

INVENTORY AND WORKING CAPITAL MANAGEMENT: AN EMPIRICAL ANALYSIS OF INDIAN TEXTILE COMPANIES

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ABSTRACT

Working Capital Management involves the management of inventories, accounts receivables and payables and cash. It is concerned with the determination of appropriate level of current asset and then efficient use as well as the choice of the financing mix for raising the current resources. Inventory occupies the most strategic position in the structure of working capital of textile industry in India. The primary objective of inventory management is to avoid too much and too little of inventory so that uninterrupted production and sales with minimum holding costs and better customer service may be possible because both the cases are undesirable for business. In order to accomplish this objective, the data has been collected for a sample of 6 large textile firms in India over a period of 10 years from 2005 to 2015. Various statistical and analytical tools including ratio analysis have also been used to know the impact of inventory on working capital. The investigation reveals that inventory management across textile industry is efficient and shows a significant impact on working capital.

KEYWORDS: Inventory, Working Capital, Accounts Receivables, Ratio Analysis, Minimum Holding Costs

INTRODUCTION

Inventory management is that aspect of current assets management, which is concerned with maintaining optimum investment in inventory and applying effective control system so as to minimize the total inventory cost. Inventory management is important from the view point that it enables to address two important issues:

- The firm has to maintain adequate inventory for smooth production and selling activities.
- It has to minimize the investment in inventory to enhance firm's profitability.

Proper management and control of inventory not only solve the problems of liquidity but also increases the profitability. Inventory creates a link between production and sales and its management therefore is of high significance to all business enterprises.

Literature Review

Syed Jamal Abdul Nassir bin Syed Mohamad, Nurul Nadia Suraidi, Nabila Amirah Abd. Rahman, and Raja Durratun Sakinah Raja Suhaimi (2015), in their paper, "A Study on Relationship between Inventory Management and Company Performance: A Case Study of Textile Chain Store", examined the impact of inventory on working capital management. The general objective of this research is to examine the inventory management problems and seek the best recommendation, to be practiced by company X to improve their inventory management, by testing the relationship between inventory days and return on asset (ROA).

Mohan M. (2014) in his study “Inventory and Working capital Management : An Empirical Analysis” analyzed the impact of inventory on working capital in selected companies by using co-efficient of correlation and also test the significance of such a correlation. This study was conducted on two companies for the period 2001-02 to 2012-13. It was revealed that overall position of working capital of both concerns is not satisfactory. Size of inventory in Gross working capital has increased regularly which directly affects the liquidity position of the company.

Muhammad Ehsan Javaid Leghari (2015) in his article, “Working Capital Management and Profitability in Sugar Industry of Pakistan” analyzed the impact of working capital management, on profitability of sugar industry for the period of ten years ranging from 2002 to 2012. For this purpose out of 308 companies, 28 companies that were listed at Karachi Stock Exchange were selected as sample. Correlation and Pooled Regression Analysis were applied to study the effect. The results interpreted the negative relationship between profitability and account receivable to sale ratio, cash conversion cycle, day’s inventory, cash ratio, secured short term obligation, fixed asset ratio and short term investment ratio while on the other hand profitability is positively affected by days account receivable and quick ratio.

RESEARCH METHODOLOGY

This study is designed to investigate the relationship between inventory management and working capital by taking a sample of six Indian textile companies. For the present study, secondary data has been compiled from the financial statements provided by selected sample textile companies for a period of 10 years from 2005 to 2015. Ratio Analysis like Inventory Turnover Ratio, Holding Period, and Inventory to Net Working Capital etc. have been used to analyze the data.

Objectives of the Study

- To find out the efficiency of Inventory Management of selected textile companies in India.
- To assess the impact of Inventory Management on Working Capital Management.
- To offer some suggestions for the better utilization of resources related to working capital and inventory.

EMPIRICAL ANALYSIS

The impact of inventory management on working capital of selected textiles companies has been analyzed with the help of ratio analysis.

Inventory Turnover Ratio

Inventory turnover ratio shows the number of times a company’s inventory is turned into sales. Investment represents idle cash. The lesser the inventory, the greater the cash available for meeting operating needs. In the table 1, we can see that average Inventory turnover of industry over the study period ranges between 4.07 to 10.07 times. It is evident from the table that on an average, the ratio in the industry as a whole has fluctuating trend throughout the period of the study. The table shows that Spentex Industries Ltd. has the highest average ratio in the sample and Nahar Spinning Mills Ltd. has the lowest average ratio in the sample. Low inventory turnover is frequently associated with excess inventory, overstocking and the presence of dead inventory (non-moving inventory). Low turnover also entail liquidity problems, with increased pressure on working capital. The inventory turnover ratio in Spentex Industries Ltd., has decreased from 12.38 times in 2005-06 to 10.99 times in 2014-15 while in Malwa Cotton Spg. Mills Ltd., the ratio has decreased from 4.65 times

in 2005-2006 to 5.09 in 2014-15. The inventory turnover ratio has been fluctuating throughout the period for both the companies.

