
1)	90/95 mm * 155 mm. lg	125	125	15625	1.10	1.28	B
2)	68 mm Dai	882	7	6174	7.80	0.50	C
3)	85 mm Dai	110	49	5390	0.97	0.44	C

24)	92 mm Dai	327	125	40875	3.00	3.36	B
25)	45 mm Dai	58	125	7250	0.51	0.60	B
26)	56 mm Dai	98	24	2352	0.87	0.19	C
27)	60 mm Dai	250	21	5250	2.21	0.43	C
28)	80 mm Dai	39	50	1950	0.34	0.16	C
29)	130 mm Dai	82	92	7544	0.72	0.62	B
30)	125 mm Dai	99	32	3168	0.88	0.26	C
31)	120 mm Dai	90	98	8820	0.80	0.72	B
32)	110 mm Dai	98	90	8820	0.86	0.72	B
	C) SS316-Round Bar (Black)						
33)	160 mm Dai *460 mm. lg	320	21	6720	2.83	0.55	C
34)	160 mm Dai *300 mm. lg	91	551	50141	0.80	4.13	A
35)	56 mm Dai *1655 mm. lg	128	528	67584	1.13	5.56	A
	D) SS 316- Round Bar (Black)						
36)	80 mm Dai *1145 mm. lg	228	528	120384	2.01	9.90	A
37)	100 mm Dai *215 mm .lg	228	23	5244	2.01	0.43	C
	E) UNS 31830 Round Bar (Black)						
38)	40/42 mm *1505 mm. lg	195	28	5460	1.72	0.45	C
39)	60/65 mm *85 mm. lg	195	28	5460	1.72	0.45	C
	F) SS 431 Round Bar (Bright)						
40)	75 mm *3030 mm. lg	200	800	160000	1.77	13.16	A
	G) EN-36 Round Bar (Black)						
41)	125 mmd *1230 mm	125	125	15625	1.10	1.28	B
	H) EN-8 Round Bar (Black)						
42)	90 mm Dai	827	9	7443	7.31	0.61	C
43)	75 mm Dai	310	110	34100	2.74	2.80	B
44)	70 mm Dai	14	58	812	0.12	0.06	C
45)	56 mm Dai	450	15	6750	3.98	0.55	C
46)	85 mm Dai	19	55	1045	0.17	0.08	C
47)	130 mm Dai	14	60	840	0.13	0.06	C
48)	56 mm Dai	15	56	840	0.13	0.06	C
49)	80 mm Dai	20	58	1160	0.17	0.09	C
50)	160 mm Dai	70	27	1890	0.61	0.15	C
	Total	11305		1215233	100	100	

(Sources: Annual Report of Yash Industry)

A look into table 4.30 denotes the ABC analysis of Yash industry there 50 items with corresponding quantity and their values. The items divided into A, B, C categories.

“A” Category – 10.21% of the items represent 68.58% of the money value.

“B” Category –20.61% of the items represent 20.35% of the money value.

“C” Category – 69.28% of the items represent 10.89% of the money value.

Calculation of ABC Analysis:

1] In the table, the total amount of particular items calculated as following ways- e.g. 90 mm Dai.

$$\begin{aligned}
 \text{TotalAmount} &= \text{Quantity} \times \text{Rs. PerUnit} \\
 &= 174 \times 85 \\
 &= \text{Rs. 14790}
 \end{aligned}$$

2] The Percentages of Quantity:

$$\begin{aligned}
 \% \text{ of Quantity} &= \frac{\text{Quantity}}{\text{Total Quantity}} \times 100 \\
 &= \frac{174}{11305} \times 100 \\
 &= 1.54 \%
 \end{aligned}$$

3] The Percentages of Total Amount:

$$\begin{aligned}
 \% \text{ of Value} &= \frac{\text{Total Value}}{\text{Total Value (all items)}} \times 100 \\
 &= \frac{14790}{1215233} \times 100 \\
 &= 1.21 \%
 \end{aligned}$$

I] ‘A’ Categories Items:

Table No. 4.31

‘A’ Categories

Sr No	Particular	Total Rs	Qty %	Value %
1)	56 mm Dai	124062	1.22	10.2
2)	150 mm Dai *2560 mm. lg	132762	1.54	10.92

3)	160 mm Dai	111916	0.87	9.20
4)	170 mm Dai	67,032	0.87	5.51
5)	160 mm Dai *300 mm. lg	50,141	0.8	4.13
6)	56 mm Dai *1655 mm. lg	67,584	1.13	5.56
7)	80 mm Dai *1145 mm. lg	120384	2.01	9.9
8)	75 mm *3030 mm. lg	160000	1.77	13.16
	Total	833,881	10.21	68.58

(Sources: Annual Report of Yash Industry)

Table no 4.31 Shows that the 8 number of different items classified into ‘A’ groups. These items constitute 10.21% out of total quantity items and they invested 68.58% of total value of inventory holding. Which is maximum level of investment, according to since the table greatest monetary benefits will come by controlling ‘A’ items these items are not easily available in local market.

