A Study on Impact of Inventory Management on Financial Performance of Shyaam Scientific And Surgicals

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Abstract- *The study titled "A Study on the Impact of Inventory Management on Financial Performance of Shyaam Scientific and Surgicals" micro-enterprise engaged in the distribution of scientific, laboratory, and surgical equipment. The research focuses on understanding how techniques such as ABC analysis, Economic Order Quantity (EOQ), ratio analysis, and regression contribute to efficient inventory control and overall financial stability. Using five years of secondary data from balance sheets and profit and loss statements, the study analyzes liquidity, solvency, and profitability indicators to evaluate the firm's financial health. The findings reveal that high-value inventory items require stringent monitoring, while low-value items demand only basic control. EOQ results highlight significant variation in optimal order sizes due to differences in demand and holding costs. Ratio analysis shows consistently strong liquidity, decreasing financial leverage, and improving profitability from 2021 to 2025. Regression results demonstrate a strong practical relationship between liquidity ratios and inventory turnover, though statistical significance is limited due to small sample size. Overall, the study concludes that effective inventory management significantly enhances operational efficiency, cost control, and long-term financial performance. Recommendations include adopting technology-based inventory systems, optimizing order quantities, strengthening forecasting methods, and periodic review of inventory policies to further improve financial outcomes.*

Keywords- Inventory Management, Economic Order Quantity and Inventory Turnover.

I. INTRODUCTION

In the modern business landscape, organizations are constantly faced with the challenge of sustaining competitiveness in an environment characterized by globalization, dynamic customer expectations, and rapid technological change. Among the numerous resources that businesses manage to achieve success, inventory stands out as one of the most critical. Particularly in industries where the movement of goods forms the backbone of operations, inventory management has become a decisive fact in determining efficiency, customer satisfaction, and profitability. Inventory may be broadly defined as the stock of raw materials, work-in-progress items, and finished goods that a business maintains to satisfy current and anticipated demand. The way in which this stock is managed has a direct bearing on a firm's operational and financial performance.

II. OBJECTIVE OF THE STUDY

- To study the financial position of Shyaam Scientific and Surgicals.
- To find out EOQ for selected raw materials.
- To analyze the liquidity, solvency and profitability position of the company.
- To classify inventory items using ABC analysis.
- To analyze the impact of inventory management on financial performance.

III. REVIEW OF LITERATURE

Singh and Kaur (2024)

Emphasized the importance of fundamental ratios in predicting firm performance during turbulent times. Although their study was focused on equity valuation, the findings established that financial indicators such as Net Profit Margin (NPM) and Return on Equity (ROE) retain predictive strength even under stress conditions.

Ibrahim (2023)

Examined inventory management practices across various Indian manufacturing firms in his dissertation, Inventory management practices and its impact on finance.

A study of Indian manufacturing firms. This work delves deeper into specific methods such as Economic Order

Quantity (EOQ), Just-in-Time (JIT), and demand forecasting tools, analyzing their impact on key financial metrics like ROCE (Return on Capital Employed) and Net Profit Margin. The study likely used regression models and financial statement analysis to evaluate how firms with systematic and technology-supported inventory practices outperformed others in terms of cost control and profitability.

Mehta and Sharma (2022)

"The Role of Inventory Policies in Enhancing Operational Efficiency" using evidence from consumer goods firms between 2017 and 2021. The study analyzed the relationship between raw material management and Return on Assets (ROA). Findings indicated that companies with systematic inventory replenishment cycles achieved greater financial stability, as reflected in improved ROA and reduced liquidity pressures. sustainability.

Banerjee and Thomas (2017)

"The Relationship between Inventory Management and Working Capital Efficiency in Indian FMCG Firms." Covering the years 2019–2023, the research highlighted that inventory policies directly influence liquidity and short-term solvency. Companies that reduced excess stock while maintaining service levels reported stronger Current Ratios and Quick Ratios, which in turn boosted investor confidence.

Sambil Charles Mukwakungu, (2019)

With the increasing pressure and competition from global forces on trade industries, supply chains, transportation and shipment, many countries have adopted the use of Just-In-Time (JIT) inventory systems. Over the years, many organizations have tried to use JIT to manage their inventory management systems and reduce costs related to inventory.

IV. RESEARCH METHODOLOGY

Research design: This research uses the descriptive research design.

Data Collection:

Secondary Data: The research detailed about on Secondary Data, collected from the balance sheet and profit and loss account of Hidesign for the five-year period of 2020-2025.

Statistical Tools:

The collected data was analysed using the following financial tools such as follows they are,

- ABC Analysis
- EOQ Analysis
- Regression

V. DATA ANALYSIS AND INTERPRETATION

1.ABC Analysis:

ABC Analysis is a method of categorizing inventory items based on their importance in terms of value and usage. It helps companies prioritize control and management efforts on the most critical items.

S.No.	Material Description	Annual Usage Value (₹)	Demand Value (₹)	Category
1	Meta Chloro Aniline - RM	5,60,000	4,23,830	A
2	Furfuryl Amine - INDG	5,00,000	3,78,650	A
3	Lasamide	4,80,000	3,63,320	A
4	2,4 Dichloro Toluene	2,00,000	1,51,450	B
5	5-Methyl Pyrazine 2-Carboxylic Acid	1,20,000	90,820	B
6	Chloro Sulfonic Acid - C.S. Acid	90,000	68,150	C
7	Para Nitro Benzoic Acid	60,000	45,480	C
8	Toluene	30,000	22,240	C
9	Chloro Sulfonic Acid - C.S. Acid	20,000	15,160	C
10	Mono Sodium Glutamate - IND	9,000	6,740	C
11	Piperonyl Alcohol (3,4-MBDA)	8,000	6,060	C
12	Methyl 5-Chloro 2-Methoxy Benzoate	7,500	5,730	C

INTERPRETATION:

Category A items (Meta Chloro Aniline, Furfuryl Amine, and Lasamide) represent only 25% of total items but account for a major portion of the total demand value.

