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An Empirical Study On Inventory Management

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ABSTRACT
This study focuses on the management of inventories which become important in cost maximization and profit maximization, the contribution of inventories irrespective of its size, nature and an adequate level of inventory to carryout business operations and thus inventory becomes an important and integral part of business. It helps to maintain the right level of supply and reducing loss to goods or materials before they become a finished product are sold to the customer. The study which is explained indetail based on the secondary data. The tools like EOQ analysis, ABC analysis, Inventory turn overratio and FSN analysis are used for this study. It helps to identify the factors in a company' ssuccess or failure. The data are being analysed and arrived at findings and suggestions to measure the efficiency of the inventory management. This study also suggests the way to improve the satisfactory level of inventory management.

Keywords: Investment, Management, Satisfaction.

INTRODUCTION

Inventories are assets of the firm and require investment and hence involve the commitment of firm's resources. The inventories need not be viewed as an idle asset rather these areanintegral part of firm's operations. But if the inventories are too big, they become a strainonthe resources, or if they are too small, the firm may lose the sales. Therefore, the firmmust have an optimum level of inventories. Inventory is actually money, which is available in the shape of materials (raw materials, in-process and finished products), equipment, storagespace, work-time etc. Inventory is a list of goods and materials, or those goods and materialsthemselves, held available in stock by a business. Inventory are held in order to manageandhide from the customer the fact that manufacture/supply delay is longer than deliverydelay, and also to ease the effect of imperfections. In the manufacturing process that lowerproduction efficiencies if production capacity stands idle for lack of materials. Anyorganisation which is into production, trading, sale and service of a product will necessarilyhold stock of various physical resources to aid in future consumption and sale. whileinventory is a necessary

evil of any such business, it may be noted that the organizationholdinventories for various reasons, which include speculative purposes, functional purposes, physical necessities etc.

A component of supply chain management, inventory management supervises the flow of goods from manufacturers to warehouses and from these facilities to point of sale. A key function of inventory management is to keep a detailed record of each new or returned product as it enters or leaves a warehouse or point of sale. Inventory management is a science primarily about specifying the shape and placement of stockedgoods. It is required at different locations within a facility or within many locations of asupply network to precede the regular and planned course of production and stock of materials. 1 Inventory control is concerned with achieving an optimum balance between two competing objectives. 'minimizing the investment in inventory. 'maximizing the servicelevels to customer's and its operating departments.

REVIEW OF LITERATURE

YUE WANG, YINGJIE JU (2019) This study developed a research model to examine the impact conducted in Chineand collected 271 valid data from the service providers. The results illustrated the importance of continuous information sharing in logistics service. Based on the results they put forward management suggestions from the perspective of government and enterprises.

PUNAM KHOBRAGODE, ET AL (2018) Inventory management system is software which is helpful for the businesses operate hardware stores, where storeowner keeps the records of sales and purchase. Mismanaged inventory means disappointed customers, too much cash tied up in warehouses and slower sales. This project eliminates the paper work, human faults, manual delay and speed upprocess. Inventory management system will have the ability to track sales and available inventory, tells a storeowner when it's time to reorder and how much to purchase. Inventory management system is a windows application developed for windows operating systems which focused in the area of inventory control and generates the various required reports.

FENG XU (2017) In searching for the optimal inventory control policy, the objective is to minimize the expected total costs related, of which the shortage cost is an important element. Due to the difficulty in calculating the indirect cost of the loss of goodwill resulted from the shortage, practitioners and researchers often simply assume a fixed penalty cost on the inventory shortage or switch to the alternative method by assigning a specific customer service level. The development of an appropriate tool for measuring the shortage cost can help a business control the total costs and improve the productivity more effectively. This paper proposes probabilistic measurements of the shortage cost, based on mathematical relationship between the cost and the shortage

amount. The derived closed form estimates of the expected shortagecost value can then be applied to support the determination of the optimal inventorycontrol policy.