II] ‘B’ Categories Items:

Table No. 4.32

‘B’ Categories

S r No	Particular	Total Re	Qty %	Value %
1)	90 mm Dai	14790	1.54	1.21
2)	85 mm Dai	16150	1.5	1.33
3)	70 mm Dai	15000	1.06	1.23
4)	80 mm Dai	15520	1.72	1.27
5)	190 mm Dais	14375	1.01	1.18
6)	95 mm Dai	33400	2.95	2.75
7)	90/95 mm *155mm. lg	15625	1.1	1.28
8)	92 mm Dai	40875	3	3.36
9)	45 mm Dai	7250	0.51	0.6
10)	130 mm Dai	7544	0.72	0.62
11)	120 mm Dai	8820	0.8	0.72
12)	110 mm Dai	8820	0.86	0.72
13)	125 mm Dai *1230 mm	15625	1.10	1.28
14)	75 mm Dai	34100	2.74	2.80
	Total	247894	20.61	20.35

(Sources: Annual Report of Yash Industry)

Table no 4.32 shows that the 14 number of different items classified into ‘B’ group. These items constitute 20.61% out of total quantity items. They invested 20.35% of total value of inventory holding, which is moderate level of investment, according to since the table medium financial benefit come by controlling ‘B’ Items.

I] ‘C’ Categories Items:

Table No 4.33

‘C’ Categories

Sr. No	Particular	Total Rs	Qty %	Value %
1)	100 mm Dai	2464	0.39	0.20
2)	95 mm Dai	4860	0.95	0.40
3)	110 mm Dai	4356	1.75	0.36
4)	75 mm Dai (SS410-T)	9658	7.77	0.79
5)	125 mm Dai	5220	0.80	0.43
6)	65 mm Dai	8628	6.36	0.71
7)	70 mm Dai	9316	4.84	0.76
8)	90 mm Dai	2800	0.62	0.23
9)	75 mm Dai (SS410)	9658	7.77	0.79
10)	85 mm Dai	8550	3.98	0.7
11)	68 mm Dai	6174	7.8	0.5
12)	85 mm Dai	5390	0.97	0.44
13)	56 mm Dai	2352	0.87	0.19
14)	60 mm Dai	5250	2.21	0.43
15)	80 mm Dai	1950	0.34	0.16
16)	125 mm Dai	3168	0.88	0.26
17)	160 mm Dai *460 mm. lg	6720	2.83	0.55
18)	100 mm Dai *225 mm. lg	5244	2.01	0.43
19)	40/45 mm *1145 mm. lg	5460	1.72	0.45
20)	60/65 mm *85 mm. lg	5460	1.72	0.45
21)	90 mm Dai	7443	7.31	0.61
22)	70 mm Dai	812	0.12	0.06
23)	56 mm Dai	6750	3.98	0.55
24)	85 mm Dai	1045	0.17	0.08
25)	130 mm Dai	840	0.13	0.06
26)	56 mm Dai	840	0.13	0.06

27)	80 mm Dai	1160	0.17	0.09
28)	160 mm Dai	1890	0.61	0.15
	Total	133458	69.28	10.89

(Sources: Annual Report of Yash Industry)

Table no 4.33 shows that the 28 number of different items classified into ‘C’ group. These items constitute 69.28% out of total quantity items. They invested 10.89% of total value of inventory holding which is minimum level of investment. The table indicates the low inventory come by C items. These items are easily available in local market but product of consumption value is low or minimum investment of inventory.

4.3.3 VED ANALYSIS OF YASH INDUSTRY:

VED Analysis attempts to classify the items used into three broad categories, namely Vital, Essential, and Desirable. The analysis classifies items on the basis of their criticality for the industry or company. This classification is applicable only for spare parts and components. It based on the price, availability etc.

- a] V:-‘V’ stands for ‘Vital items’, when go out of stock or when not readily available, completely bring the production to a halt.
- b] E:-‘E’ stands for ‘Essential items’, without which temporary losses of production or dislocation of production work occurs.
- c] D:-‘D’ stands for ‘Desirable items’ all other items which are necessary but not cause any immediate effect on production.

Table No 4.34

VED Analysis of Yash Industry

Sr. No	Particular	Quantity	Rate	Total Rs	Qty %	Value %	Categor
	A) SS410-T Round Bar (Black)						
1)	100 mm Dai	44	56	2464	0.39	0.20	V
2)	90 mm Dai	174	85	14790	1.54	1.21	D
3)	95 mm Dai	108	45	4860	0.95	0.40	D
4)	85 mm Dai	170	95	16150	1.50	1.33	D

