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A study on the impact of inventory management on profitability of firms with special reference to steel industry

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Abstract

Inventories refer to the stock of materials, work in progress and finished goods in store for a firm. Maintaining adequate inventory helps every firm to have an uninterrupted production of goods and meeting the demand for the goods in the market. Maintaining inventory also incurs costs to the company such as holding cost, carrying costs and the cost of purchasing the items. Therefore maintaining inventory becomes important to ever firm as a good amount of funds get blocked in this area. In this research the researches tries to analyse whether the inventory management has any direct impact on the net profits of the company. Five years financial data of five selected companies were considered for the study. Tools such as ratio analysis, trend analysis and correlation analysis have been used for analysis of the data. The study showed that inventory conversion cycle is directly related to the net profits of the company.

Keywords: Inventory, inventory management, inventory conversion cycle, Net profits, inventory turnover ratio.

Introduction

Inventories constitute the most significant part of current assets of a large majority of companies in India. Because of large size of inventories maintained by firms, a considerable amount of funds is required to be committed to them. It is, therefore, absolutely imperative to manage inventories efficiently and effectively in order to avoid unnecessary investment. The aim of inventory management should be to avoid excessive and inadequate levels of inventories and to maintain sufficient inventory for the smooth production and sales operations.

Inventory conversion period refers to the number of days required for the total inventory to get converted to cash. More conversion period implies that more of its working capital is blocked in inventory, which negatively affects the working of the company and vice versa. Lower the number of days implies less amounts are blocked in inventory. Therefore it is important to understand the impact of inventory on the profitability of the company.

Objectives

1) To identify the trends in average Net profit ratio and average Inventory turnover ratio of 5 years of selected firms.
2) To analyse the co-relation between Net profit ratio and Inventory conversion period.

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Theoretical Framework.

Inventory means a physical stock of finished goods, stock of work in progress and stock of material in store maintained to meet the expected demand as and when they arise. It is necessary to have physical stock in the system as non-availability of materials will lead to delays in production or services delivered.

The term inventory management refers to the supervision on the stock of goods from the stage of purchase of raw material to the point of sale of finished goods. Holding inventory in store will generate two cost to the company namely carrying cost and holding cost. Carrying cost refers to the cost of transporting material to the store whereas holding cost refers to the cost of storing goods in warehouse. Also the cost of purchasing and processing the stock also gets blocked until the stock gets sold out. Therefore inventory management becomes one of the most important areas to be taken care of in a business.

Inventory turnover is the ratio of how many times the stock of inventory is sold and gets converted into cash in given period. A greater figure shows that the inventory are easily circulated and converted into cash and therefore fewer funds are blocked in the same. A higher ratio shows an efficient inventory management system in practice and vice versa. Inventory conversion period is the inventory turnover in days, ie. The number of days the inventory is held up in store till it is sold out.

$$\text{Inventory turnover ratio} = \frac{\text{cost of goods sold}}{\text{Average inventories}}$$

$$\text{Inventory conversion period} = \frac{365}{\text{Inventory turnover ratio}}$$

Net profit refers to the profit available to the company after all expenses and charges. This can be used as a tool to measure the operational efficiency and profitability of a firm. Net profit is one of the main tools used to compare the performance of two firms. Net profit ratio is the ratio of net profit after tax to net sales. The ratio is a good measure to analyse the performance of the firm over a period of time.

$$\text{Net profit ratio} = \frac{\text{NP after tax}}{\text{Net sales}} \times 100$$

Review of literature

Ashok Kumar Panigrahi in his article "Relationship between Inventory Management and Profitability: An Empirical Analysis of Indian Cement Companies" said that the adequate and timely flow of inventory is imperative for the success and growth of any company. The findings indicate that Inventory conversion period has an inverse relationship with a firm's profitability i.e. when the ICP days increase the profit of firm decreases and contrariwise.[1]

Dimitrios P. Koumanakos mentioned in his article "The Effect of Inventory Management on Firm Performance" that, efficient inventory management to an improvement in a firm's financial performance.[2]

Kwadwo Boateng Prempeh in his article named "The Impact of Efficient Inventory Management on Profitability: Evidence from Selected Manufacturing Firms in Ghana"says that the manufacturing sector plays an important role in the Ghanaian economy. The study employed the use of secondary data. data from 2004 to 2014 was gathered for the analysis from the annual reports of 4 manufacturing firms listed on the ghana stock exchange. The Ordinary Least Squares (OLS) stated in the form of a multiple regression model was used in the data analysis. The study unconcealed that there's a considerably robust correlation between the most variable, raw materials inventory management and profitability of manufacturing firms in Ghana and it is positive. Therefore, efficient management of raw material inventory could be a major issue to be thought of by ghanaian makers in enhancing or boosting their profitability[3]

Methodology

This project is considered as an analytical research. The study uses secondary data for the purpose of analysis The data was collected only from secondary sources like annual reports, articles, and information collected from office. For the purpose of the study 5 companies which includes Tata, Sail, Bhushan ,Jindal & Metrola from steel manufacturing industry has been selected for the study . the study has used financial data of 5 stable years ie.2011 to 2015 is considered for the study. This is taken in order to avoid any effects of demonetisation on financial performance of the companies. Tools such as ratio analysis, tables, trend analysis and correlation analysis have been used for the analysis and testing of the data.

