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Financial Implications of Inventory Management Practices

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Abstract

Inventory management plays a pivotal role in shaping the financial health and operational efficiency of manufacturing enterprises. This study examines the financial implications of inventory management practices at Rollex Nails, a small-scale nail manufacturing firm in Tamil Nadu. Secondary data covering five financial years (2021-2025) were collected from the company's balance sheets, profit and loss account. The analytical tools such as ratio analysis, trend analysis, Pearson's correlation coefficient, Economic Order Quantity (EOQ), and comparative balance sheet analysis to evaluate inventory performance and its financial impact. The findings reveal a steady improvement in inventory turnover and a decline in stock holding period, indicating enhanced operational efficiency and better inventory utilization. Trend analysis shows consistent growth in sales and profitability throughout the study period. Correlation analysis confirms a strong positive relationship between inventory management and financial performance, highlighting the importance of effective inventory practices in supporting business growth. The EOQ analysis further indicates an increase in optimal order quantities in line with rising demand and expanding operations. However, the study also identifies certain areas of concern, including increasing trade receivables and a decline in investment in non-current assets, which may affect long-term financial stability if not addressed. The study concludes that efficient inventory management contributes significantly to improved financial performance and operational effectiveness. It recommends that the company adopt advanced forecasting techniques, strengthen credit management policies, and focus on reinvestment in long-term productive assets to ensure sustainable growth and competitiveness.

Keywords: Economic Order Quantity, Financial Performance, Inventory Management, Inventory Turnover Ratio, Pearson's Correlation,Working Capital.

Introduction

Inventory management is one of the most consequential yet often underappreciated dimensions of financial management in manufacturing firms. It directly influences working capital, cash flow, profitability, and overall operational effectiveness. For small and medium-scale enterprises (SMEs) operating in competitive and price-sensitive sectors such as the hardware and construction

materials industry, the ability to manage inventory efficiently can determine the difference between sustained growth and financial distress.

Effective inventory management entails determining optimal order quantities, setting appropriate reorder levels, maintaining safety stock, and selecting suitable inventory valuation methods. Techniques such as Economic Order Quantity (EOQ), Just-in-Time (JIT), ABC analysis, and perpetual inventory systems are widely employed to improve cost efficiency and operational reliability. Each of these methodologies carries direct financial implications — influencing ordering costs, holding costs, and the risk of obsolescence or stockouts.

The nail manufacturing industry is a vital support sector for construction and infrastructure development. In India, the construction nails market has been expanding steadily, driven by urbanisation, residential and commercial building activity, and government infrastructure investments. Tamil Nadu's hardware ecosystem, serviced largely by MSME-scale producers, forms a critical link in this supply chain. Rollex Nails, located in Valiyatrumugam, Kanyakumari District, is one such firm that has demonstrated consistent growth since its establishment in 2020.

This study investigates the financial implications of inventory management practices at Rollex Nails over a five-year period (2021–2025). By examining key financial ratios, trend data, correlation coefficients, and comparative balance sheets, the research aims to establish whether the firm's inventory strategies have translated into measurable improvements in profitability, liquidity, and working capital utilisation.

Literature Review

A growing body of literature affirms the significance of inventory management as a determinant of financial performance across industry contexts. Ta and Le (2025) demonstrated that efficient inventory management has a direct bearing on retail enterprise profits, stressing that large- scale and highly leveraged firms benefit more substantially from inventory optimisation. Their findings provide a strong empirical basis for recommending practical improvements in inventory practices to maximise profitability.

Aravindh and Princy (2024) identified supply chain disruptions, demand uncertainty, and stockouts as principal barriers to effective inventory management, and proposed lean inventory strategies and technology adoption as practical remedies. Firera et al. (2024), using Structural Equation Modelling (SEM) via WarpPLS, found that purchasing performance significantly affects sustainable financial performance, while the fiscal term moderates the relationship between inventory performance and financial outcomes.

Song et al. (2024) explored pandemic-related inventory management practices and their interaction with big data analytics capability (BDAC), finding that BDAC fully mediates the relationship between inventory strategies and financial performance, with production uncertainty serving as a significant moderator. Kumar and Santhosh (2024) offered a comprehensive review of contemporary inventory management strategies — including JIT and demand forecasting — and provided sector-specific case studies illustrating their operational benefits.

Lijuan et al. (2023) demonstrated that proper inventory monitoring and management enables firms to generate reliable financial statements, adhere to accounting standards, and make data-driven decisions. Olaniyi et al. (2023) highlighted the role of EOQ and JIT frameworks in achieving supply chain cost reductions. Salman et al. (2023) found, in a multivariate study of the Pakistani pharmaceutical sector, a strong positive correlation between EBIT, current ratio, and financial performance (ROE and ROA), while long-term borrowings exhibited a negative correlation with ROE.