5)	110 mm Dai	198	22	4356	1.75	0.36	E
6)	75 mm Dai (SS410-T)	878	11	9658	7.77	0.79	D
7)	70 mm Dai	120	125	15000	1.06	1.23	V
8)	80 mm Dai	194	80	15520	1.72	1.27	E
9)	125 mm Dai	90	58	5220	0.80	0.43	D
10)	56 mm Dai	138	899	124062	1.22	10.20	V
	B) SS410 Round Bar (Black)						
11)	150 mm Dai *2560 mm. lg	174	763	132762	1.54	10.92	V
12)	65 mm Dai	719	12	8628	6.36	0.71	D
13)	70 mm Dai	548	17	9316	4.84	0.76	D
14)	90 mm Dai	70	40	2800	0.62	0.23	D
15)	160 mm Dai	98	1142	111916	0.87	9.20	E
16)	170 mm Dai	98	684	67032	0.87	5.51	D
17)	190 mm Dai	115	125	14375	1.01	1.18	V
18)	75 mm Dai (SS410)	878	11	9658	7.77	0.79	D
19)	85 mm Dai	450	19	8550	3.98	0.70	E
20)	95 mm Dai	334	100	33400	2.95	2.75	D
21)	90/95 mm * 155 mm. lg	125	125	15625	1.10	1.28	D
22)	68 mm Dai	882	7	6174	7.80	0.50	E
23)	85 mm Dai	110	49	5390	0.97	0.44	D
24)	92 mm Dai	327	125	40875	3.00	3.36	V
25)	45 mm Dai	58	125	7250	0.51	0.60	E
26)	56 mm Dai	98	24	2352	0.87	0.19	D
27)	60 mm Dai	250	21	5250	2.21	0.43	V
28)	80 mm Dai	39	50	1950	0.34	0.16	D
29)	130 mm Dai	82	92	7544	0.72	0.62	D
30)	125 mm Dai	99	32	3168	0.88	0.26	D
31)	120 mm Dai	90	98	8820	0.80	0.72	D
32)	110 mm Dai	98	90	8820	0.86	0.72	D
	C) SS316-Round Bar (Black)						
33)	160 mm Dai *460 mm. lg	320	21	6720	2.83	0.55	D
34)	160 mm Dai *300 mm. lg	91	551	50141	0.80	4.13	E
35)	56 mm Dai *1655 mm. lg	128	528	67584	1.13	5.56	D
	D) SS 316- Round Bar (Black)						
36)	80 mm Dai *1145 mm. lg	228	528	120384	2.01	9.90	D

37)	100 mm Dai *215 mm .lg	228	23	5244	2.01	0.43	D
	E) UNS 31830 Round Bar (Black)						
38)	40/42 mm *1505 mm. lg	195	28	5460	1.72	0.45	D
39)	60/65 mm *85 mm. lg	195	28	5460	1.72	0.45	D
	F) SS 431 Round Bar (Bright)						
40)	75 mm *3030 mm. lg	200	800	160000	1.77	13.16	D
	G) EN-36 Round Bar (Black)						
41)	125 mmd *1230 mm	125	125	15625	1.10	1.28	E
	H) EN-8 Round Bar (Black)						
42)	90 mm Dai	827	9	7443	7.31	0.61	D
43)	75 mm Dai	310	110	34100	2.74	2.80	D
44)	70 mm Dai	14	58	812	0.12	0.06	V
45)	56 mm Dai	450	15	6750	3.98	0.55	D
46)	85 mm Dai	19	55	1045	0.17	0.08	E
47)	130 mm Dai	14	60	840	0.13	0.06	V
48)	56 mm Dai	15	56	840	0.13	0.06	D
49)	80 mm Dai	20	58	1160	0.17	0.09	E
50)	160 mm Dai	70	27	1890	0.61	0.15	D
	Total	11305		1215233	100	100	

(Sources: Annual Report of Yash Industry)

I] ‘V’ (Vital) Items:

Table No 4.35

‘V’ (Vital) Items

Sr. No	Particular	Total Rs	Qty %	Value %
1)	100 mm Dai	2464	0.39	0.20
2)	70 mm Dai	15000	1.06	1.23
3)	56 mm Dai	124062	1.22	10.20
4)	150 mm Dai *2560 mm. lg	132762	1.54	10.92
5)	190 mm Dai	14375	1.01	1.18
6)	92 mm Dai	40875	3.00	3.36
7)	60 mm Dai	5250	2.21	0.43
8)	70 mm Dai	812	0.12	0.06
9)	130 mm Dai	840	0.12	0.06

(Sources: Annual Report of Yash Industry)

Table no 4.35 shows that 9 numbers of different items classified into ‘V’ groups. After detailed analysis it shows that 9 items of inventory has ‘V’ category that is Vital. If the Vital are not available in item the production have gain very high loss due to shortage of production or a very high cost due to emergency.

III] ‘E’ Categories Items:

Table No 4.36
‘E’ Categories

Sr No	Particular	Total Rs	Qty %	Value %
1)	110 mm Dai	4356	1.75	0.36
2)	80 mm Dai	15520	1.72	1.27
3)	160 mm Dai	111916	0.87	9.20
4)	85 mm Dai	8550	3.98	0.70
5)	68 mm Dai	6174	7.80	0.50
6)	45 mm Dai	7250	0.51	0.60
7)	160 mm Dai *300 mm. lg	50141	0.80	4.13
8)	125 mmd * 1230 mm	15624	1.10	1.28
9)	85 mm Dai	1045	0.16	0.06
10)	80 mm Dai	1160	0.17	0.09

(Sources: Annual Report of Yash Industry)

Table no 4.36 shows that the 10 numbers of different items classified into ‘E’ category. Table shows that the 10 items of inventory has ‘E’ category i.e. Essential. If the ‘E’ category items are not available it will directly not affected the production in huge manner but affect the production some cases.