Table 1: Inventory Turnover Ratio

Company Name	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Mean
Malwa Cotton Spg. Mills Ltd.	4.65	4.07	3.67	3.43	4.33	3.49	3.01	2.77	6.99	5.09	4.15
Nahar Spinning Mills Ltd.	3.26	2.82	2.97	2.26	4.96	2.27	1.73	3.62	3.03	3.68	3.06
R S W M Ltd.	6.81	7.82	6.33	6.52	8.42	6.68	4.64	6.37	6.42	7.92	6.79
Spentex Industries Ltd.	12.38	6.74	5.90	6.77	13.71	12.98	8.09	20.51	13.19	10.99	11.13
Vardhman Polytex Ltd.	3.16	3.22	4.19	2.74	5.24	6.65	4.96	24.15	15.45	10.09	7.98
Vardhman Textiles Ltd.	3.68	3.45	3.11	2.71	4.02	2.50	2.28	2.98	2.77	2.76	3.03
AVERAGE	5.86	4.81	4.50	4.20	7.27	6.22	4.34	11.53	8.17	7.09	6.02

Holding Period of Total Inventory (Days)

The table 2 reveals that on an average, the total inventory holding period in the industry has been fluctuating throughout the study period. Average holding period of Malwa Cotton Spg. Mills Ltd., Nahar Spinning Mills Ltd. and Vardhman Textiles Ltd. is more as compared industry average of 85 days. On the other hand, the holding period of R S W M Ltd., Spentex Industries Ltd. and Vardhman Polytex Ltd. is less than industry average. Therefore, it is clear from the above, that latter companies have sound liquidity position. On the other hand, the first set of companies have high age of inventory, which indicates the slow moving of stock due to lower demand of product or excessive production by company.

Table 2: Holding Period of Total Inventory (Days)

Company Name	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Mean
Malwa Cotton Spg. Mills Ltd.	78	90	99	106	84	105	121	132	52	72	94
Nahar Spinning Mills Ltd.	112	129	123	161	74	160	211	101	121	99	129
R S W M Ltd.	54	47	58	56	43	55	79	57	57	46	55
Spentex Industries Ltd.	29	54	62	54	27	28	45	18	28	33	38
Vardhman Polytex Ltd.	116	114	87	133	70	55	74	15	24	36	72
Vardhman Textiles Ltd.	99	106	118	135	91	146	160	122	132	132	124
AVERAGE	81	90	91	108	65	91	115	74	69	70	85

Holding Period of Raw Material Inventory (Days)

The table 3, presents the Holding Period of Raw Material Inventory in Days, for the selected textile companies in India. On an average, the holding period in the industry has been fluctuating throughout the study period. Nahar Spinning Mills Ltd. and Vardhman Textiles Ltd. have high average holding period of raw materials (155 and 150, respectively) in the sample, which is much higher than the industry average of 88. This implies that, both companies need more control over investment in raw materials. They are expected to make extra efforts in this regard, so as to bring it down to the level

of other companies. On the other hand Malwa Cotton Spg. Mills Ltd., R S W M Ltd. and Spentex Industries Ltd. have low average holding period, which indicates good control on investment in raw material.

Table 3: Holding Period of Raw Material Inventory (Days)

Company Name	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Mean
Malwa Cotton Spg. Mills Ltd.	30	33	37	38	28	29	31	33	28	40	33
Nahar Spinning Mills Ltd.	126	143	136	203	148	168	215	143	137	130	155
R S W M Ltd.	46	47	60	49	39	47	71	63	43	39	50
Spentex Industries Ltd.	64	205	72	60	33	25	23	18	10	8	52
Vardhman Polytex Ltd.	155	154	138	147	119	70	57	34	11	17	90
Vardhman Textiles Ltd.	119	148	145	154	124	145	180	164	165	154	150
AVERAGE	90	122	98	108	82	81	96	76	66	65	88

Holding Period of Semi Finished and Finished Goods Inventory (Days)

Table 4 presents the Holding Period of Semi Finished and Finished Goods Inventory in Days, for the textile companies under study. The average holding period for finished and semi-finished goods (17) in textiles industry is quite reasonable as compared to raw material (88). Vardhman Polytex Ltd., Spentex Industries Ltd. and R S W M Ltd. have very low holding period in the sample (8, 8 and 10, respectively) indicating efficient inventory management, whereas Malwa Cotton Spg. Mills Ltd. having very high holding period (37), indicates the need for improvement in inventory management. An overall average holding period of industry ranges between 14 and 20 throughout the study duration which in itself shows efficient management of inventory across the years.