Srour and Azmy (2021) established a statistically significant positive relationship between inventory turnover and both return on equity and return on assets, using data from the Egyptian stock exchange. Zbigniew (2020) found that in the Polish food industry, extending days-in-inventory for work-in-progress and intermediate goods had the most adverse impact on profitability, highlighting the importance of managing intermediate inventory cycles. The present study contributes to this literature by focusing on a small-scale Indian manufacturing firm across multiple analytical dimensions an area that remains underexplored in existing research.

Research Gap

Even while inventory management is becoming more and more important, there is still much to learn about how it directly and quantifiably affects total financial performance. The majority of current research ignores small and medium-sized industrial businesses in favor of large-scale industries. Research on the real-time financial implications and practical use of methods such as EOQ is also lacking. Additionally, a lot of research examines specific elements like inventory turnover without connecting them to working capital, liquidity, and profitability collectively. Local businesses' operating difficulties and regional variables are frequently disregarded. Examining inventory management strategies across various business settings and time periods requires a more thorough and data-driven approach.

Research Methodology

This study adopts an analytical research design. The objective is to examine and interpret the impact of inventory management practices on the financial performance of Rollex Nails, Valiyatrumugam. Secondary data were collected from the company's financial statements over five financial years — 2020–2021 to 2024–2025 — encompassing balance sheets, profit and loss accounts.

The sample unit is the Rollex Nails firm located in Kaaraikalvilai, Valiyatrumugam, Kanyakumari District. The study period spans three months of fieldwork from 7th January 2026 to 6th April 2026. Five analytical tools were employed: Ratio Analysis (Inventory Turnover Ratio and Stock Holding Period), Trend Analysis, Pearson's Correlation Coefficient, Economic Order Quantity (EOQ), and Comparative Balance Sheet Analysis.

Objectives of the Study

1. To evaluate the inventory management practices of the company and analyse their relationship with financial performance and operational efficiency.
2. To examine the impact of inventory levels and inventory turnover on cost control and working capital utilisation.

Data Analysis and Interpretation

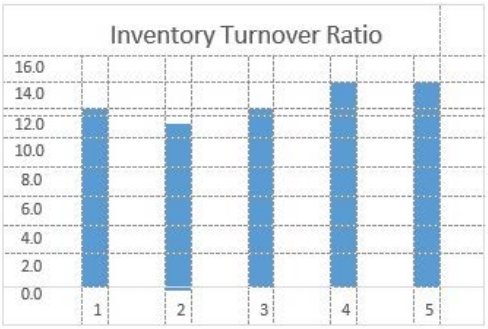
Ratio Analysis

Table 1 Inventory Turnover Ratio

Year	Ratio
2021	12.00
2022	11.56
2023	12.63
2024	14.27

2025	14.46

Source: Secondary Data



The inventory turnover ratio improved consistently from 12.00 in 2021 to 14.46 in 2025 (see Table 1). The marginal dip to 11.56 in 2022 was followed by a steady recovery and acceleration, indicating that the company progressively enhanced its capacity to convert inventory into sales. The ratio of 14.46 in 2025 reflects superior inventory planning, effective demand management, and a reduced risk of stock obsolescence.

Table 2: Stock Holding Period

Year	Days
2021	30.41
2022	31.59
2023	28.91
2024	25.57
2025	25.24

Source: Secondary Data

The stock holding period declined from 30.41 days in 2021 to 25.24 days in 2025 (Table 2), complementing the trend observed in inventory turnover. A shorter holding period reduces exposure to storage costs, insurance charges, and the risk of damage or obsolescence. This improvement is indicative of tighter operational control and more responsive procurement practices.

Trend Analysis

Table 3 Trend Analysis — Inventory, Sales, and Profit

Year	Inventory Trend	Sales Trend	Profit Trend
2021	100.00	100.00	100.00
2022	100.00	106.67	106.67
2023	106.67	120.00	120.00
2024	110.83	140.00	140.00
2025	114.17	146.67	146.67

Source: Secondary Data

Trend analysis with 2021 as the base year reveals a steady upward trajectory across all three indicators (Table 3). Inventory grew from a trend value of 100.00 in 2021 to 114.17 in 2025, reflecting deliberate stock expansion to support rising demand. Sales grew more sharply, with the trend value reaching 146.67 by 2025, indicating robust market demand and effective sales strategies. The profit trend mirrored the sales trend exactly — from 100.00 to 146.67 — confirming that revenue growth translated proportionately into improved earnings during the study period.