III] ‘D’ Categories Items:

Table No 4.37
‘D’ Categories

Sr. No	Particular	Total Rs	Qty %	Value %
1)	90 mm Dai	14790	1.54	1.21
2)	95 mm Dai	4860	0.95	0.40
3)	85 mm Dai	16150	1.50	1.33
4)	75 mm Dai (SS410-T)	9658	7.77	0.79
5)	125 mm Dai	5220	0.80	0.43

6)	65 mm Dai	8628	6.36	0.71
7)	70 mm Dai	9316	4.84	0.76
8)	90 mm Dai	2800	0.62	0.23
9)	170 mm Dai	67032	0.87	5.51
10)	75 mm Dai (SS410)	9658	7.77	0.79
11)	95 mm Dai	33400	2.95	2.75
12)	90/95 mm * 155 mm. lg	15625	1.10	1.28
13)	85 mm Dai	5390	0.97	0.44
14)	56 mm Dai	2352	0.87	0.19
15)	80 mm Dai	1950	0.34	0.16
16)	130 mm Dai	7544	0.72	0.62
17)	125 mm Dai	3168	0.88	0.26
18)	120 mm Dai	8820	0.80	0.72
19)	110 mm Dai	8820	0.86	0.72
20)	160 mm Dai *460 mm. lg	6720	2.83	0.55
21)	56 mm Dai *1655 mm. lg	67584	1.13	5.56
22)	80 mm Dai *1145 mm. lg	120384	2.01	9.90
23)	100 mm Dai *215 mm .lg	5244	2.01	0.43
24)	40/42 mm *1505 mm. lg	5460	1.72	0.45
25)	60/65 mm *85 mm. lg	5460	1.72	0.45
26)	75 mm *3030 mm. lg	160000	1.77	13.16
27)	90 mm Dai	7443	7.31	0.61
28)	75 mm Dai	34100	2.74	2.80
29)	56 mm Dai	6750	3.98	0.55
30)	56 mm Dai	840	0.13	0.06
31)	160 mm Dai	1890	0.61	0.15

(Sources: Annual Report of Yash Industry)

Table no 4.37 shows that the 31 numbers of different items classified into ‘D’ category. It shows that the 31 items of inventory has ‘D’ category that is desirable. It indicated these items are necessary but not cause any immediate effect on production.

4.3.4 ABC-VED MATRIX ANALYSIS OF YASH INDUSTRY:

ABC-VED matrix analysis helps the management to decide the material policy and material management. ABC-VED matrix analysis shows the cross tabulating the ABC and VED items classification. From the resultant

combination, three categories were classified (I, II and III). In these subcategories, the first alphabet denotes its place in the ABC analysis, while the second alphabet stands for its place in the VED analysis. An items belonging to both V items and A items are more costly and difficult to management by these items.

Table No 4.38
ABC-VED Matrix analysis of Yash Industry

Class	V	E	D	Total
A	2	2	4	8
B	3	3	8	14
C	4	5	19	28
Total	9	10	31	50

(Sources: Annual Report of Yash Industry)

Table no. 4.38 shows the ABC-VED matrix analysis of Yash industry. The classifications of raw material in three categories are as follows;

Class I: AV+BV+CV+AE+AD

$$2 + 3 + 4 + 2 + 4 = \mathbf{15\ Items\ (30\%)}$$

Class II: BE+CE+BD

$$3 + 5 + 8 = \mathbf{16\ Items\ (32\%)}$$

Class III: CD

$$19 = \mathbf{19\ Items\ (38\%)}$$

Table no. 4.38 shows the ABC-VED matrix analysis of Yash industry. This analysis are classified into three categories i.e. Class-I items (AV+BV+CV+AE+AD), Class-II (BE+CE+BD) and Class-III (CD).

Class-I:

Table no. 4.38 reveals that the class-I items of Yash industry is 15 items (30%) of total items (i.e. 50 items). It indicates that the management of Yash industry should give more focus on these items because it was not easily available and

more costly. If these items are not available in timely the production process is breakdown.

Class-II:

In class-II there is 16 items (32%) of total items of Yash industry. It shows that the class-II items are moderately important and essential to production process. These items are not available in timely the temporary losses of the production. So management should careful about these class-II items.

Class-III:

In class-III there is 19 items (38%) of total items (50 items) of Yash industry. It shows that the class-III items are least important and desirable items for management. If this class items are easily available and necessary for production process, but which are not available in timely they directly does not affect the production. The overall ABC-VED matrix analysis shows the satisfactory performance of inventory management in Yash industry.

4.3.5 PROBLEMS OF YASH INDUSTRY:

Yash industry performance in inventory management is better but there is some of the problem, which affects the performance of the industry. The problem faced by shortage of raw material, workers and finance related they are as follow;

A) Problems of Raw Materials:

- 1) Absolute scarcity of raw material there is main problem of Yash industry.
- 2) Yash industry has faced various problems about the transportation (i.e.: Long Root, Driver Problem, High Transport Cost etc.)
- 3) The Yash industry has not made proper inventory management technique in production process.

B) Problems of Workers:

- 1) The industry should not provide new training facility to workers.
- 2) Worker faced the problem for not timely receive payment.

3) No frankly communication between of workers and administration of the industry.

C) Problem of Finance:

1) Industry facing the problem of shortage of loan because they have shortage of capital and bank should not provide sufficient loan.

