

Inventory Management-A Tool for Efficient Use of Resources (A Study With Reference to DLF Ltd)

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ABSTRACT

Working Capital Management is an important area for any business concern. The management of various components of working capital is a foremost important aspect. Inventory Management is one such area which needs lot of focus in order to use the resources efficiently and effectively. Inefficient management of inventory leads to increase in carrying cost, ordering cost and overall cost of managing inventory. Increasing in cost affects the profitability of the concern. In this regard this paper made an attempt to study the Inventory Management at DLF Ltd. It focuses mainly on the components of inventory and relationship between inventory management and profitability. The study conducted for a period of 9 years from 2007-2015. It employs the regression analysis to determine the effect of inventory conversion period on profitability. It uses the liquid ratio, size of the firm, debt/equity ratio as control variables.

Keywords: Resources, liquidity, Firm size, inventory turnover,

1. INTRODUCTION

Inventory comprises of important part of current assets for a majority of large companies. On an average almost 60% of the investment is made in current assets. With the increase in the size of the companies there is an increase in inventories which needs efficient and effective management of its components.

Inventory is one of the major parts of the working capital. The final outcome of the business concern depends on the performance of inventory system. Efficient management of the inventory system can produce the fruitful results and it solves many problems. Every organization needs to find out at what level of inventory they needs to manage as excessive or shortage of inventory which intern affect the performance of the firm and profitability.

Inventory management is the integrated functioning of an organization dealing with supply of materials and allied activities in order to achieve the maximum co-ordination and optimum expenditure on materials. Inventory control is the most important function of inventory management and it forms the nerve center in any inventory management organization.

2. LITERATURE REVIEW:

Koti Reddy and Raghav Baheti (2010) in their study seeks to examine current policies and practices of working capital management at Saregama India Limited and tries to identify the

strengths and weaknesses of the company; the opportunities it has and the threats it faces. It contains a detailed analysis of the various factors affecting the working capital requirements of the company and the impact they have on its profitability. The study concludes by suggesting solutions to address the concern areas that have been identified. The company is recommended to focus on digital sales, incentivize cash sales, follow a forecasting model that captures the tastes and preferences of consumers and strictly implement its credit policy.

Jasmine Kaur (2010) did a study which is concerned with the problems that arise in attempting to manage the Current Assets, Current Liabilities and the interrelation that exists between them. This is a two-dimensional study which examined the policy and practices of cash management, evaluate the principles, procedures and techniques of Investment Management, Receivable and Payable Management dealt with analyzing the trend of working capital management and also to suggested an audit program to facilitate proper working capital management in Indian Tyre Industry. He revealed that there is a standoff between liquidity and profitability and the selected corporate has been achieving a trade off between risk and return. Efficient management of working Capital and its components have a direct effect on the profitability levels of tyre industry.

Niranjan Mandal and Dutta Smriti Mahavidyalaya, (2010) in their study makes an attempt to provide an insight into the conceptual side of working capital and to assess the impact of working capital management on liquidity, profitability and non-insurable risk of ONGC, a leading public sector enterprise in India over a year period (i.e. from 1998-99 to 2006-07). It also makes an endeavor to observe and test the liquidity and profitability position of the enterprise and to study the correlation between liquidity and profitability as well as between profitability and risk. They may be concluded that working capital management is very much useful to ensure better productive capacity, good profitability and sound liquidity of an enterprise, specifically the PSE in India, for managerial decision making regarding the creation of sufficient surplus for its growth and survival stability in the present competitive and complex environment.

Ramachandran and Janakiraman (2009) analyzed the relationship between working capital management efficiency and earnings before interest and tax of the paper industry in India. The study revealed that cash conversion cycle and inventory days had negative correlation with earning before interest and tax, while accounts payable days and accounts receivable days related positively with earning before interest and tax.

