Int. j. adv. multidisc. res. stud. 2026; 6(1):1806-1829

Received: 15-12-2025
Accepted: 25-01-2026

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Inventory Management Practices and Financial Performance of Brewing Firms in Nigeria: A Study of Champion Breweries Plc, Uyo

[1] Nsima Aniefiok Usoro, [2] Usen Paul Umo, [3] Uwem Uwah
[1, 2, 3] Department of Accounting, Akwa Ibom State University, Nigeria

DOI: https://doi.org/10.62225/2583049X.2026.6.1.5741
Corresponding Author: **Usen Paul Umo**

Abstract

Despite the widely acknowledged benefits of strategic inventory management in enhancing organizational efficiency and profitability many firms, including those in the Nigerian brewing industry are still plagued with sub-optimal inventory levels and their associated financial implications. The main objective of this study therefore, was to examine the effect of inventory management practices on financial performance of Champion Breweries, Uyo. The independent variable being strategic inventory management practices was proxied by Just-in-Time (JIT) strategy, Economic Order Quantity (EOQ) strategy, Lean inventory strategy, Material requirement planning (MRP) strategy and Vendor Managed Inventory (VMI) strategy, while the dependent variable, financial performance, was proxied by gross profit margin. The research design adopted for this study was survey design and primary data used were derived using the researcher self-constructed 5-point Likert questionnaire. The population of the study was 195 staff of Champion Breweries, Uyo. Purposive sampling technique was adopted to select a sample of 85 staff members. Data were analysed using Ordinary Least Square (OLS) regression analysis and the statistical package employed was SPSS version 21. The findings of the study revealed that Just-in-time strategy {0.502(0.000)} has a significant positive effect on gross profit margin; Economic order quantity {0.444(0.000)} has a significant positive effect on gross profit margin; lean inventory strategy {–0.094(0.318)} has an insignificant negative effect on gross profit margin; material requirement planning {0.315(0.021)} has a significant positive effect on gross profit margin and vendor managed inventory {0.206(0.083)} has an insignificant positive effect on gross profit margin of Champion Breweries Plc, Uyo. Among others, it was concluded that effective inventory management strategies play a critical role in improving the gross profit margin of Champion Breweries. Therefore, it was recommended among others, that the management of Champion Breweries, Plc, Uyo, the company should strengthen and maintain its Just-In-Time (JIT) practices. This can be achieved by enhancing supplier relationships to ensure timely delivery of raw materials while and reducing lead times, and this will minimize inventory holding costs and increase profitability.

Keywords: Inventory Management Practices, Just-In-Time Strategy, Economic Order Quantity, Lean Inventory Strategy, Material Requirement Planning, Vendor Managed Inventory, Financial Performance, Gross Profit Margin

1. Introduction

1.1 Background to the Study

The twenty first century business world is remarkably dynamic and competitive. Consequently, effective inventory management has emerged as a critical determinant of an organization's operational efficiency, cost control, resulting in improved financial performance (Umo & Anthony, 2020) [75]. Inventory, encompassing raw materials, work-in-progress, and finished goods, represent a significant investment for manufacturing firms. Its strategic management involves striking a delicate balance between meeting customers' demand without incurring excessive holding costs or experiencing costly stockouts. Poor inventory practices can lead to inflated storage expenses, obsolescence, capital tied up in unproductive assets, production disruptions, and missed sales opportunities, all of which directly erode profitability (Althaqafi, 2020; Ugwu and Nwakoby, 2020) [7, 73].

In many economies, the Nigerian economy inclusive, firms in the brewing industry are characterized by reliance on agricultural raw materials, complex production processes, and varying consumer demands. These factors present unique challenges which raise concern for effective and efficient inventory management. Many breweries manage diverse range of

inputs, from malt and hops to packaging materials, while ensuring a continuous supply of finished products to meet market fluctuations. A close look at the perishable nature of some raw materials and the need for consistent product quality further shows the relative importance of inventory management practices in brewing companies. In the business world inventory management practices which include Just-in-Time (JIT), Economic Order Quantity (EOQ), Material Requirements Planning (MRP), Vendor-Managed Inventory (VMI), and Lean Inventory Strategy often lead to significant improvements in the supply chain efficiency, cost reduction, and enhanced responsiveness to market demands (Sitienei & Memba, 2019) [69]. These practices aim to minimize waste, optimize stock levels, improve forecasting accuracy, and foster stronger relationships with suppliers, all of which contribute to a more robust and financially sound operation.

Just-in-Time (JIT) is an aspect of inventory management practices that dictates the materials and products which should be acquired and produced only when they are needed and precisely at the moment they are required for production or sale (Umo & Anthony, 2021). Economic Order Quantity (EOQ) is described as classic inventory management model that calculates the optimal order quantity for an item in order to minimize the total costs associated with ordering and holding inventory (Umenzekwe *et al*, 2021) [74]. Lean inventory management is an inventory management approach that focuses on minimizing waste in all aspects of the supply chain, including inventory (Umo & Anthony, 2020) [75]. It views inventory as a liability rather than an asset when it is excessive, as it ties up capital, consumes space, and incurs holding costs. Material Requirements Planning (MRP) can be described as computer-based production planning and inventory control system (Seth *et al*., 2020) [68]. MRP is inventory management technique designated for production scheduling and inventory control (Ndubusi *et al*., 2020). It is a material control system that attempts to keep adequate inventory levels to assure that required materials are available when needed. Vendor Managed Inventory (VMI) is an aspect of inventory management practice specifically concerned with how the supplier (vendor) takes responsibility for managing the inventory levels of their products at the customer's (buyer's) location (Cabungcal *et al*., 2023) [14].

In this research work, the company's financial performance is measured by a key indicator called gross profit margin. It is a reflection of the firm's ability to manage its costs effectively for the purpose of maximizing its revenue generation (Nasution, 2020) [48]. JIT generally have positive impact on a company's financial performance, primarily by reducing costs, improving cash flow, and enhancing overall efficiency (Nugroho *et al,* 2020) [53]. By minimizing inventory levels, companies drastically reduce expenses related to ware-house space and insurance. In inventory management, the adoption of economic order quantity practice affects financial performance by balancing ordering and holding costs (Kolawole, 2020). This in turn helps businesses to achieve the lowest possible overall cost for managing their inventory. Lean inventory management significantly impacts on financial performance by focusing on minimizing waste and optimizing resource utilization throughout the supply chain (Atmafu & Balda, 2020).

Still in line with the above discussion, MRP significantly impacts on a company's financial performance by driving efficiency and cost savings across various operational areas (Bouadam & Maiza, 2022) [13]. By transferring the responsibility of inventory management to the vendor, VMI help customers reduce the amount of capital tied up in inventory and the costs associated with storing and managing it (Agu, 2024) [1]. This can free up resources for other investments and improve the retailer's overall financial performance. While the importance of inventory management is widely acknowledged in theory, the empirical evidence specifically examined the application of inventory management practices and the related impact on financial performance of brewing companies in some economies. But in Nigeria, and specifically in Champion Breweries PLC, Uyo, research on inventory management practices and the financial performance is remarkably underexplored. From the above background, the researcher reached a decision to study the effect of inventory management practices on the financial performance of brewing companies in Akwa Ibom State using Champion Breweries PLC, Uyo, as the organization of study.