Data analysis

Table 1 showing the inventory turnover ratio of firms for 2011 to 2015

Inventory Turnover Ratio						
	2015	2014	2013	2012	2011	Average
Metrola	4.06	7.41	3.73	2.26	2.09	3.91
Tata	5.95	7.40	7.55	7.70	7.44	7.21
SAIL	2.78	2.99	2.99	3.70	3.82	3.26
Bhushan	1.50	1.60	2.40	3.11	2.23	2.17
Jindal	3.50	3.67	4.50	5.07	4.34	4.22

Interpretation

The above chart shows the average inventory turnover ratio and five years averages of the firms from 2011-2015. A higher inventory turnover ratio indicates the company do not overspend its liquid funds in buying inventory or by storing non- saleable inventory. From the above it is seen that Tata followed by Jindal and Metrola has comparatively higher inventory turnover ratios.

Table 2 showing the inventory conversion period in days of the firm from 2011-2015.

Inventory Conversion Period						
	2015	**2014**	**2013**	**2012**	**2011**	AVERAGE
Metrola	174	161	98	49	90	93
Tata	61	49	48	47	49	51
SAIL	132	122	122	99	96	112
Bhushan	237	227	151	119	165	169
Jindal	104	99	81	72	84	87

Interpretation

Inventory conversion period refers to the number of days taken to convert inventory into cash. Higher the inventory conversion period implies the funds are blocked in inventory for more number of days. This is an unfavourable situation for every firms. From the above table it is seen that average conversion period is lowest for Tata followed by Jindal and Metrola

Table 3 showing the net profits of the firms from 2011-2015

Net Profit Margin						
	2015	2014	2013	2012	2011	Average
Metrola	-4.29	1.28	1.55	0.80	3.37	0.54
Tata	15.41	15.37	13.25	19.73	23.36	17.43
SAIL	4.58	5.60	4.88	7.65	11.37	6.82
Bhushan	-11.78	0.64	8.46	10.30	14.36	4.39
Jindal	-2.32	9.34	10.65	15.83	21.56	11.01

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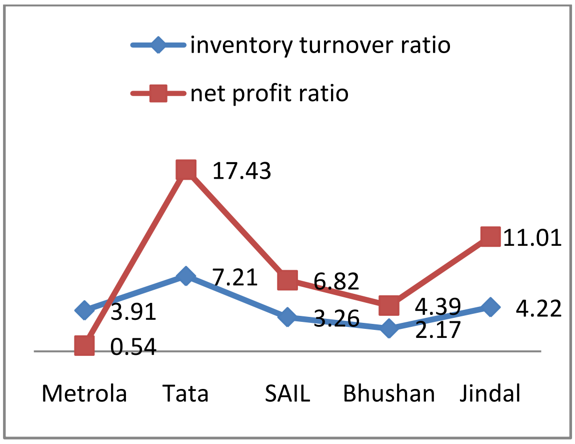
Interpretation

Net profit ratio is the percentage of after tax profits to net sales. A company's net profit is attained after allowing for all its operating and non operating expenses. The ratio signifies the portion of net sales available to owners of the company after meeting all its expenses. From the above table it is seen that average net profits are highest for TATA followed by Jindal and SAIL.

Figure 1 showing the comparison of trends in inventory turnover ratio and net profit ratio of the firms.



Interpretation

From the above graph it is seen that average net profit margin is comparatively lower for firms with lower average inventory turnover ratio, and higher for firms with higher average inventory turnover ratio.

Table 4 showing the correlation analysis of net profit margin on inventory days of the firms

Company	Net profit margin on inventory days
Metrola	-0.391
Tata steel	-0.26
Sail	-0.90
Bhushan	-0.83
Jindal steel	-0.74

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Interpretation

The above table shows the correlation analysis between the net profit margin and inventory days of the selected firms based on five years performance ie. 2011-2015. It is seen that a negative correlation exist between Net Profit Margin and Inventory Days which means there is an inverse relationship between net profit margin and inventory days. Net profit margin increases when inventory days decreases and net profit margin decreases as inventory days increase.

Findings

1) When comparing the inventory turnover ratios of all firms it was seen that the same was highest for Tata steel followed by Jindal and Metrola.
2) In case of inventory conversion period inventory conversion days was lowest for Tata followed by Jindal.
3) While comparing net profits, it was highest for Tata followed by Jindal.
4) While comparing the trends in net profit ratio and inventory turnover ratio it is seen that net profit margin will be more for firms with higher inventory turnover and lower for firms with lower inventory turnover ratio.
5) When comparing the relation between inventory conversion days and net profits it was seen that a negative correlation exist between net profits and inventory conversion period in case of all firms which means that there exist an inverse relationship between the two. When one increases the other decreases.

Conclusion

Net profit ratio is a commonly used indicator of the performance of a company. This ratio is used in order to compare the performance between years of the same company and between two companies in the same year. Here we have tried to analyse the impact of inventory management on net profits of the company. From the study it was seen that inventory management had a strong impact on the performance of the company. A company with lower inventory conversion period or higher inventory turnover ratio had better net profits than that of firms with higher inventory conversion period. This is because when a firm has lower inventory conversion period, its funds do not get blocked in inventory. These funds can be used for more productive purposes. An effective inventory management system helps the company by reducing the main costs such as carrying cost, holding cost along with the cost of purchasing inventory that is blocked in store. therefore an effective inventory management system helps in improving the profits of the company.

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