DR. RAKESH KUMAR, "ECONOMIC ORDER QUANTITY MODEL", GLOBAL JOURNAL OF FINANCEANDECONOMIC MANAGEMENT, VOL.5 (2016) said that Inventors are assets of the firmand that they describe an investment. Such investment needs a commitment of funds, thus a firmhas to keep inventories at the accurate level. If the stocks are too large, the firmloses the chance to employ the funds more efficiently. Likewise, if they become too small, the firmmig ht losesales. Thus, there is an optimal level of inventories. The economic ordering quantity isusedto compute the optimum quantity that can be procured to reduce the carrying and ordering costs.

EDWIN SITIENEI AND FLORENCE MEMBA (2015) Conducted a study on Effect of Inventory Management on profitability of Cement Manufacturing Companies in Kenya. It is also noted that firms inventory systems must maintain an appropriate inventory levels to enhance profitability and reduce the inventorycosts associated with holding excessive stock in warehouses.

SERHII Z, "A LITERATURE REVIEW ON MODELS OF INVENTORY MANAGEMENTUNDER UNCERTAINTY"(2015) according to this paper Inventories involves raw materials, work-in-progress andentirely completed goods that are in to be included in the firm‟s assets that are in positionorwould be in position for sale.

OBJECTIVES

- To understand and measure economic order quantity for the selected items.
- To analyse its inventory management methods with the help of ABCanalysis, EOQand safety stock calculations.
- To offer suitable suggestions for the improvement of inventory management practices
- To study how effectively inventories are maintained in Reliance Retail Limited.

METHODOLOGY

Necessary data for this study were collected from are owned retail shop of Reliance digital Chennai. Some data were collected by Interaction with personnel of the retail shop anddirect observation and the remaining data were collected from turnover statements, monthlyinventory statements and record file. The proposed methodology was applied on 40 different items.

RESEARCH TYPE : This study was based on analytical research, the researcher has to use facts or informationalready available and analyse these to make a critical evaluation.

DATA COLLECTION METHOD : This data collected for the study is mainly through secondary data only.

ABC ANALYSIS

To classify items under ABC classification scheme, annual usage/ consumption valueiscalculated through Eq. (1). Items are arranged in the descending order of their annual usagestarting with the highest annual usage down to the smallest usage. Percentage annual usageofeach item is obtained from annual usage values. Next step is to calculate percentagecumulative usage of forty items. The number of items is expressed into cumulativeitempercentages.

Item	classification No. of items	%	valueusage of %of ite
A	8	20%	80.26%
B	16	40%	1
C	16	20%	5.31%

INFERENCE:

From the above classification result of ABC analysis shown in Table2.1.3 , "A" classes arethose which constitute 20% of total items and occupies 80.26% of total value usageperannum. "B" classes are those which constitute 40% of total items and occupy 15.31%oftotal value usage per annum. And, "C" classes are those which constitute 40%of total items and occupy 4.43% of total value usage per annum. As the existing retail shophas not put different degree of control among the three categories of items, this implies lackofinventory control technique. This analysis has shown what level of control shouldbeimposed on different items.

EOQ ANALYSIS:

Economic order quantity and optimum order frequency per year for different components arecalculated through Eqs. (1) & (2)

Calculation of EOQ:

EOQ $\sqrt{2DS/H}$

INFERENCE:

From the above analysis,the calculated EOQ has been compared with the number of unitsof each component purchased in the organisation which is shown in Table 2.2.11. It isfound that there is a variation in the calculated EOQ and current ordering policyoftheretail shop. This is because the shop place order frequently when demand arises without managing EOQ. So, the number of units ordered is small while number of orders is high. It is understood that the company is not following EOQ for purchasing the materials&therefore the inventory management is not satisfactory.

The EOQ will help the shoptoprevent the problem of overstock and reduce the ordering cost.

Safety Stock Calculation: To determine safety stock, lead time (maximum & minimum) is collected fromtheshopmanager which varies between two and eight days. Demand is assumed to be constant andthedesired cycle service level (CSL) is assumed to be 95%, hence the Z value is 1.645.

INFERENCE:

Results of safety stock depicted in Table 6 shows when the retail manager should reorder toavoid stock-out and how much the manager can hold the inventory in reserve stockperannum.