1.2 Objectives of the study

The main objective of this study was to examine the effect of inventory management practices on financial performance of Champion Breweries, PLC, Uyo, Akwa Ibom State. The specific objectives of the study were as follows:

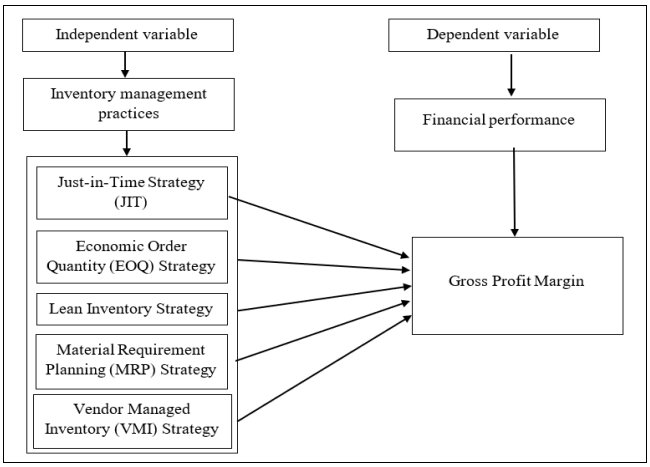
1. To examine the effect of Just in Time strategy on gross profit margin of Champion Breweries Plc, Uyo.
2. To ascertain the effect of economic order quantity strategy on gross profit margin of Champion Breweries Plc, Uyo.
3. To investigate the effect of lean inventory strategy on gross profit margin of Champion Breweries Plc, Uyo.
4. To evaluate the effect of material requirement planning strategy on gross profit margin of Champion Breweries PLC, Uyo.
5. To examine the effect of Vendor Managed Inventory strategy on gross profit margin of Champion Breweries Plc, Uyo.

2. Related Literature Review

In this section, a review of related literature on the subject matter will be carried out and this section covers the conceptual framework, theoretical reviews, empirical reviews and summary and gap in literature review.

2.1 Conceptual framework and review

The variables of this study and their inter-relationship are presented in this section. These variables are (a) Independent variable, inventory management practice represented by Just-in-Time strategy, Economic Order Quantity (EOQ) strategy, Lean inventory strategy, Material requirement planning (MRP) strategy and Vendor Managed Inventory (VIM) strategy and (b) the dependent variable, financial performance, represented by gross profit margin. It is accepted that that financial performance is a function of strategic inventory management practices and this is depicted in the diagram below;



2.1.1 Strategic Inventory management practices

Strategic inventory management is a holistic and proactive approach to managing a company's inventory that goes beyond simply tracking stock levels or minimizing immediate costs. It aligns inventory decisions with the overall business strategy and financial goals of the organization, considering market dynamics, customer expectations, supply chain capabilities, and long-term profitability (Ordu, 2024) [56]. It involves setting inventory policies and processes that support the company's strategic objectives, rather than just reacting to day-to-day inventory needs. Inventory management is a process that assists companies in determining the appropriate timing and quantity of stock to order. It monitors inventory from the moment of purchase until the goods are sold. By analyzing trends, it can anticipate demand and ensure enough stock is available to meet customer orders. It also alerts the company in advance if there is a shortage, allowing them to take corrective measures (NetSuite, 2020).

Inventory management refers to keeping or maintaining the firm's stocks at a level that a firm will only incur the lest cost consistent with other management's set objectives or targets (Kwadwo, 2016) [36]. Inventory management is about ensuring that all input materials of production available to the firm are maintained at a level where production is not interrupted as well as ensuring that operational cost is kept at a minimal level without affecting operation efficiency (Eneje *et al*. 2022) [22]. Inventory management entails planning, organizing, controlling and directing. All these coordinated efforts are meant to ensure achievement of efficiency in all operations of the firm (Robinson & Umo, 2023) [66]. Such operations may include procurement, stocking and transportation (Akindipe, 2014) [2]. Mismanagement of inventories may lead to significant financial problems for a firm (Muhayimana, 2015) [44]. Inventory management is crucial and frequently consumes a significant portion of an organization's operational budget; thus, it has to be closely regulated. It has been acknowledged that keeping accurate inventory records and using efficient inventory control strategies are crucial. It is also found that state firms adopted technology less readily than other industries in inventory management, which may impact how well they manage their inventories (Gatari *et al.,* 2022) [24].

Similarly, Khan and Siddiqui (2019) assert that effective inventory management does not treat every product the same; instead, it utilizes control and analytical techniques by the relative economic relevance of each good. In addition, proper inventory planning and control is one of the most critical aspects of a company that requires skill and ability to increase overall performance (Umo, 2022) [76]. Inventory planning and management benefits include improved contract compliance, lower procurement costs, better worker engagement, and lower handling costs (Namusonge *et al.*, 2015) [47].

2.1.1.1 Just-in-Time strategy

Just-In-Time (JIT) is a core component of lean inventory management. It is an inventory management strategy which emphasizes that materials and products should be acquired and produced only when they are needed, precisely at the moment they are required for production or sale (Ordu, 2024) [56]. This minimizes the need to hold large quantities of inventory. Often JIT is linked with a computerized point - of - sale system and inventory levels are maintained through an automated reordering system connected to suppliers, so that stockouts are minimized (Opoku, *et al*, 2020) [54]. Like EOQ model, JIT is also a type of inventory management tool that ensures that "what stock is needed arrives just in the time it is needed and no room for storage". The implementation of JIT system is a mechanism for reducing non-value added cost and long-run costs. According to Seth *et al*., (2020) [68], it is a system whose objective is to produce or procure products/components as they are needed or required than for inventory. JIT system was developed in Japan and is considered as one of the main contributions to Japanese manufacturing success. It involves continues commitment to the pursuit of excellence in all phases of manufacturing system design and operations. The aim of JIT system is to produce the required items, of high quality, exactly as the time they are required and the required quantities. Among the goal of JIT are zero inventory, elimination of non-value added activities, zero defects, 100% on time delivery.

2.1.1.2 Economic Order Quantity (EOQ)

Economic Order Quantity (EOQ) is a classic inventory management model that calculates the optimal order quantity for an item to minimize the total costs associated with ordering and holding inventory. It balances the trade-off between ordering costs (e.g., administrative costs, shipping fees) and holding costs (e.g., storage, insurance, obsolescence). Undoubtedly, one of the best-known and most fundamental inventory decision models is the Economic Order Quantity Model. Its origin dated back to the early 1900s. As defined by Dervitsiotis (2001) [17] economic order quantity is the ordering quantity which minimizes the balance of cost between inventory holding costs and re-order costs. He stressed further that to be able to calculate a basic EOQ, certain assumptions are necessary: (i) That there is a known, constant, stock holding costs; (ii) That there is a known, constant ordering costs; (iii) That the rates of demand are known (iv) That there is a known constant price per unit (v) That replenishment is made instantaneously, that is the whole batch is delivered at once. (vi) No stock-outs are allowed. Mathematical models have been developed within the scope of operations management to determine the optimal inventory level. The most widely used model is the EOQ model. The model is also known as the Wilson EOQ model. According to this model, some costs (ordering costs) decline with inventory holdings, while others (holding costs) rise and that the total inventory-associated cost curve has a minimum point (Nnadi & Nduoko, 2021) [51].

2.1.1.3 Lean inventory strategy

Lean inventory management is a holistic approach focused on minimizing waste in all aspects of the supply chain, including inventory. It views inventory as a liability rather than an asset when it's excessive, as it ties up capital, consumes space, and incurs holding costs. The goal is to maintain only the minimum necessary inventory levels to meet customer demand. Lead production is a philosophy and a way of working involving eliminating all forms of waste (where waste is defined as anything that does not add value in the production process and supply chain). JIT is a key element of Lean production system. Lean theory is an extension of ideas of just in time. Islam *et al*. (2019) [29] elaborated that just in time as a pull-based system was designed to align the production and business processes throughout the supply chain. However, in the theory, material constrains a firm's ability to respond to fluctuations in demand (Gatari *et al*., 2022) [24].

Scholarly studies indicate that companies successfully optimize material through lean supply chain practices and systems to achieve higher levels of asset utilization and customer satisfaction leading to improved organizational growth, profitability and market share (Islam *et al*., 2019) [29]. Another study suggesting a positive relationship between material management and performance was that of Elking *et al*. (2019) [20] in which their study focused on US manufacturing firms covering the period of 2003-2008. They found that leanness positively affects profit margins. According to Elking *et al*. (2019) [20] firms that are leaner than the industry average generally sees positive returns to leanness. They used empirical leanness indicator as a measurement for material management. Contrary to the present study, their study focused on assessing the relationship between material performance and overall firm performance. Criticism leveled against the theory is that it can only be applicable when there is a close and long-term collaboration and sharing of information between a firm and its trading partners.