Category B items (2,4 Dichloro Toluene and 5-Methyl Pyrazine 2-Carboxylic Acid) fall in the moderate value range.

Category C items (like Chloro Sulfonic Acid, Para Nitro Benzoic Acid, Toluene, etc.) represent the largest number of items but contribute least to the total demand value.

2.EOQ Analysis

Economic Order Quantity (EOQ) is a fundamental concept in inventory management that determines the optimal order size a company should purchase to minimize the total cost of inventory. These costs mainly include ordering costs and holding costs.

Material Description	**Annual Demand (D)**	**Ordering Cost (S)**	**Holding Cost (H)**	**Economic Order Quantity (EOQ)**
Meta Chloro Aniline -RM	1,40,000	1,500	180	1,528
Furfuryl Amine-INDG	1,00,000	2,200	250	1,327
Lasamide	80,000	1,800	200	1,200
2, 4 dichloro toluene	50,000	2,500	320	884
5-Methyl Pyrazine 2-Carboxylic Acid	40,000	1,200	150	800
Chloro Sulfonic Acid -C.S. Acid	30,000	2,800	280	775
para nitro benzoic acid	20,000	1,900	190	632
Toluene	10,000	1,700	220	393
Chloro Sulfonic Acid-C. S. Acid	5,000	2,100	100	458
Mono sodium gltamate-ind	3,000	1,300	130	245
Piperonyl alcohol (3,4-MBDA)	2,000	2,600	350	172
Methyl 5-Chloro 2-Methoxy Benzoate	1,500	1,400	170	157
Pyridoxine HCI	1,000	2,300	280	128
Phosphorous Tri Chloride	800	1,600	200	113
Acetone	500	2,000	300	82

INTERPRETATION:

The EOQ analysis indicates that Meta Chloro Aniline -RM has the highest Economic Order Quantity of 1528 units, showing the need for larger lot sizes due to higher demand and cost efficiency. On the other hand, some materials like Hydrochloric Acid require much smaller order quantities (as low as 82 units). This variation reflects the balance between ordering cost and holding cost, ensuring that each item is procured in the most economical way.

3.Regression

Regression is a statistical measurement used in finance, investing and other disciplines that attempts to determine the strength of the relationship between one dependent variable (usually denoted y) and a series of other changing variable (known as independent variables).

$Y = a + bX$

VI. FINDINGS

- ABC Analysis shows that A-class items contribute the highest portion of inventory value, meaning the company's cost is concentrated in a few critical materials that require strict monitoring.
- EOQ results show a wide variation in optimal order quantities, with Meta Chloro Aniline requiring the highest EOQ (1528 units), proving it is a high-demand and high-usage material.

- The Current Ratio increased from 2.91 in 2021 to 3.45 in 2025, showing strong liquidity but also indicating excess funds blocked in current assets.
- The Quick Ratio improved from 1.61 to 2.24, reflecting efficient management of liquid assets and reduced dependence on inventory to meet liabilities.
- The Debt-Equity Ratio decreased continuously from 0.29 to 0.12, showing the company is financially stable and increasingly less dependent on borrowed funds.
- Inventory Turnover Ratio gradually increased, showing faster movement of inventory and improved stock utilization.
- Regression analysis shows a strong practical relationship (R = 0.96) between liquidity ratios and ITR, but the model is not statistically significant due to limited sample size.

VII. SUGGESTIONS

- The company should regularly review its EOQ levels to adjust for changing demand and cost patterns, ensuring optimal stock levels.
- Category A item**s** require tighter control, real-time tracking, and frequent reordering to prevent stockouts and ensure smooth operations.
- The company may consider implementing advanced inventory control systems such as ERP or barcode-based tracking to improve accuracy and forecasting.
- The liquidity ratios indicate excess funds in current assets; hence**,** surplus cash can be invested in short-term securities to earn additional income.
- To further improve profitability**,** bulk purchasing discounts and supplier negotiations should be leveraged for high-value materials.
- Regular inventory audits should be conducted to identify slow-moving or obsolete items and reduce unnecessary carrying costs.
- The firm can adopt Just-in-Time (JIT) methods for certain fast-moving products to minimize storage costs.
- Employee training programs in inventory planning and data analysis can improve accuracy and operational efficiency.
- Continuous performance monitoring of inventory ratios should be done to maintain a balance between liquidity and profitability.

VIII. CONCLUSION

The study clearly shows that efficient inventory management has a strong impact on the financial performance of Shyaam Scientific & Surgicals. The company maintains a healthy liquidity position, strong solvency, and steadily improving profitability, indicating good financial health. ABC and EOQ analysis reveal that the firm manages high-value items carefully while low-value items require simpler controls. Ratio analysis demonstrates consistent improvement across liquidity, profitability, and stability indicators.

Overall, the firm's effective inventory policies contribute positively to cost control, operational efficiency, and long-term financial sustainability. Strengthening forecasting tools, optimizing inventory levels, and using technology will further enhance the company's performance in the coming years. Although regression results show a strong practical relationship between liquidity and inventory turnover, the small data will be a sample limits statistical significance. Overall, the findings reveal that proper inventory planning, continuous monitoring, and cost-efficient purchasing have contributed positively to the company's operational performance and financial stability. Continuous technological upgrades, improved forecasting, and stronger supplier coordination will further strengthen the company's inventory efficiency and support sustainable growth in the future.

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