4.4 COMPARATIVE STATEMENT OF TWO SELECTED SMALL SCALE INDUSTRY:

The researcher has been selected two small scale industries i.e. Thorat industry and Yash industry. These two SSIs are located in Palus Taluka in M.I.D.C area. The researcher studied the comparative analysis of Inventory ratio, ABC analysis technique, VED analysis technique, ABC-VED matrix etc. the compare these techniques are as follows;

Table No 4.39
Comparative Turnover Ratio of Two Selected Small Scale Industries- I

Year	Thorat Industry					Yash Industry				
	ITR	IHDR	I to CAR	CL to IR	I to WCR	ITR	IHDR	I to CAR	CL to IR	I to WCR
2008-09	36.26	10.06	0.12	7.36	0.99	28.75	12.69	0.14	0.34	0.14
2009-10	27.42	13.31	0.18	5.34	5.24	27.85	13.10	0.15	1.21	0.18
2010-11	49.84	7.32	0.09	8.12	0.34	5.40	67.59	1.65	1.64	-8.58
2011-12	16.13	22.63	0.21	3.46	0.84	3.30	110.94	1.06	0.79	6.45
2012-13	16.14	22.61	0.26	2.51	0.77	9.40	38.82	0.41	1.72	1.41

(Sources: Annual Report of Thorat Industry and Yash Industry Palus for the Year 2008-09 to 2012-13.)

Table no 4.39 shows that the comparative turnover ratio of both the industries i.e. compares Inventory Turnover Ratio (ITR), Inventory Holding Days Ratio (IHDR), Inventory to Current Assets Ratio (I to CAR), Current Liability to Inventory Ratio (CL to IR), and Inventory to Working Capital Ratio (I to WCR) of selected two industries.

The inventory turnover ratio (ITR) of Thorat industry in year 2008-09 it was 36.26 times and it decrease year after year and become 16.14 times in year 2012-13. The ITR of Yash industry was 28.75 times in year 2008-09 and it was also decreased and become 9.40 times in year 2012-13. This ratio shows

that the inventory turnover ratio Thorat industry is better than Yash industry, because the inventory of Thorat industry is more time turnover in year as compared to Yash industry.

The inventory holding days ratio (IHDR) of Thorat industry was 10.06 days in year 2008-09 it was increased during the study period and goes up to 22.61 days in year 2012-13. The IHDR of Yash industry was 12.69 days in year 2008-09 and it was increase and goes up to 110.94 days in the year 2011-12. This ratio shows that inventory turnover performance of Thorat industry is good than the Yash industry. It means the inventory of Thorat industry is stock for less period, it help to increase the performance.

The inventory to current assets ratio (I to CAR) of Thorat industry was 0.12 times in the year 2008-09. It was increased during the study period and goes up 0.26 times in the year 2012-13. The I to CAR of Yash industry it was 0.13 times in year 2008-09 and it was increase and go up to 1.06 times in the year 2011-12. In the next year 2012-13 it was become 0.41times. This ratio shows that the inventory to current assets ratio performance of Thorat industry and Yash industry were having almost same position. But Thorat industry has slightly better performance than Yash industry.

The current liability to inventory ratio (CL to IR) of Thorat industry it was 7.35 times in the year 2008-09. It was decreased year after year and become 2.51 times in the year 2012-13. The CL to IR of Yash industry it was 0.34 times in the year 2008-09 it was increase and become 1.72 times in the year 2012-13. This ratio shows that the current liability to inventory ratio of Thorat industry is better than Yash industry. The ratio of Thorat industry is less than the Yash industry it means Thorat industry can paid their liabilities in time.

The inventory to working capital ratio (I to WCR) of Thorat industry it was 0.99% in the year 2008-09 and it was increased and goes up to 5.24% in the year 2009-10, in the year 2012-13 it was 0.77%. The I to WCR of Yash industry it was 0.14% in the year 2008-09 and it was increased and goes up to 6.45% in the year 2011-12 and in the next year it become 1.41%. This ratio shows that inventory to working capital ratio performance of Thorat industry

and Yash industry does not have more difference in the study period. It shows same kind of performance of both the industry.

Figure No 4.21

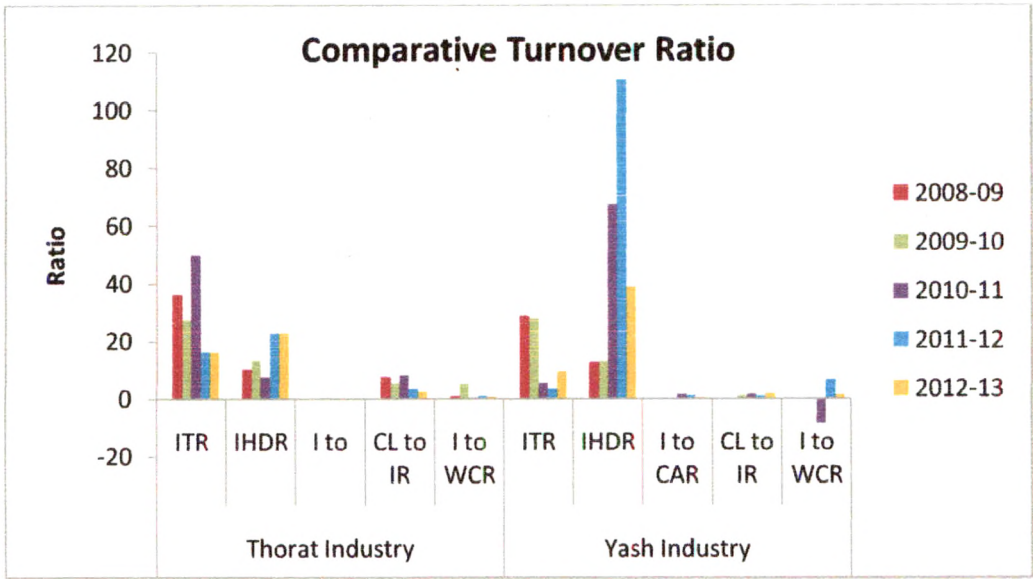


Figure no 4.21 shows the comparative turnover ratio performance of two selected industries. From the figure it was found that over the study period the performance of inventory turnover both the industries show the fluctuating trend. Both industries having same performance throughout the overall study period. Only in term of current liabilities to inventory turnover ratio of Thorat industry is better than the Yash industry.