2.1.1.4 Material requirement planning (MRP)

Material requirements planning (MRP) is a computer-based production planning and inventory control system. MRP is concerned with both production scheduling and inventory control. It is a material control system that attempts to keep adequate inventory levels to assure that required materials are available when needed. Material Requirements Planning (MRP) is a system used by manufacturers to manage and plan their production processes effectively. It's essentially a calculation and scheduling tool that determines what materials and components are needed, in what quantities, and when they are needed to manufacture a product. MRP is applicable in situations of multiple items with complex bills of materials. According to Ordu (2024) [56], MRP is not useful for job shops or for continuous processes that are tightly linked. MRP is especially suited to manufacturing settings where the demand of many of the components and subassemblies depend on the demands of items that face external demands. Demand for end items are independent. In contrast, demand for components used to manufacture end items depend on the demands for the end items. The distinctions between independent and dependent demands are important in classifying inventory items and in developing systems to manage items within each demand classification. MRP systems were developed to cope better with dependent demand items (Elking *et al*., 2019) [20].

MRP is done primarily through specialized software and it helps to ensure that the right inventory is available for the production process exactly when it is needed and at the lowest possible cost. As such, MRP improves the efficiency, flexibility and profitability of manufacturing operations. It can make factory workers more productive, improve product quality and minimize material and labor costs (Umo, 2025) [77]. MRP also helps manufacturers respond more quickly to increased demand for their products and avoid production delays and inventory stockouts (that can result in lost customers), which in turn contributes to revenue growth and stability (Umo, 2025) [77]. MRP is the system most companies use to track and manage all of these dependencies and to calculate the number of items needed by the dates specified in the master production schedule. To put it another way, MRP is an inventory management and control system for ordering and tracking the items needed to make a product. According to Akudor (2020) [4], the three major inputs of an MRP system are the master production schedule, the product structure records, and the inventory status records.

2.1.1.5 Vendor Managed Inventory (VIM)

Vendor Managed Inventory (VMI) is a collaborative inventory management strategy where the supplier (vendor) takes responsibility for managing the inventory levels of their products at the customer's (buyer's) location (Umo, 2022) [76]. Vendor Managed Inventory (VMI) is a supply chain management strategy where the supplier (vendor) takes responsibility for managing and replenishing the inventory of their products at the customer's (buyer's, often a retailer or manufacturer) location (Umo, 2025) [77]. Instead of the buyer placing purchase orders, the vendor monitors the customer's sales and inventory data (often in real-time) and proactively decides when and how much to replenish (Althaqafi, 2020) [7].

Elking (2019) noted that the primary purpose of Vendor Managed Inventory (VMI) is to optimize inventory levels and improve supply chain efficiency for both the vendor (supplier) and the customer (retailer or distributor). This is achieved by transferring the inventory management responsibility from the customer to the vendor, who has better visibility into demand patterns and production capabilities. The vendor monitors the buyer's inventory and replenishes stock as needed, based on agreed-upon stock levels and real-time consumption data. Vendor Managed Inventory is an inventory and procurement approach, in which the supplier is responsible for managing and updating stock. This seems to contradict the principle of pull scheduling, since the previous process (production) deciding how much and when it will be sent to the store/retailer. Within the VMI, suppliers have to monitor sales and inventory, then information will be generated when the procurement is done (Liu *et al*., 2020) [37]. The implementation of VMI in the supply chain simplifies the steps that occur when the purchase information made by the last consumer can be accessed directly by the distributor / supplier. Thus the feedback to determine the speed of the flow of goods can be known. By applying VMI, the sales information at stores/retailers to suppliers, can be simplified, so that information can be immediately known (Maina & Were, 2024) [40].

2.1.2 Financial performance

Financial performance refers to the measurement of a company's financial health and success over a specified period of time. Financial performance measures how well a business uses resources and generates income (Elking, 2019). It reviews its financial standing regarding assets, liabilities, equity, revenues, and expenses. Financial performance also demonstrates how a business uses resources to accomplish its economic goals. Financial reports are essential in communicating how firms accountably and financially position themselves and are used to analyze financial performance. Ratio analysis is the quantitative assessment of data from financial reports expressed as profits or returns, such as return on assets (Tanveer *et al*, 2020) [72]. Many financial ratios, including gross profit margin, net profit margin, return on asset, current ratio, debt asset ratio, and others, can be used to evaluate a company's liquidity, profitability, leverage, and market value (Umo & Anthony, 2020) [75]. Riza *et al*. (2016) [65] investigated financial performance as it was measured through financing and other factors, including financial literacy.

Company financial performance is the most important indicator of business growth because it demonstrates the companies' capacity to increase income levels (Ordu, 2024) [56]. Elking *et al*., (2019) [20], financial performance is in the question of "if a firm's financial goals have been met or not". Financial performance is a subjective measure of how well firms can use assets from its primary mode of business and generate revenue. It can be expressed in terms of income generated from its operation, after offsetting expenses to arrive at net income. It is used as a general measure of firms' overall financial health over a given period of time.it can be used to compare similar firms across the same industry or to compare industry or sectors in aggregation. Company's performance indicators include the financial and non-financial indicators. Financial indicators have been widely adopted because a company's long term long term goal is almost always purely financial in nature Maina & Were, 2024) [40].

2.1.2.1 Gross profit margin

Gross profit margin or profitability ratio calculates the portion of revenue that remains after deducting cost of goods sold. It is among the most important parameter used in measuring financial performance particularly profitability. Other indicators of financial performance include return on capital employed, net profit margin, gross profit margin, return on equity, return on total Assets, return on shareholders' fund, return on assets (ROA), return on equity, (ROE), earnings per share, net profit margin and return on capital employed. Gross profit margin (GPM) measures the proportion or percentage of sales revenue earned as profit after deducting cost of sales only. Operating costs, interest costs and taxes are not are not included in the cost of goods sold which only includes the direct cost of production. On the hand, a product's or line of product' gross profit margin is a measure of profitability that excludes accounting overheads. It is expressed as x% and the higher the better because a higher gross profit margin indicates that the cost of sales did not take a higher portion of the sales revenue. It is given as:

$$\text{Gross profit margin} = \frac{\text{Gross profit}}{\text{Sales Revenue}} \times \frac{100}{1} \text{ (Deloof, 2018) [16]}$$

2.1.3 Relationship between strategic inventory management and financial performance

Strategic inventory management has a pervasive and powerful impact on a company's financial performance, extending beyond just cost savings to influence revenue, profitability, and overall financial health. By aligning inventory with strategic objectives and optimizing levels, businesses avoid excessive stock, leading to significant savings on warehousing, insurance, obsolescence, and capital tied up. Inventory management aims to prevent excess and inadequate stock levels from maintaining continuous production and sales, lower carrying costs, and better customer service. When this is accomplished, the company's status regarding liquidity and profitability is enhanced (Oluwagbemiga *et al* 2024) [55]. Good budgeting and planning techniques and accurate sales projections are necessary for effective inventory management (Elking *et al*., 2019) [20]. Organizations must employ efficient reporting systems and inventory management techniques like EOQ and ABC analysis procedures to increase inventory levels. Khan *et al*. (2020) [34] discovered that inventory management significantly influences a firm's performance and profitability, enabling strategic decisions to improve productivity. The same results were obtained by Islam *et al.* (2019) [29], in which a cumulative majority of 93% of respondents agreed that the inventory management tactics employed had a favorable influence.

2.1.3.1 Just-in-Time strategy and gross profit margin

Just-in-Time (JIT) inventory is a core component of lean inventory management. It's an inventory strategy where materials, components, and finished goods are produced or acquired only when they are needed for the next stage of production or to meet actual customer demand, rather than being stored in anticipation of future needs. The fundamental principle is to minimize inventory holding to the absolute bare minimum, ideally zero. JIT has a significant and generally positive impact on a company's financial performance, primarily by reducing costs, improving cash flow, and enhancing overall efficiency. By minimizing inventory levels, companies drastically reduce expenses related to ware-house space and insurance. JIT inherently promotes the identification and elimination of waste in all forms (overproduction, waiting, defects, unnecessary transport). This leads to lower production costs and improved resource utilization. Capital tied up in inventory isn't earning returns, JIT frees up this capital, allowing it to be invested elsewhere in the business (e.g., R&D, marketing, debt reduction), improving the overall return on investment (ROI). The direct reduction in inventory-related costs and waste means that the cost of goods sold (COGS) is lower, leading to higher gross profit margins. JIT forces companies to streamline processes, identify bottlenecks, and improve operational flow. This leads to increased productivity with fewer resources, which contributes to overall profitability. Ndubuisi *et al*. (2020) [50] and Nugroho *et al*. (2020) [53] found a positivel significant relationship between JIT and financial performance of breweries in Nigeria.