INVENTORY TURNOVER RATIO:

Years	Cost of goods SoldRs. In crores)	Average valueinver (Rs. In crores)	Inventory of turnover (Rs. In crores)
2014-2015	36618.4	1303.35	28.09
2015-2016	35587.1	2472.30	14.39
2016-2017	49090.0	203.10	241.70
2017-2018	48878.6	97.35	502.09
2018-2019	55133.6	44.00	1253.03

INFERENCE:

From the above table shows the Stock Turnover / Inventory Ratio position of the RelianceRetail Limited. The Stock Turnover / Inventory Ratio ranges from 28.09 to 1253.03duringthe study period for the study period 2014-15 to 2018-19.

V. RESULTS & DISCUSSION

Inventory turnover ratio analysis for the period 2014 – 2019 there is an increasing trendintheturnover from 28% to 1253%. This shows the inventory of the inventory of the companyisproperly managed and the technique which is used to manage inventory are effective this willleads to profit for the company. But in the year 2011 – 2012 the inventory techniques arenot properly used that results low inventory turnover. The ratio in first year was 28.09 toitssaleswhich rose to 241.07 in the third year and 1253 in the fifth year. Increasing trend in inventoryturnover ratio denotes positive sign for the organization because the sales are also increasing.

An increasing trend shows that the company is maintaining its inventory well. It is foundthat the organization is following EOQ technique. The company is working as per

the definedEOQ level. Overall the working of EOQ is reasonable. From the safety stock calculation, it can be determined how much inventory the company can keep in its reserve stock per annum. Through this analysis it is known that the organization is having enough stock at all times. Through ABC analysis one comes to know about important items in the organization. Thecompany is following ABC technique of inventory management very efficiently. Thereare67% items in the A category. B category has 23% items and C category has 10%items.Aclassification items have more annual consumption costs and creates more inventory instores. So Economic Order Quantity and re-order level will be calculated for these Atypeitemshence reduce inventory and annual consumption cost.

Existing inventory management system of the organization is good but if inventorymanagement system is to be improved they should adopt some new inventory management system.The organization should also try to adapt more inventory management techniques likeJust In Time (JIT) inventory system. This technique will save the time of the organizationandwill also reduce the inventory holding cost in the organization.The retail shop shouldhavetighter control to 'A' class items rather than 'B' and 'C' classes items as 'A' class items havethe highest consumption of value. Safety stock should be maintained to reducetheprobability of stock-out of items.EOQ can be an appropriate technique to lower the overstockandminimise total inventory cost. Using EOQ, the ordering frequency of the shopcanbereduced substantially which in turn will reduce total ordering cost annually.

CONCLUSION

As stated throughout this study, retail manager has been continually challenged bythetwoconflicting objectives of inventory management to ensure maximum items availabilitywhilekeeping inventory cost low. The retail shop does not follow any inventory control techniques. Orders are placed without calculating EOQ technique and checking Safety Stock. Out ofstock, overstock, and unpredictable issues are faced by the retail shop because of ineffectiveinventory management system. The analysis of different inventory control techniques inthispaper can bring a promising result in overcoming these problems.The retail shop shouldhavetighter control to 'A' class items rather than 'B' and 'C' classes items as 'A' class items havethe highest consumption of BDT value. Safety stock should be maintained to reducetheprobability of stock-out of items. EOQ can be an appropriate technique to lower theoverstock and minimise total inventory cost. Using EOQ, the ordering frequency of theshopcan be reduced substantially which in turn will reduce total ordering cost annually. Highpriced items should be checked more frequently than low priced items. Excess supplythanthe required order quantity should not be accepted for high priced and mediumpriceditems. Although there are various types of inventory control techniques in the literature, inthispaper only four types of inventory control techniques such as ABC analysis, EOQ, safetystock have been analysed. Other inventory management techniques like

VEDanalysiscanbeused to control inventory. Proper forecasting technique plays a vital role in inventorymanagement. Forecasted demand from the appropriate forecasting technique can be usedinEOQ model. Further study can be taken place to find out optimal inventory control technique.

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