Table No 4.40
Comparative Turnover Ratio of Two Selected Small Scale Industries- II

Year	Thorat Industry					Yash Industry				
	RMTR	RMHDR	WIPTR	WIPHDR	I to SR	RMTR	RMHDR	WIPTR	WIPHDR	I to SR
8-09	31.18	11.70	26.26	13.90	0.051	17.33	21.05	29.58	12.34	0.07.
9-10	22.98	15.88	37.85	9.64	0.064	16.49	22.12	24.73	14.76	0.05
0-11	37.64	9.70	45.94	7.95	0.034	4.48	81.58	2.84	128.36	0.32
1-12	12.88	28.39	9.74	37.49	0.106	2.84	128.35	2.85	127.86	0.53
2-13	13.45	27.14	68.55	5.32	0.102	8.48	43.00	26.19	13.93	0.19

(Sources: Annual Report of Thorat Industry and Yash Industry Palus for the Year 2008-09 to 2012-13.)

Table no 4.40 shows that the turnover ratio of selected both industries i.e. compare raw material turnover ratio (RMTR), raw material holding days ratio (RMHDR), work-in-progress turnover ratio (WIPTR), work-in-progress holding days ratio (WIPHDR), and inventory to sales ratio (ISR) of selected both industries.

The raw material turnover ratio (RMTR), of Thorat industry in the year 2008-09 it was 31.18 times it was decreased year after year and become 13.45 times in the year 2012-13. The raw material turnover ratio (RMTR) of Yash industry it was 17.33 times in the year 2008-09 and it was decreased and become 8.48 times in the year 2012-13. This ratio shows that the raw material turnover ratio of Thorat industry is better than the Yash industry. The performance of RMT ratio of both the industries have equal but Thorat industry is slightly good as compared to Yash industry.

The raw material holding day's ratio (RMHDR) of Thorat Industry it was 11.70 days in the year 2008-09. It was increased during the study period and go up to 27.14 days in the year 2012-13. The RMHD ratio of Yash industry it was 21.05 days in the year 2008-09 and it was increase and goes up to 128 days in the year 2011-12. In the next year it was become 43.00 days. This ratio shows that the raw material performance of Thorat industry is slightly good than the Yash industry. This ratio shows that the raw material of Yash industry is kept in stock for more time as compared to Thorat industry.

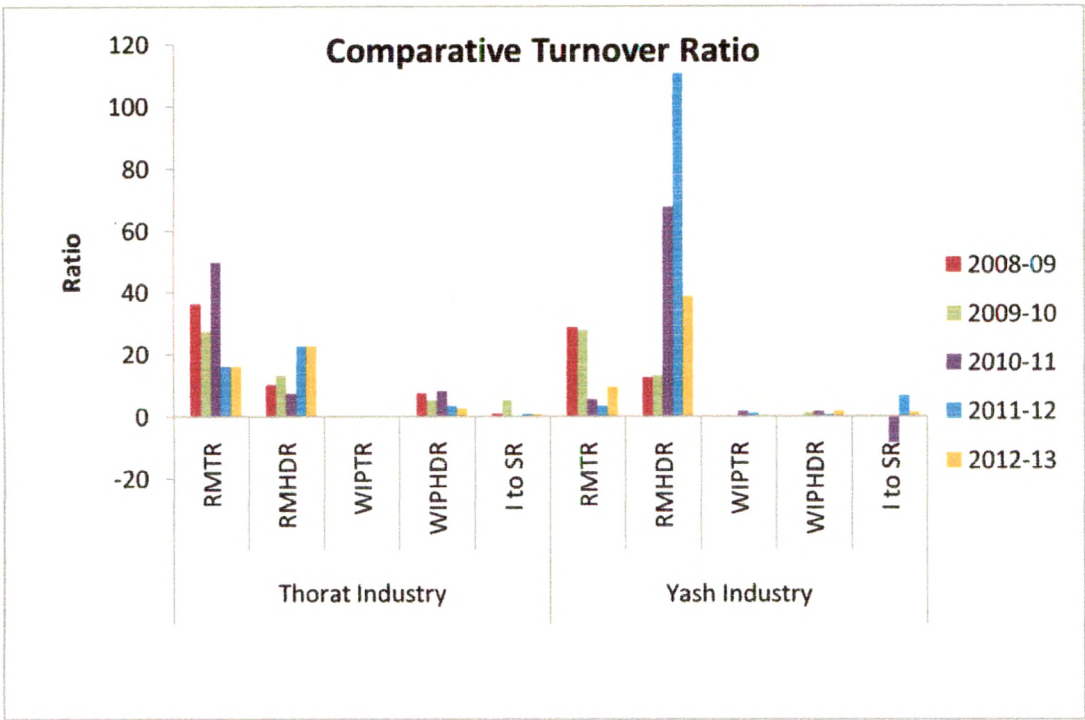
The work-in-progress turnover ratio of Thorat industry it was 26.26 times in the year 2008-09 it was decreased and become 9.74 times in the year 2011-12. In the next year it was become 68.55 times. The WIPT ratio of Yash industry it was 29.58 times in the year 2008-09. But it was 2.84 times and 2.85 times in the year 2010-11 to 2012-13. It was reduced in the next year and become 26.19 times. This ratio shows that the work-in-progress performance of Thorat industry is slightly good than the Yash industry.