2.1.3.2 Economic Order Quantity (EOQ) strategy and gross profit margin

Economic Order Quantity (EOQ) is a classical inventory management model that aims to determine the optimal order quantity for inventory that minimizes the total inventory costs. These total costs are primarily composed of two

opposing forces: ordering Costs and holding cost. EOQ inventory management strategy affects financial performance by balancing ordering and holding costs and thus helps businesses achieve the lowest possible overall cost for managing their inventory. Ordering at the EOQ means avoiding excessive inventory, which directly lowers expenses related to storage, insurance, taxes, and capital tied up.Ordering larger, but optimal, quantities means fewer orders need to be placed over a period, saving on administrative costs, processing fees, and per-order transportation expenses. By not overstocking, a company frees up capital that would otherwise be tied up in inventory. This improved liquidity allows the business to invest in other areas (e.g., marketing, R&D, new equipment), pay down debt, or simply have more cash on hand for operational needs. Better management of working capital leads to a healthier balance sheet and better financial ratios. Knowing the optimal order quantity helps in planning warehouse space, labor, and transportation, leading to more efficient use of these resources. While EOQ primarily focuses on cost minimization, by determining a balanced order quantity, it indirectly helps maintain adequate stock levels. This reduces the likelihood of stockouts, which can lead to lost sales, customer dissatisfaction, and potential damage to reputation. Finally, by striking a balance between ordering and holding expenses, it helps companies reduce overall inventory-related expenditures, improve cash flow, and enhance operational efficiency. Empirical studies have significant relationship between EOQ and financial performance. For instance, Ordu (2024) [56] and Ugwu and Nwakoby (2020) [73] found a positive association between EOQ and financial performance.

2.1.3.3 Lean inventory management and gross profit margin

Lean inventory management, when implemented effectively, generally has a strong positive impact on financial performance by reducing costs, improving cash flow, and enhancing overall operational efficiency. Lean inventory management significantly impacts financial performance by focusing on minimizing waste and optimizing resource utilization throughout the supply chain. Lean inventory management significantly impact on financial performance because by holding less inventory, companies save on storage space, insurance, taxes, security, and the costs associated with obsolescence, spoilage, and damage and this directly lowers operating expenses. With lean inventory, less capital is tied up in inventory, freeing up cash that can be used for other investments, operations, or to reduce debt and this improves liquidity and financial flexibility. Cost reductions from reduced waste and carrying costs directly contribute to higher profit margins. Additionally, lean practices often lead to increased productivity and efficiency, further boosting profitability. Lean principles aim for a higher inventory turnover rate, meaning products move through the supply chain and are sold more quickly. This translates to faster realization of cash from inventory assets. With lower inventory levels, businesses can adapt more quickly to shifts in customer demand, market trends, or unexpected events. This agility can prevent losses from outdated stock and capitalize on new opportunities. Lean often goes hand-in-hand with Total Quality Management (TQM). By focusing on eliminating defects and errors throughout the production process, lean inventory can lead to higher quality products, reducing rework, returns, and associated costs. This can also improve customer satisfaction and loyalty, indirectly impacting sales and revenue.

Eneje *et al*. (2019) assessed the impact of lean theory on service delivery and noted that the theory may eliminate buffer stock and minimize waste in production process. On the other hand, Rono and Miroga, (2019) [67] found that leanness positively affects profitability of a business firm and therefore the best material control tool.

2.1.3.4 Material requirement planning (MRP) and gross profit margin

The primary objective of MRP is to make sure that materials and components are available when needed in the production process and that manufacturing takes place on schedule. Effective inventory management and optimization -- by acquiring or manufacturing the optimal amount and type of inventory, companies can minimize the risk of stock-outs, and their negative impact on customer satisfaction, sales and revenue, without spending more than necessary on inventory. MRP significantly impacts a company's financial performance by driving efficiency and cost savings across various operational areas. By ordering materials only when needed and in precise quantities, MRP helps minimize excess inventory. This directly reduces costs associated with storage space, insurance, obsolescence, damage, and taxes on inventory. Less inventory on hand means less risk of materials becoming outdated or expiring, especially for perishable goods or components with short shelf lives. Also MRP improves financial performance by freeing up cash that can be used for other strategic investments, to reduce debt, or improve liquidity. MRP ensures that all necessary materials are available when production needs them, preventing costly delays and bottlenecks on the factory floor. Therefore, a well-implemented and managed MRP system can be a powerful tool for improving a manufacturing company's financial performance. Radzuan (2022) [63] found a positive association between MRP and financial sustainability of firms.

2.1.3.5 Vendor Managed Inventory (VIM) and gross profit margin

Vendor-managed inventory is an inventory management practice in which a supplier of goods, usually the manufacturer, is responsible for optimizing the inventory held by a distributor. By transferring the responsibility of inventory management to the vendor, retailers reduce the amount of capital tied up in inventory and the costs associated with storing and managing it. This can free up resources for other investments and improve the retailer’s overall financial performance. This collaborative approach shifts the burden of inventory management from the buyer to the seller, fostering a closer partnership and aiming for optimized inventory levels throughout the supply chain. VMI, when successfully implemented, typically leads to a "win-win" scenario for both parties, driving significant improvements in financial performance through cost reductions, increased efficiency, enhanced sales, and improved customer satisfaction. VMI helps the buyer reduce their own stock levels, leading to lower costs associated with storage, insurance and obsolescence and spoilage. With less capital tied up in inventory, cash is freed up for other operational needs, investments, or debt reduction. The vendor, with direct access to sales data, can more accurately forecast demand and ensure timely replenishment, minimizing instances of running out of popular products.

This directly translates to higher sales and customer satisfaction. Empirical studies like (Maina and Were, 2024 [40]; Nigwi and Kwasira, 2024) have significant relationship between EOQ and financial performance.

2.2 Theoretical Framework

2.2.1 Theory of constraint by Goldratt (1970)

Theory of Constraints was developed by Goldratt (1970). It is a methodology used in identifying the most important limiting factor, which is termed as the constraint. The major concept of theory of constraints (TOC) is that every process has a single constraint and the total throughput of the process can only be improved through the improvement of the constraint. Tanveer *et al*. (2020) [72] supported this theory by describing that for every profit making firms there must be at least a constraint that limits the entire system from achieving more of what it strives for and ultimately determines the output of the system.

A constraint is any factor that deprives any organization from meeting its objectives as it affects the operational processes. If a firm fail to manage this constraint, it adversely affects its production process and ultimately leads to decline in profits margin (Elking *et al*., 2019) [20]. The TOC is applicable to the supply chain network whereby the weak link limits the efficiency and effectiveness of the entire supply chain process. For the case of poor specification of materials affects the operations of the supply chain. Specification of materials is the constraint in the supply chain system. TOC views organizations as systems consisting of resources, which are linked by the processes they perform. The goal of the organization serves as the primary judge of success. Within that system, a constraint is defined as anything that limits the system from achieving higher performance relative to its purpose. The pervasiveness of interdependencies within the organization makes the analogy of a chain, or network of chains, very descriptive of a system's processes. Just as the strength of a chain is governed by its single weakest link, the TOC perspective is that the ability of any organization to achieve its goal is governed by a single, or at most very few, constraints (Joseph *et al*., 2023) [31].

While the concept of constraints limiting system performance is simple, it is far from simplistic. To a large degree, the constraint/non-constraint distinction is almost totally ignored by most managerial techniques and practices. Ignoring this distinction inevitably leads to mistakes in the decision process. The implications of viewing organizations from the perspective of constraints and non-constraints are significant. Most organizations simultaneously have limited resources and many things that need to be accomplished. If, due to misplaced focus, the constraint is not positively affected by an action, then it is highly unlikely that real progress was made toward the goal.