Pradeep Singh (2008) in his study made an attempt to examine the inventory and working capital management of Indian Farmers Fertilizer Cooperative Limited (IFFCO) and National Fertilizer Limited (NFL). He concluded that the overall position of the working capital of IFFCO and NFL is satisfactory. But there is a need for improvement in inventory in case of IFFCO. However inventory was not properly utilized and maintained by IFFCO during study period. The management of NFL must try to properly utilize the inventory and try to maintain the inventory as per the requirements, so that liquidity will not interrupt.

Kesseven Padachi (2006) in his study used return on total assets as a measure of profitability and the relation between working capital management and corporate profitability, which is investigated for a sample of 58 small manufacturing firms, using panel data analysis for the period 1998 – 2003. The regression result of his study indicates that high investment in inventories and receivables is associated with lower profitability. The key variables used in the analysis are inventories days, accounts receivables days, accounts payable days and cash conversion cycle. His study also reveals significant relationship between working capital management and profitability has been found in previous empirical work. An analysis of the liquidity, profitability and operational efficiency of the five industries shows significant changes and how best practices in the paper industry have contributed to performance. The findings also reveal an increasing trend in the short-term component of working capital financing.

3. STATEMENT OF THE PROBLEM

Inventory is the significant part of the current assets for manufacturing companies. The companies have to make a rigorous effort in reducing the cost of managing the inventory. These cost includes holding cost, carrying cost etc. The companies which are able to reduce these costs significantly can enhance their profitability position. It's mainly because the inventory management has an impact on the profitability. So, the study of inventory management is necessary to understand the relationship and the impact on profitability.

4. OBJECTIVES:

1. To study the effectiveness of inventory management system at DLF ltd.
2. To analyze the impact of inventory system on firm's profitability.
3. To examine the inventory management system at DLF ltd

5. RESEARCH METHODOLOGY

5.1 Sample design

The purposive sampling method has been employed for the study. Sample for the study is selected as DLF India ltd.

5.2 Data collection

The study is mainly based on the secondary data which has been collected from the annual reports of the company. Other sources like company website, moneycontrol.com, research journals are being referred.

5.3 Data analysis techniques: The following are the techniques which have been employed for the study.

- Descriptive statistics

- Correlation
- Regression
- ANOVA

6. DATA ANALYSIS AND INTERPRETATION

Key Variables: For the analysis of inventory management of DLF India ltd the key variables selected are NOP, Size of the firm (FS), Liquidity Ratio, Financial Debt Ratio, Inventory Conversion Period, Debtors Turnover Ratio.

Variables: Dependent/Independent: In this study the NOP is dependent variable as it depends on the variations of the independent variables. It measures the operating efficiency of the firm. It is chosen as a dependent variable as the researcher wants to know the relation between the profitability and inventory management.

The study also chose Inventory Conversion Period as an independent variable. It is the variable generally affects the dependent variables. The other variables taken as control variables i.e., LR, DTR, and FDR. The reason for taking these as control variables is the researcher clearly wants to identify the relationship between dependent and independent variables.

Table 1: The Measurement of the Selected Variables

Variables	Measurement
Net Operating Profit	Net Profit/Total Assets
ICP	365days/ITR
Firm Size	Natural Logarithm of Sales
Liquid Ratio	Liquid Assets/Liquid Liabilities
Financial Debt Ratio	Long Term Debt/Total Equity
IRT	Cost of Goods Sold/Average Inventory

7. TECHNIQUES FOR ANALYSIS

The Regression model is used to predict the dependent variable from one or more independent variables. In this study the researcher has made an effort to find out the relationship between inventory management and profitability of the selected firm.

The model used for regression analysis is

$$NOP = f(ICP, FS, LR, ITR, FDR)$$

In the above model NOP is independent variable which is influenced by the other dependent variables of ICP, FS, LR, ITR, FDR.