The work-in-progress holding day's ratio (WIPHDR) of Thorat industry it was 13.90 days in year 2008-09 and it decreased year after year and become 5.32 days in the year 2012-13. The WIPHD ratio of Yash industry it was 12.34

days and it was increase and goes up to 128.36 days, 127.86 days in the year 2010-11 to 2011-12 respectively. In the next year it becomes 13.93 days. This ratio shows that work-in-progress holding day's ratio of Thorat industry is better than Yash industry.

The inventory to sales ratio (I to SR) of Thorat industry in the year 2008-09 it was 0.051 time and it was increased year after year and become 0.102 time in the year 2012-13. The inventory to sales ratio (ISR) of Yash industry it was 0.07 time in the year 2008-09 and it was increased year after year and become 0.19 time in the year 2012-13. This ratio shows that the inventory to sales ratio of Thorat industry and Yash industry having similar kind of position over the study period.

Figure No 4.22



The figure no 4.22 shows the comparative Raw Material Turnover Ratio (RMTR), Raw Material Holding Days Ratio (RMHDR), Work-in-progress inventory Turnover Ratio (WIPTR), Work-in-progress Holding Days Ratio (WIPHDR) and Inventory to Sales Ratio (ISR) of two selected both industries. This figure shows that the over the study period the performance about inventory turnover ratio of the both the industries shows the fluctuating trend.

These two industries do not have more difference in the performance over the study period.

4.5 COMPARATIVE ABC AND VED ANALYSIS OF THORAT INDUSTRY AND YASH INDUSTRY:

Comparative ABC analysis of selected small scale industries are as follows.

Table No 4.41
Comparative ABC Analysis of Two Selected Small Scale Industries

Thorat Industry			Yash Industry	
Categories	Qty %	Value %	Qty %	Value %
A	9.27%	69.63%	10.21%	68.58%
B	20.61%	19.80%	20.61%	20.35%
C	69.57%	10.97%	69.28%	10.89%
Total	100%	100%	100%	100%

(Sources: Annual Report of Thorat Industry and Yash Industry in Palus)

Table no 4.41 shows that the comparative study of ABC analysis of both industries. In the ABC categories of Thorat industry A category includes were 9.27% items having value of 69.63%. The B category includes items were 20.61% with the value of 19.80%. In the C categories there are 69.57% items with the value of 10.97%. In case Yash industry A category includes were 10.21% items having value of 68.58%. The B category includes items were 20.61% with the value of 20.35%. In the C categories there are 69.28% items with the value of 10.89%. This table shows that the ABC classifications of both the industries were having equal kind of performance. The Figure no 4.23 shows the comparative ABC analysis. This depicted shows the similar position in Thorat industry and Yash industry.

Figure No 4.23

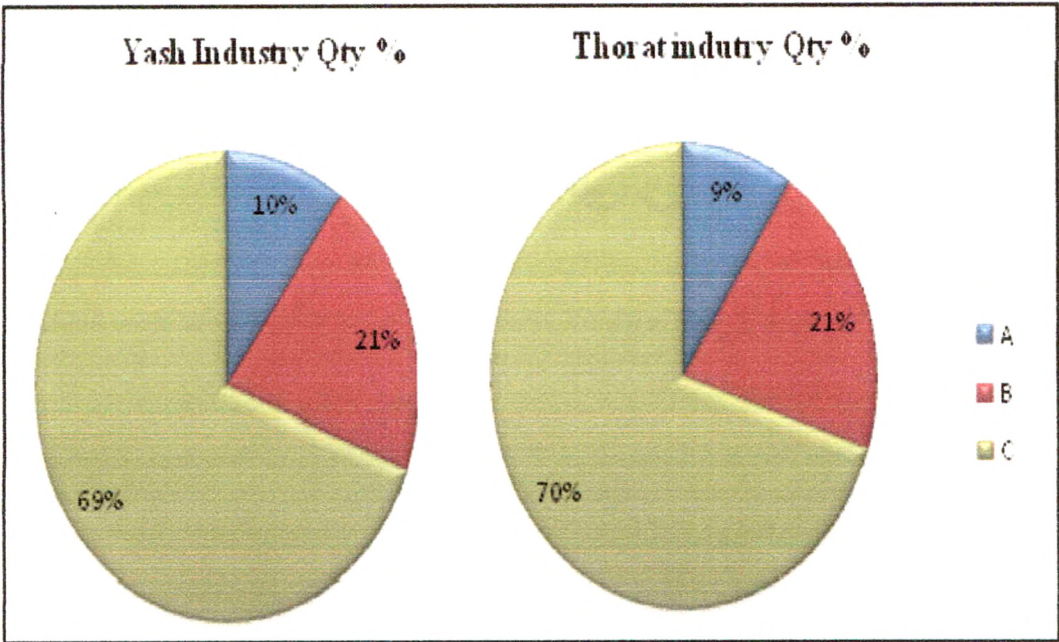


Table No 4.42

Comparative VED Analysis of Two Selected Small Scale Industries

Thorat Industry		Yash Industry
Categories	Item number	Item number
V	6	9
E	8	10
D	36	31
Total	50	50