2.2.2 Resource dependency theory by Jeffrey and Salancik (1978)

The resource dependency theory was propounded by (Pfeffer, 1973). The perspective of the resource dependence theory is more materialist, and less organization centered. It is primarily concerned with firms' access to resources, such as expertise and capital. According to resource dependence theory, structures of corporate governance such as the board of directors affect firms' access to resources essential for firm performance (Gatari *et al*., 2022) [24]. According to resource dependency theory, firms seek to reduce uncertainty and manage dependence by purposely structuring their exchange relationship, establishing formal and semi-formal relationship with other firms' (Amahalu *et al*., 2019) [8]. Through the developed linkages and relationships, organizations can reduce inconveniences that come as a result of market dynamics. This theory can be applied in internal inventory control. Organizations can form strategic, long term relationships with suppliers and product users to ensure smooth and timely delivery of materials (Eneje *et al*., 2022) [22]. With long term supplier customer relationship, the organization is able to buffer itself from internal and external organizational and environmental changes and achieve optimal inventory control (Muhayimana, 2015) [44].

This theory supports this study as organisations rely on external resources, such as suppliers to obtain inventory. Effective inventory management helps mitigate dependencies on these external resources, ensuring a stable chain and minimizing potential disruptions.

2.3 Review of Empirical Studies

Ordu (2024) [56] explored EOQ in a just in time (world) and analyse the impact of EOQ on operating profit. The research design adopted for this study was the ex post facto research and secondary data were employed. The population of this study was 13 listed manufacturing companies in Malaysia and purposive sampling technique was employed to select 11 manufacturing companies. The method of data analysis employed was the panel least squares regression analysis and the statistical package employed was E views version 10. The result of the analysis revealed that the application of economic quantity inventory management strategy has a significant positive effect (Coef. = 0.20; P -value = 0.000) on operating profits of these company and also the use of just in time operating profits of these companies too.

Migwi and Kwasira (2024) [41] studied the success factors for the implementation of vendor managed inventory systems in retail supermarkets in Nakuru Town, Kenya. This study aimed at examining the effect of supplier relationship on successful implementation of VMI. target population was employees of procurement departments of ten retail supermarkets in Nakuru town. A census of all the procurement employees in the retail supermarkets was undertaken. The study utilized descriptive design. Data was collected using structured questionnaires and analyzed using both descriptive (measures of central tendencies) and inferential statistical techniques (Pearson correlation). Analysis was done using Statistical Package for Social Sciences (SPSS) version 24. The study established that supplier relationship was significant in determining the success of VMI implementation.

Oluwagbemiga *et al*. (2024) [55] investigated the relationship that exists between Lean production and supply chain innovation in baked foods supplier to improve performance using data from 40 manufacturing companies listed on the Nigerian stock exchange during the period from 2013 to 2022. The study relied on secondary data extracted from the audited financial statements of the selected companies. Inventory management, budgetary control and cash management, production overhead cost, and administrative overhead cost were taken as independent cost management variables, while profitability (operating profit) was taken as a dependent variable representing the firm's performance. The result indicates that a positive, significant relationship

exists between cost management practices and the firm's performance in the manufacturing organization.

Maina and Were (2024) [40] studied the influence of vendor managed inventory on performance of retail outlets in Kenya. a case of Tuskys supermarket limited. The main objective of the study was to investigate the influence of vendor managed inventory on performance of retail outlets in Kenya with specific reference to Tuskys supermarkets Limited. The study reviewed relevant design with survey of a total of 400 employees working at Tuskys supermarket headquarters offices situated in Nairobi. The employees were selected from; supply chain management department, focusing on top management, middle level management and junior staff. The study adopted a descriptive research design, with stratified random sampling technique to select a sample size of 80 respondents. Questionnaires were used as the main data collection instruments and a pilot study were conducted to pre-test questionnaires for validity and reliability. Data were analyzed using descriptive statistics and inferential statistics. This was done by the use of SPSS Version 23. The findings indicated that Information sharing, Strategic Partnerships, information communication technology and Inventory control limits shared a variation of 52.8 % of performance of retail outlets.

Agu *et al*. (2024) examined the relationship between inventory management and profitability of manufacturing companies in Nigeria. The study made use of both primary and secondary data. Primary data for the study was collected through the use of a questionnaire which was administered on employees of sampled companies (Nigerian Breweries, PZ Industries and Innoson Nigeria Limited) with a response rate of 270 out of 285. Secondary data was obtained from annual reports of the sampled companies. They employed descriptive statistics, Pearson's correlation and regression techniques for the analysis of data. The result revealed that material requirement planning has significant effect on profitability of manufacturing companies in Nigeria. The results provided evidence that inventory control significantly affected the productivity of manufacturing firms.

Ifeanyi *et al*. (2024) [27] examined the relationship between working capital and financial performance. Specifically, forty (40) consumer and industrial goods companies out of the population of fifty-seven (57) for the period of ten (10) years, 2011-2022. Ordinary least squares (OLS) regression method and Pearson Correlation were used for the study. The independent variable was represented by Average Payment Period (APP), Cash Conversion Cycle (CCC), Inventory Conversion Period (ICP) and Average Collection Period (ACP), while the dependent variable was represented by Return on Assets. The findings showed that Cash Conversion Cycle (CCC), Average Payment Period (APP) and Inventory Conversion Period (ICP) showed significant positive impact on Return on Assets (ROA). However, Average Conversion Period (ACP) showed a negative impact on Return on Assets. Also, the control variables adopted in this study (size, growth, leverage and current ratio) have significant impact on financial performance of firms selected for the study.

Seyed and Hariprasad (2023) [70], identify the considerations for adapting Value Stream Mapping in a product development environment and provide a "best practice" approach for VSM. The findings from a literature review and interviews were tested during a case study at Renault Trucks. According to this study, identifying key specific objectives, choosing the suitable scope and project, and noticing the information and output uncertainties are the main subjects that should be considered during the application of VSM in the product development area. Based on the findings, a step-by-step procedure is provided that helps organizations apply VSM in a product development environment.

Joseph *et al*. (2023) [31] examined the effect of inventory management on the financial performance of selected manufacturing firms in Nigeria. The ex-post facto design was adopted in this study. 56 listed manufacturing firms in the Nigerian Stock Market were selected as the population of the study. Eleven(11) companies were selected using a purposive sampling method. Multiple Ordinary Least Square regression technique, specifically the panel regression model was applied in testing the hypotheses of the study. Firstly, the study revealed that cash conversion cycle has a negative significant effect on return on assets of listed manufacturing firms in Nigeria. The second hypothesis tested showed that account inventory turnover has a positive impact on return on assets of listed manufacturing firms in Nigeria. In addition to this, the study indicated that inventory holding period has a positive significant effect on return on assets of listed manufacturing firms in Nigeria.

Cabungcal *et al*. (2023) [14] investigated the impact of inventory management on the operational efficiency and financial performance of micro, small, and medium enterprises (MSMEs) in Santiago City. A correlational descriptive cross-sectional survey design was utilized on a sample of randomly selected 314 participants belonging to the merchandising MSMEs from Santiago City. Primary data was collected using self-administered questionnaires analyzed using frequency and percentage, mean and standard deviation, and linear regression. The results showed that MSMEs are efficient in inventory management, operation and have good financial performance. It further suggests a strong positive relationship between inventory management and operational efficiency and a moderate positive relationship between inventory management and financial performance. The study offers practical guidance to MSMEs on optimizing their operational efficiency and maintaining good financial performance through effective inventory management practices. It gives owners and managers valuable insights into specific areas that need improvement and the underlying factors that inventory management affects. Furthermore, the research deepens the understanding of the intricate relationship between inventory management, operational efficiency, and financial performance within the context of MSMEs in Santiago City, thus enriching the existing knowledge for researchers and practitioners.