Table 4: Holding Period of Semi Finished and Finished Goods Inventory (Days)

Company Name	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Mean
Malwa Cotton Spg. Mills Ltd.	36	38	38	40	37	37	41	51	29	24	37
Nahar Spinning Mills Ltd.	24	23	17	20	19	16	23	18	14	14	19
R S W M Ltd.	11	10	9	10	10	8	9	10	12	12	10
Spentex Industries Ltd.	4	6	5	10	12	5	9	10	7	13	8
Vardhman Polytex Ltd.	13	10	5	8	7	4	9	8	5	8	8
Vardhman Textiles Ltd.	17	21	20	22	21	21	24	20	19	23	21
AVERAGE	18	18	16	18	17	15	19	20	14	16	17

Inventory to Net Working Capital (%)

Inventory to Net Working Capital is an important indicator of company's operational efficiency. If ratio is 100% or less, it implies high liquidity of current assets, while it may also mean insufficient inventories. On the other hand, high ratio means that a company is carrying too much inventory in stock which is not favorable for management because excessive inventories can place a heavy burden on the cash resources of a company. As per table 5, this ratio shows an

industry average of 96%, which is less than 100% indicating high liquidity position of overall industry. Except Spentex Industries Ltd., all other companies have low average ratio in the range of 61% to 76%. Spentex Industries Ltd. has overall average of 228% which negatively affects the working capital and liquidity position of the company.

Table 5: Inventory to Net Working Capital (%)

Company Name	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Mean
Malwa Cotton Spg. Mills Ltd.	58%	59%	71%	80%	71%	71%	78%	71%	40%	46%	64%
Nahar Spinning Mills Ltd.	75%	75%	66%	70%	51%	74%	75%	62%	69%	68%	69%
R S W M Ltd.	62%	47%	54%	50%	56%	62%	73%	68%	68%	64%	61%
Spentex Industries Ltd.	65%	60%	68%	88%	66%	58%	148%	-173%	1521%	383%	228%
Vardhman Polytex Ltd.	75%	81%	72%	81%	87%	69%	67%	63%	61%	103%	76%
Vardhman Textiles Ltd.	83%	62%	77%	89%	60%	74%	79%	77%	76%	78%	75%
AVERAGE	70%	64%	68%	76%	65%	68%	87%	28%	306%	123%	96%

Hypothesis Testing

In order to test the significance of the differences among more than two sample means, ANOVA (Analysis of variance) is applied. This will help to make inferences about whether the sample is drawn from populations having the same mean.

Null Hypotheses = H₀

Alternative Hypotheses = H₁

Hypothesis

The hypothesis of this study is as follows:

H₀: Inventory Turnover Ratio does not differ significantly among the various textile companies over the years.

H₁: Inventory Turnover Ratio differs significantly among the various textile companies over the years.

Table 6

ANOVA Single Factor				
Groups	Count	Sum	Average	Variance
Malwa Cotton Spg. Mills Ltd.	10	41.493	4.149	1.514
Nahar Spinning Mills Ltd.	10	30.605	3.060	0.826
R S W M Ltd.	10	67.933	6.793	1.134
Spentex Industries Ltd.	10	111.258	11.126	19.865
Vardhman Polytex Ltd.	10	79.843	7.984	47.559
Vardhman Textiles Ltd.	10	30.262	3.026	0.298

Table 7

ANOVA Single Factor						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	517.4697	5	103.4939	8.72188	4.12E-06	2.38607
Within Groups	640.7647	54	11.86601			
Total	1158.234	59				

Above table shows that, critical value of F (2.38607) is lesser than the calculated value of F ratio (8.72188) at 5% significance level, which leads to the acceptance of alternative hypothesis and rejection of null hypothesis. Hence it is concluded that Inventory Turnover Ratio differs significantly among the various textile companies over the years.

FINDINGS AND SUGGESTIONS

Key Findings are as Below

- Spentex Industries Ltd., Vardhman Polytex Ltd. and R S W M Ltd. have high inventory turnover ratio as compared to industry average, which indicates efficient management of inventory because the stocks are sold more frequently and lesser amount of money is required to finance the inventory.
- On an average, overall industry shows fluctuating trend in inventory turnover ratio, which indicates that company's efficiency in turning its inventory into sales has not remain constant.
- The textile industry's average holding period of total inventory is 85 days which in itself is very high indicating overstocking specifically in three companies - Nahar Spinning Mills Ltd., Vardhman Textiles Ltd. and Malwa Cotton Spg. Mills Ltd.
- The average holding period for finished and semi finished goods is quite reasonable, as compared to the average holding period of raw materials.
- On an average basis, the industry's inventory to working capital ratio has increased from 70% to 123% over the study period, which indicates that too much cash is tied up in inventory leading to increased carrying cost and ultimately affecting the liquidity position.

Key Suggestions are

- Management of inventory should speed up the turnover of inventories by controlling its volume to the extent possible. Each turnover adds to the volume of profits.
- There is still a wide scope of reduction in inventory investment. Additional savings can be affected by reducing inventory holding periods, thereby minimizing carrying costs of inventory.
- The firms should use inventory control techniques (classification and codification, simplification and standardization) to improve their efficiency in inventory management.
- In order to improve inventory management, there is a need for overall review of stocks, identification of slow moving, obsolete and surplus items, and observation of purchase holidays for items already in excess.

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