Table 2: Descriptive Statistics

	Min	Max	Mean	SDV
NOP	0.81	29.98	8.41	11.09
ICP	803	2489	1468.55	488.22
FS	5.15	6.16	5.91	0.29
LR	0.74	2.64	1.39	0.71
D/E	0.47	2.79	0.86	0.73
ITR	0.15	0.45	0.27	0.08

The descriptive statistics highlights the following:

- NOP ranges from 0.81 to 29.98 with having a mean of 8.41 and SDV 11.09 indicates the high variance of the variable.
- The range of NCP varies a lot with SDV 488.22.
- The range for FS is from 5.15 to 6.16 with mean of 5.91 and 0.29 as SDV shows the low variance.
- The range of LR and D/E also shows low variance with mean of 1.39 and 0.86 respectively.
- Variable ITR also highlights that there is a low variance with mean of 0.27.
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8. TEST STATISTICS FOR NORMALITY

The normality of the data has been checked by drawing the histogram. The graph below indicates that it's a bell shaped and it's normally distributed.

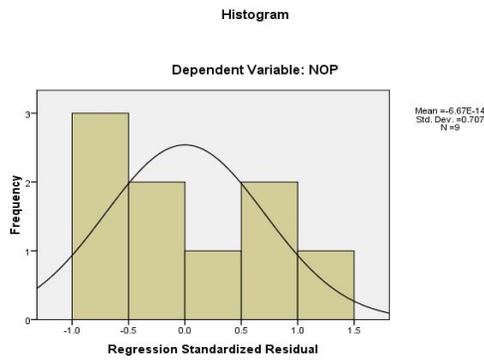


Table 3: Regression Result

<i>Regression Statistics</i>	
Multiple R	0.993571376
R Square	0.987184079
Adjusted R Square	0.965824212
Standard Error	2.051912932
Observations	9

The above table shows the result of multiple regressions. Multiple R value is 0.99 indicating the strong correlation between the dependent and independent variables. R-square value of 0.987 meaning that 98% of the variation in the dependent variable (N/P) is explained by the independent variables (ICP, Size of the firm, LR, D/E) while 2% is explained by other variables outside the model.

The regression model can be written as
 $Y = -0.504 + 0.03(ICP) + 69.08(Size) + 5.06(LR) + 27.73(D/E) + 106.49(DTR)$

Hypothesis:

H0: Inventory Management has no impact on profitability.

Table 4: ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	14503686	3	4834562	81.12	0.00	2.90
Within Groups	1906895	32	59590.47			
Total	16410581	35				

From the above table it can be inferred that the F statistics is 81.12 and F critical is 2.90. It shows that since $F > F_{critical}$ (81.12 > 2.90) the null hypothesis is rejected. It means that the inventory management has an impact on the firm's profitability. The table also shows that the results are statistically significant which is indicated by the p-value 0.00 which is lesser than the alpha 0.05 (0.00 < 0.05).

Table 5: Coefficients

Model		Un-standardized Coefficients		Standardize d Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-893.091	163.363		5.467	.005
	ICP	.025	.007	1.089	3.488	.025
	FS	137.766	25.111	3.623	5.486	.005
	LR	6.107	1.436	.392	4.254	.013
	FDR	51.020	6.716	3.342	7.597	.002
a. Dependent Variable: NOP						

- Coefficient of ICP is 0.025 indicates one day increase in ICP, 0.025 unit increases in NOP keeping all other variables constant.
- Coefficient of FS is 137.766 shows a unit increases in sales NOP increases by 137.766 units.
- Similarly coefficient of LR is 6.107 meaning one unit increase in LR, NOP increases by 6.17 units.
- Finally coefficient of FDR is 51.020 implies that an increase of FDR by one unit the NOP will also increase by 51.020 units.

From the above table it can be inferred that the t and p values given a fair idea of impact of independent variables on the dependent variable. It shows that the t-value being larger than 2 in all the independent variables ($t > 2$) and also that results are further strengthened with p value smaller than alpha value of 0.05 in all cases. It also shows that the ICP, FS, LR and FDR have significant effect on the profitability.

9. CONCLUSION

A small problem of inventory can cause a major failure in the business. Management of inventories has become vital to any business. The previous researches have proved that there is a negative relationship between the ICP and profitability. This research results are almost accurate with the previous results. The finding infers that the ICP has no relation or inverse relation with the profitability. The result also shows that the profitability increases with the increase of FS, LR, and FDR. Overall the inventory management of the selected company is satisfactory.

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