Akintola (2023) [3] investigated the impact of inventory management and operating cash flow on financial performance of consumer goods companies in Nigeria. Return on asset was used as the dependent variable in this study to measure financial performance, and inventory conversion period and inventory holding costs were used as the independent variables to measure inventory management. Ex-post factor research approach was used in the study since secondary data were used. All twenty-one (21) consumer goods companies that are listed on the Nigerian stock exchange are the study's targeted demographic. Out of the entire population of 21 consumer

goods firms throughout a five-year period (2018–2022), ten (10) consumer goods firms are included in the sample size for this study. The annual reports of the chosen Nigerian consumer goods corporations provided secondary data. Using the E-views version 10 software, Panel Least Squares Regression Analysis was used to evaluate the acquired data. The study's conclusions demonstrated that the inventory conversion period (ICP) significantly reduces the return on asset for Nigerian consumer goods companies. The study also demonstrated that the cost of keeping inventory has a small but favorable impact on the return on assets of Nigerian consumer products companies.

Jibrin and Ine-Tonbarapa (2022) [30] examined lean accounting practices and financial performance of listed consumer food products manufacturing companies in Nigeria. The specific objectives of the study were to evaluate the relationship between just-in-time costing and return on equity of listed consumer food products manufacturing companies in Nigeria, to appraise the relationship between value stream mapping and return on equity of listed consumer food products manufacturing companies in Nigeria, and determined the moderating influence of firm size in the relationship between lean accounting practices and financial performance of listed consumer food products manufacturing companies in Nigeria. The study adopted triangulation and correlational research design. The target population for the study was nine (9) listed consumer food products manufacturing companies on the floor of the Nigerian Stock Exchange (NSE) as at 31 August 2021. The unit of respondent of the study were three hundred and thirty-six (336) knowledgeable and competent staff within the production, marketing and finance departments of the nine (9) listed consumer goods manufacturing companies. The sample size was therefore determined by using the Taro-Yame sampling techniques to be 183.

According To the empirical report on the above stated research, the instrument of the study is triangulation (primary data and secondary data). The formulated research questions were analyzed using descriptive statistics and the hypotheses were tested using the multiple regression analysis with the aid of E-view (10). The findings of the study were as follows: there was significant relationship between just-in-time costing (JITC) and return on equity (ROE) of listed consumer food products manufacturing companies in Nigeria; there was an insignificant relationship between value stream mapping (VSMC) and return on equity (ROE) of listed consumer food products manufacturing companies in Nigeria. More also, there was significant influence of the firm size on the relationship between lean accounting practices and financial performance of listed consumer food products manufacturing companies in Nigeria. The study recommended that; Just-in-time costing (JITC) inventory system should be used by management in order not to run at loss and not to incurring further costs on staff training in other lean accounting knowledge.

Karanja *et al*. (2022) [32] also conducted a study on adoption of modern management accounting techniques in small and medium (SMEs) in developing countries: A case study of SMEs in Kenya. Their study shows that modern costing techniques such as target costing, activity based costing (ABC), just-in-time method (JIT) as well as other non-conventional methods were adopted in an attempt to enhance enterprise efficiency and innovation for better planning and improved product / service pricing. The findings showed that SMEs in Kenya have intuitively adopted varying management accounting techniques.

Doutimiareye and Genesis (2022) [18] investigated the relationship between inventory management techniques and financial performance of listed Oil and Gas Companies in Nigeria for the period (2012 – 2021). The specific objectives were to: ascertain the relationship between inventory turnover and profit after tax; evaluate the relationship between operating cycle and profit after tax; determine the relationship between inventory conversion period and profit after tax; evaluate the moderating relationship between firm size on inventory management techniques and financial performance, and finally, evaluate the moderating relationship between operational efficiency on inventory management techniques and financial performance of listed Oil and Gas Companies in Nigeria. The Researcher used ex-post facto research design. Targeted population comprised of ten listed Oil and Gas Companies in Nigeria which were sampled to eight (8) using purposive (Judgmental) sampling technique. Secondary data were used and it was sourced from annual reports and statement of accounts of the selected companies between 2013 and 2020. Descriptive statistics, correlation analysis and ordinary least Square regression were employed with the aid of Microsoft Excel, SPSS 25 and E-View 10. The result of the study showed that there was a negative and insignificant relationship between inventory turnover and profit after tax; there was a negative and insignificant relationship between operating cycle and profit after tax; there was a negative and insignificant between inventory conversion period and profit after tax; more also, firm size had negative and significant relationship with inventory management techniques but had positive and significant relationship with financial performance; and finally, operational efficiency had positive and significant relationship between with inventory management techniques and financial performance.

Bouadam and Maiza (2022) [13] studied the relationship between working capital management and the profitability of Algerian small and medium enterprises in the province (wilaya) of Sétif. The research design adopted for the study was ex post facto. A secondary panel dataset ranging from 2009 to 2020 for 68 listed manufacturing companies was obtained from the Bloomberg portal. The Ordinary Least Square method was used to test the formulated hypotheses. The validity of the hypotheses was tested according to the panel data model. The finding of the study showed statistically significant results between the variables, as there is a direct relationship between inventory management and the rate of return on assets (ROA).

Radzuan (2022) [63] did a study on inventory management practices and its effects on vendor managed inventory performance. This study tried to shed the lights on the effects of inventory management practices, which include visibility of demand, replenishment decision, inventory ownership, inventory location, and inventory control limits on VMI performance. Quantitative methodology was adopted and data were gathered from those manufacturing companies selected according to the list from the Federation of Malaysian Manufacturer (FMM). The data were gathered from 101 manufacturing companies whose manufacturing based located in Malaysia. Data analysis was conducted by employing descriptive analysis, factor analysis, reliability

analysis, and a simple multiple regression. The findings showed that visibility of demand and inventory control limits were the main predictor of service performance. Meanwhile, only inventory location contributed to cost performance of VMI.

Nahid *et al*. (2022) [46] examined how the development of working capital management influences on profitability and liquidity as two important factors of financial performance of companies in Kenya. This paper was an analytical - descriptive research that reviews the existing literature in this field and classifies them into two groups including the impact of working capital strategies on the performance and the other one was the impact of working capital indicators on the performance. This survey investigated the relationship between working capital strategies and working capital indicators with the performance of organization. The survey result showed that the impact of working capital strategies and indicators on profitability and liquidity considered simultaneously in development of working capital management.

Eneje *et al*. (2022) [22] investigated the effects of raw materials inventory management on the profitability of brewery firms in Nigeria using a cross-sectional data from 1989 to 2008 which was gathered for the analysis from the annual reports of the sampled brewery firms. Measures of profitability were examined and related to proxies for raw materials inventory management by brewers. The OLS stated in the form of a multiple regression model was applied in the analysis. The study revealed that raw materials inventory management designed to capture the effect of efficient management of raw materials inventory by a company on its profitability is significantly strong and positive and influences the profitability of the brewery firms in Nigeria. The study concluded that efficient management of raw material inventory is a major factor to be contained with by Nigerian brewers in enhancing or boosting their profitability.

Lyndon and paymaster (2022) [39] examined the effect of inventory cost management on the profitability of listed brewery companies in Nigeria. Inventory cost management proxy by raw material cost, work-in progress cost and finished goods cost was regressed against profitability proxy by gross profit margin. Secondary time series data was collected from the annual reports and accounts of selected brewery companies from the NSE from 2005 to 2014. A multiple regression technique was used to analyse the data obtained from NSE. The study revealed that work-in-progress has positive influence on the profitability of brewery companies in Nigeria. The study is characterised with limited empirical review, it did not take inventory turnover as one its independent variable which this current study looked at.

Nnadi and Nduoko (2021) [51] examined the effect of lean inventory strategies on firm performance in the oil and gas industry in Nigeria using a regression approach. Lean inventory was measured using two dimensions; namely, just in time and total quality management, while firm performance was measured in terms of productivity and delivery performance. The study further examined the moderating effect of organizational support on lean inventory practices and firm performance. The sample comprises 96 senior employees from 10 selected oil and gas companies in Rivers State, with a 79% response rate. The employees were purposely selected from three functional departments: production, human resource and marketing. All variables were measured on an interval scale using Likert type questions with five ordered options. The study found that that both just in time and total quality management have positive and highly significant effect on both productivity and delivery performance. Both lean inventory strategies significantly account for approximately 72% and 67% of the variance of firm productivity and delivery performance, respectively. However, for each performance measure, the magnitude of the effect of just in time is much higher than that of total quality management. The study established the fact that organizational support has a positive moderating influence on the relationship between inventory leanness and firm performance. Based on these findings, the study recommends that oil and gas companies should support the use of an integrated lean inventory approach that combines both just in time and total quality management as a way of improving productivity and meeting corporate delivery targets. However, more emphasis should be placed on just in time strategy.