(Sources: Annual Report of Thorat Industry and Yash Industry in Palus)

Table no 4.41 shows that the comparative study of VED analysis of selected small scale industries. In the table it was found that the V items of Thorat industry were 6 items and in Yash industry it was 9 items. In case essential (E) items of Thorat industry were 8 items and Yash industry it was 10 items. The desirable (D) items of Thorat industry were 36 items and Yash industry was 31 items. This table shows over the study period the VED analysis of both industries have same kind of classification but slightly difference.

4.6 HYPOTHESES TESTING:

For testing of hypothesis the paired sample t test is used with the help of SPSS. This test is only used when both:

- 1) The two sample sizes (i.e. the number of participant of each group) are equal;
 - 2) It can be assumed that the two distributions have the some variances.
- Violations of these assumptions are discussed below:

The t static to test whether the means are different can be calculated as follows:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{S_{x_1x_2} \cdot \sqrt{2/n}}$$

$$\text{Where, } S_{x_1x_2} = \sqrt{\frac{1}{2}(s^2_{x_1} + s^2_{x_2})}$$

Here, $S_{x_1x_2}$ is the grand standard deviation, 1 Group One and 2 Group Two. The denominator of ‘t’ test is “the standard error of the difference between two means.” For significance testing, the degree of freedom for this test is $2n-2$, where n is the number of participants in each group.

‘P’ value:

In statistical significance testing, the p value is the probability of obtaining a test statistic of least as extreme as the one that was actually observed assuming that the null hypothesis is true. One often rejects the null hypothesis when the p value is less than the significance level which is often 0.05 or 0.01. When the null hypothesis is rejected the result is said to be statistically significant. The probability of a correct decision if the null hypothesis is true 95% i.e. alpha (α)= 0.05 or 5% level of significance.

- 1) ‘P’ value is less than the significance level the null hypothesis is rejected.

$$\text{‘P’ Value} < \alpha = \text{Reject } H_0$$

- 2) ‘P’ value is greater than the significance level the null hypothesis is accepted.

$$\text{‘P’ Value} > \alpha = \text{Accept } H_0$$

Hypothesis:

H₁: The inventory management performances of two selected SSIs are different.

H₀: The inventory management performances of two selected SSIs are not different.

Table No. 4.43
Significant Difference in Inventory Management Performance of Thorat Industry & Yash Industry

Null Hypothesis	Mean	S.D.	Df	Table Value	'P' Value	Decision
TR of Thorat Industry & Yash Industry	1.42	17.54	4	1.813	0.144	Accepted
HDR of Thorat Industry & Yash Industry	1.11	9.07	4	2.733	0.052	Accepted
RMITR of Thorat Industry & Yash Industry	1.37	11.41	4	2.686	0.055	Accepted
RMHDR of Thorat Industry & Yash Industry	-4.06	42.64	4	-2.132	0.100	Accepted
WIPTR of Thorat Industry of Yash Industry	2.04	21.19	4	2.156	0.097	Accepted
WIPHDR of Thorat Industry & Yash Industry	-4.46	56.63	4	-1.761	0.153	Accepted
I to SR of Thorat Industry & Yash Industry	-0.16	0.19	4	-1.913	0.128	Accepted
I to CAR of Thorat Industry & Yash Industry	-0.31	0.38	4	-1.830	0.141	Accepted
CL to IR of Thorat Industry & Yash Industry	4.22	2.60	4	3.624	0.022	Rejected
I to NWCR of Thorat Industry & Yash Industry	1.72	5.55	4	0.691	0.527	Accepted

(Sources: Compiled By Researcher)

Table no 4.43 shows the results of testing of hypothesis about the significance difference in inventory management performance in Thorat industry and Yash industry.

In the table P value for ITR, IHDR, RMTR, RMHDR, WIPTR, WIPHDR, I to SR, I to CAR and I to NWCR are p value is 0.144, 0.052, 0.055, 0.100, 0.097, 0.153, 0.128, 0.141 and 0.527 respectively. This value is greater than the significance value i.e. 0.05 (P value > 0.05). But only in term of CL to IR the P value is less than the significance value i.e. 0.05. So that the null hypothesis is accepted and alternative hypothesis is rejected. Ti means that there is no significant difference in inventory management performance of Thorat industry and Yash industry over the study period.

4.7 CONCLUSION:

The data analysis and interpretation of inventory management performance is made about selected two small scale industries in Palus Taluka i.e. Thorat industry and Yash industry. The data analysis is made by using different ratio about inventory turnover ratio (ITR, IHDR, RMTR, RMHDR, WIPTR, WIPHDR, I to SR, I to CAR, I to NWCR and CL to IR). The researcher studies the individual performance of both industries as well as makes a comparative study of these two SSIs industries. From the study it was found that there is no big difference in these industries but Thorat industry has slightly better than the Yash industry. The researcher also makes study about the ABC and VED matrix analysis of both industries. The specific problems of these two industries are also study which is useful to improve the performance of these industries.