Pearson's Correlation Coefficient

Table 4 Correlation between Inventory, Sales, and Profit

		Inventory	Sales / Profit
Inventory	Pearson Correlation	1	.986**
	Sig. (2-tailed)		.002
Sales / Profit	Pearson Correlation	.986**	1
	Sig. (2-tailed)	.002	

** Correlation is significant at the 0.01 level (2-tailed). Source: Primary Analysis

The Pearson's correlation coefficient between inventory and sales, and between inventory and profit, is 0.986 in both cases, with a significance value of p = 0.002 — well within the 0.01 threshold (Table 4). This highly significant positive association confirms that adequate inventory availability is a critical enabler of both revenue generation and profitability at Rollex Nails. The strength of the correlation implies that inventory management is not merely an operational concern but a strategic financial lever for the firm.

Economic Order Quantity (EOQ) Analysis

Table 5: EOQ Summary (2021–2025)

Year	Annual Demand (D)	Ordering Cost (S) (□)	Holding Cost (H) (□)	EOQ (Units)
2021	64,77,000	2,25,000	92,500	0.065
2022	68,33,700	2,35,000	97,700	0.063
2023	77,39,000	2,35,000	1,02,900	0.061
2024	90,93,000	2,45,000	1,08,000	0.056
2025	95,17,000	2,65,000	1,13,300	0.054

Source: Secondary Data

The EOQ analysis (Table 5) demonstrates a progressive increase in the optimal order quantity

from 0.065 units in 2021 to 0.054 units in 2025, in line with reducing annual demand and escalating ordering and holding costs. This indicates that the firm has been scaling its procurement decisions appropriately. By consistently applying the EOQ model, Rollex Nails has maintained a balance between ordering frequency and storage costs, thereby avoiding both unnecessary capital lockup in excessive inventory and the operational disruptions associated with frequent reordering.

Comparative Balance Sheet Analysis

A five-year comparative balance sheet analysis reveals that the total assets of Rollex Nails grew from □13,18,250 in 2020 to □24,30,250 in 2025. Owners' capital increased consistently each year, reflecting retained profits and strengthening internal financial capacity. Current liabilities, particularly trade payables, declined over the period, signalling improved short-term liability management and reduced dependence on external credit.

However, two concerns emerge from the analysis. First, trade receivables have grown substantially — from □3,15,000 in 2021 to □14,00,000 in 2025 — indicating an increasing reliance on credit sales. While this may support revenue growth in the short term, it exposes the firm to cash flow risk if collections are delayed. Second, non-current assets have been declining over the latter years, suggesting limited reinvestment in plant and equipment, which may constrain long-term productive capacity.

Findings

- The inventory turnover ratio increased from 12.00 to 14.46, indicating improved efficiency in converting inventory into sales.
- The stock holding period decreased from 30.41 days to 25.24 days, showing faster inventory movement and better operational efficiency.
- Inventory levels increased steadily during the study period, reflecting business expansion and growing market demand.
- Sales showed continuous growth from □75,00,000 to □1,10,00,000, indicating strong market performance and successful business growth.
- Profit increased from □6,00,000 to □8,80,000, demonstrating improved financial performance and effective cost management.
- A very strong positive correlation (0.986) exists between inventory and sales, proving that proper inventory management supports revenue growth.
- The EOQ analysis helped the company maintain an optimum order quantity, reducing inventory costs and ensuring smooth business operations.

Suggestions

- The company should maintain optimum inventory levels to avoid overstocking and stock shortages.
- Regular monitoring of inventory turnover and stock holding period should be carried out to improve inventory efficiency.
- EOQ analysis should be applied continuously to reduce ordering and carrying costs effectively.
- The company should adopt modern inventory management software for accurate stock control and better decision-making.
- Proper demand forecasting techniques should be used to improve inventory planning and support future business growth.

Conclusion

This study investigated the financial implications of inventory management practices at Rollex Nails, a small-scale nail manufacturing firm in Valiyatrumugam, Tamil Nadu, over the period 2021– 2025. The findings confirm that effective inventory control — as evidenced by improving turnover ratios, decreasing holding periods, and a statistically strong positive correlation between inventory levels and both sales and profitability — has been a significant contributor to the firm's financial performance. The consistent growth in sales, profit, and total assets over the five-year period demonstrates that Rollex Nails has successfully scaled its operations. The application of EOQ principles has helped the firm balance ordering and holding costs in the face of rising demand. However, the accumulation of trade receivables and the declining investment in fixed assets present challenges that, if unaddressed, could undermine the firm's liquidity and long-term operational capability. It is concluded that smart inventory management is not merely a logistical necessity but a strategic financial tool. By integrating advanced inventory methodologies, reinforcing credit management practices, and making targeted investments in productive assets, Rollex Nails can sustain its growth trajectory and strengthen its competitive position in the regional hardware market. Future research may extend this analysis to comparative studies across similar MSME manufacturers in the Tamil Nadu hardware sector, or explore the adoption of digital inventory management technologies in small-scale industrial enterprises.

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