Umenzekwe *et al*. (2021) [74] carried out a study to determine the relationship between components of working capital and financial performance of selected Nigerian manufacturing firms. The ex-post facto research design was adopted and six companies were purposively selected for the period 2013-2020. Data was collected from the annual reports and accounts of the sampled companies and tested by means of fixed and random effects panel data estimation tool. Findings indicated that average payment period had a significant positive relationship with return on investments, while inventory turnover period had a significant negative relationship with return on investments. Also, average collection period had a significant negative relationship with return on investments. Given the findings, it was concluded that working capital management significantly influence financial performance of manufacturing companies. The study therefore recommended that manufacturing companies should ensure optimal mix of working capital proxies in order to optimize financial performance.

Yousaf and Bris (2021) [79] explored the relationship between working capital (WC) and firm performance. The authors chosed a sample of 326 Czech firms, including 20 certified firms from the EFQM (European Foundation for Quality Management) Excellence Model from the Albertina database. The sample of the Czech firms was taken from three sectors: manufacturing, automobile, and construction. We employed a two-step system generalized method of moment (GMM) technique to determine the results. The study results revealed a negative impact of WC on firm performance; moreover, the firms having a quality certificate from the EFQM Excellence Model perform better. The findings of previous research, which were held globally, and the current study results will encourage the directors, managers, and leaders of the Czech firms to participate in the quality award.

Raheman (2021) studied 204 manufacturing firms in Pakistan to explore the impact of working capital management on the performance of a firm. The study was based on 10 years i.e. 2009-2020. They took average age of inventory, average payment period, average collection period, current ratio (CR), current liabilities to total assets ratio (CLTAR), gross working capital turnover ratio (GWCTR), current assets to total assets ratio (CATAR), sales growth (SG), size of the firm as natural logarithm of

sales (LOS) and debt ratio (DR)as independent variables. In contrast, Net Operating Profitability (NOP) was taken as a dependent variable. Results of their study demonstrated that performance of firms is significantly related to cash conversion cycle and average age of inventory. They also described that Pakistani firms normally follow conservative policy for management of working capital i.e. they prefer to place more capital in liquid assets to avoid the risks of less availability of funds for daily operations. Finally, they suggested that these firms need effective management and proper financing as well.

Alhassan and Islam (2021) [10] examined the influence of credit management methods on the liquidity and profitability of listed industrial goods firms in Nigeria. The study adopted descriptive survey study design. The sample population for which copies of the questionnaire were distributed was 400 respondents, representing 65% of the population. The participants provided 355 valid responses, which were examined. For descriptive statistics, one-way ANOVA was utilized, and to test the hypotheses, a basic regression analysis method was applied. The results showed that the credit risk assessment, debt recovery strategy, and receivable collection policy sub-variables have a positive and statistically significant impact on the liquidity sub-variables - ability to pay, level of bad debt, and cash inflow. Liquidity had a positive and statistically significant effect on profitability. The study thus, suggest that companies in the industry should enhance their liquidity in order to achieve the targeted profit level by having effective credit terms and proper risk assessment strategy, designing and implementing debt recovery plans to aid collection of the overdue debt, adopting a stringent credit collection method, and employing and retained qualified accountants and credit administrators with excellent knowledge of credit control techniques.

Imad *et al*. (2021) [28] studied a balanced panel data set of Jordanian banks for the purpose of investigating the nature of the relationship between the working capital management of banks and their liquidity level for ten banks over the period 2011 to 2020. Using two measures of bank's profitability: the rate of return on assets (ROA) and the rate of return on equity (ROE), the results showed that the Jordanian bank's liquidity explain a significant part of the variation in banks' profitability. High Jordanian bank profitability tends to be associated with well-capitalized banks, high lending activities, low credit risk, and the efficiency of credit management. Results also showed that the estimated effect of size did not support significant scale economies for Jordanian Banks.

Srour and Ahmed (2021) examined the impact of inventory management which was measured by inventory turnover on firm's performance which will be measured by firm's profitability using return on assets and return on equity. The data was collected from the Egyptian stock exchange market. The analysis of this study was done using (Eviews 12) for both descriptive statistics and multiple regression. The results of this study indicate that there is a positive correlation between inventory turnover and Return on assets (R^2= 0.769321) and also with Return on Equity (R^2= 0.669593) which were found to be statistically significant at 5% level.

Deloof (2020) studied the relationship between inventory conversion period and corporate profitability using a sample of 1,009 large Belgian non-financial firms for a period of 2008 – 2018. The study employed correlation and regression analysis techniques to obtain data and found a significant negative relationship between gross operating income and inventory turnover days of Belgian firms. The study was carried out in Belgium while the current study scope covered 2008 – 2019. This current study is updated.

Bagaka (2020) [12] researched on the role of material management on performance of sugar manufacturing industries in Kenya. This study sought to establish the effect of material management on performance of Mumias Sugar Company Limited. The study adopted the descriptive design. The population under consideration which was the unit of analysis comprises of Mumias Sugar Company. Stratified random sampling was used to select 79 respondents in the Company. The study utilized a research questionnaire. At the completion of the data collection process, the questionnaires were sorted, coded and analyzed. The Statistical package for social sciences (SPSS) was used to generate the required frequencies and percentages to answer the research questions. The study found that materials procurement and inventory control positively influenced the performance of sugar manufacturing industries in Kenya.

In Malaysia, Althaqafi (2020) [7] explored the relationship between inventory control and the financial performance of a particular company through the use of a case study approach. It also examined factors that draw back the process of inventory control. The results showed that the profitability of a company has a significant relationship with inventory management, and this suggests that if the management of inventory is done effectively, it ensures more profitability, while poor management translates to a poor financial performance.

Kolawole *et al*. (2020) [35] evaluated the relationship between inventory management and profitability of manufacturing firms in Nigeria using International Breweries PLC as a case study. The study adopted gross profit as proxy for profitability (the dependent variable), while components of inventory management such as raw materials inventory, work-in-progress, finished goods inventories among others were used as the explanatory variables representing inventory management. Secondary data for the study were collected from the annual reports of the company for the period 2002 to 2011. They employed simple linear regression technique as the statistical tool for data analysis. The results showed that inventory management had strong influence on profitability of International Breweries PLC in Nigeria.

Ndubuisi *et al*. (2020) [50] examined the relationship between inventory management and financial performance of brewery firms in Nigeria for the period 2010 to 2016. The study adopted ROA, revenue growth and ROE to proxy financial performance (the dependent variable), while inventory conversion period was used as the independent variable. Secondary data for the study was collected from annual reports of 7 sampled breweries and NSE fact book. They employed OLS regression method based on STATA version 13 software for data analysis. The results indicated a significant positive relationship between inventory conversion period, ROA and growth in revenue; but the relationship between inventory conversion period and ROE was positive though not significant.

Otuya and Eginiwin (2020) investigated the effect of inventory management on profitability of SMEs in Delta

State involving a sample of 30 firms. The study adopted inventory turnover, inventory conversion period and inventory leanness to represent inventory management, while gross profit margin was used as proxy for profitability (the dependent variable). Primary data for the study was obtained through the use of a questionnaire. They employed descriptive statistics and multiple regression analysis to evaluate data. The results revealed mixed findings: inventory turnover had significant positive relationship with gross profit margin; inventory conversion period had significant negative relationship with profitability; and inventory leanness had positive but insignificant link with profitability.

Etale and Sawyerr (2020) examined the relationship between inventory management and financial performance of GlaxoSmithKline Nigeria PLC in a case study. The study adopted inventory to assets ratio and inflation as the predictive variables while return on assets representing financial performance was used as the response variable. Secondary data for the study was collected from the annual reports of GSK and CBN Statistical Bulletin for the period 2011 to 2018. The study employed descriptive statistics and multiple regression analysis based on the E-view 10 software to analyse data. The results showed that all the predictive variables had positive relationship with return on assets, but only inventory to assets ratio showed a negative relationship with financial performance. The regression results also showed that the coefficient of determination (R-squared) value of approximately 0.89 indicating that 89% of changes in the response variable were accounted for by the combined effect of changes in the predictive variables. The combined effect of variations of the predictive variables significantly explained changes in the response variable with probability of F-statistic value of 0.004325 (at 5% level of significance).

Mudimba and Nyawira, (2020) [43] carried out a study to determine the effect of Inventory management practices and financial performance in large manufacturing firms in Kenya. The research was conducted with the following four aims: To examine the degree at which inventory management systems influence financial performance; to establish the degree at which inventory planning influences financial performance in large manufacturing firms and to assess the degree at which inventory modeling influences financial performance in large manufacturing firms. Also, the research was directed by Economic Order Quantity, Collaborative Planning, Forecasting and Replenishment Model, Deming Cycle Model, transaction of cost economics (TCE). The findings of the study show that all firms need to adopt inventory management practices so as to enjoy the advantages.

Pluskota *et al*. (2020) compared the main and alternative markets of the Warsaw Stock Exchange according to the mutual influence of financial liquidity and profitability. The companies listed on those two markets are in a different stage of development and it is expected that the direction of the mutual impact of liquidity and profitability will be opposite. The Granger causality test was applied for the data representing the financial liquidity and profitability ratios. It was found that the mutual impact of liquidity and profitability is not opposite and profitability has a greater influence on financial liquidity in case of both markets which means that although the companies listed on the main and alternative WSE markets differ with regard to the stage of development, their management goals are the same.

Yashim *et al*. (2020) [78] examined the effect of working capital management on financial performance of selected deposit money banks in Nigeria. The study covered the period of thirteen years (2007 to 2019). Data for the study were extracted from the Deposit Money Banks' Annual Reports and Accounts. After running the Ordinary Least Square (OLS) regression, a robustness test was conducted for validity of statistical inferences; the data was empirically tested between the regressors and the regressed. The results from the analysis revealed that Working Capital Management has no significant effect on Earnings per Share (EPS) of selected Deposit Money Banks in Nigeria, but Working Capital Management has significant effect on Return on Asset (ROA) and Return of Equity (ROE) of selected Deposit Money Banks in Nigeria. In line with the above findings, the study recommended that the management should put more attention on their liquidity in order to maintain an adequate liquidity as the study has empirically proved that higher liquidity signifies more profitability; the listed Deposit Money Banks in Nigeria should try and maintain a higher quick ratio as it will have a positive effect on their profitability. Finally, the management should reduce holding too much amount of cash in current asset as it constitutes idle cash, instead the firm should invest the cash so that it could yield higher returns.

Osundina and Osundina (2020) [57] carried out a study on the effect of working capital management on market value of quoted food and beverages manufacturing firms in Nigeria and analyzed the correlation between working capital management and market value of quoted food and beverages manufacturing firms in Nigeria. Twelve (12) food and beverages manufacturing firms were selected with a population of 171 staff, then a sample of 120 was obtained with Taro-Yamane's formula. Pearson Product Moment Correlation and Multiple regression analysis were used to ascertain the relationship between working capital management and market value of quoted food and beverages manufacturing firms in Nigeria. The independent variable was represented by Account Collection Period (ACP), Inventory Conversion Period (ICP), Account Payment Period (APP), Cash Conversion Cycle (CCC) and Aggressive Investment Policy (AIP). Survey research design was employed using primary data. Pearson Product Moment Correlation and Multiple regression analysis were used to determine the effect. The findings were that food and beverages manufacturing firms in Nigeria cannot maximize its profits as well as shareholders' wealth without paying proper attention to the management of various components of its working capital.

Akudor (2020) [4] investigated how working capital management can impact the financial performance of selected deposit money banks in Nigeria. The study covered the period of 10 years (2010 to 2019). Data for the study were extracted from the Deposit Money Banks' Annual Reports and Accounts. After running the Ordinary Least Square (OLS) regression, a robustness test was conducted for validity of statistical inferences; the data was empirically tested between the regressors and the regressed. The results from the analysis revealed that Working Capital Management has no significant effect on return on capital employed (ROCE) of selected Deposit Money Banks in Nigeria, but Working Capital Management has significant

effect on Return on Equity (ROE) of selected Deposit Money Banks in Nigeria. In line with the above findings, the study recommended that the management should put more attention on their liquidity in order to maintain an adequate liquidity as the study has empirically proved that higher liquidity signifies more profitability; the listed Deposit Money Banks in Nigeria should try and maintain a higher quick ratio as it will have a positive effect on their profitability.

Tanveer *et al*. (2020) [72] studied on the impact of working capital management on firm's financial performance with evidence from Pakistan and empirically explored the impact of working capital management on firm's performance of fifty (50) listed non-financial companies as sample, on Pakistani Stock Market for the period of ten (10) years, 2009-2018. The independent variable was represented by Inventory Turnover (ITO), Cash Conversion Cycle (CCC), Average Collection Period (ACP) and Average Payment Period (APP), while the dependent variable was represented by Return on Assets (ROA), Return on Equity (ROE) and Earnings per Share (EPS). Multiple regressions were used and the findings showed that inventory turnover had negative impact on Return on Assets, but Average Collection Period had positive and statistically significant impact on Return on Assets.

Umo and Anthony (2020) [75] examined the effect of working capital management and financial performance of deposit money banks in Nigeria and the study covered the period of 10 years 2009 to 2018. Data for the study were extracted from the firms' annual reports and accounts. After running the OLS regression, a robustness test was conducted for validity of statistical inferences, the data was empirically tested between the regressors and the regressed, A multiple regression was employed to test the model of the study using OLS. The results from the analysis revealed a strong positive relationship between current ratio and quick ratio and ROA of Listed Deposit Money Banks in Nigeria, while cash ratio was found to be inversely but significantly related to ROA of Listed Deposit Money Banks in Nigeria. In line with the above findings, the study recommended that the management should put more attention on their liquidity in order to maintain an adequate liquidity as the study has empirically proved that higher liquidity signifies more profitability, the listed Deposit Money Banks in Nigeria should try and maintain a higher quick ratio as it will have a positive impact on their profitability. Finally, the management should reduce the amount held in cash as current asset and concentrate more in investing them, so that it could yield higher return rather than tie down the idle cash.

Seth *et al*. (2020) [68] examined the impact of working capital management on firm profitability in Poland and reports a negative relationship between CCC and profitability. The indicators used were inventory holding period, receivable collection period and Net liquid balance. The research adopted the ex-post facto, with secondary data obtained from annual reports of the twenty (20) purposively selected firms. With the use of least square variable regression analysis, the findings revealed that inventory holding period, receivable collection period and Net liquid balance had a significant effect on Return on assets and return on equity. The study revealed that the coefficients of Net liquid balance and Working capital requirement added more value to the Return on assets and return on equity, more than Cash conversion cycle and then recommended that to enhance the Return on Assets and Return on Equity, non-financial firms should focus on the use of Net Liquid Balance and Working Capital Requirement, which have been shown to be better predictors of financial performance.

Liu *et al*. (2020) [37] investigated the effect of firm-level operating flexibility on stock performance during the COVID-19 outbreak in China. The researchers used all the Chinese A-share listed companies on the Shanghai and Shenzhen stock exchanges as initial samples. All data and variables are obtained from the China Stock Market & Accounting Research database. The relevant financial data are calculated using the reports for the third quarter of 2019. The firm level operating flexibility was measured by firm level inflexibility and the stock performance was measured by ROS. Coming up that the sudden outbreak of COVID-19 has seriously affected the normal production and operating activities of firms and has induced a massive shock on financial markets, finding that firms with high operating flexibility have better stock performance than those with lower operating flexibility because of the risk hedge value of contraction options embedded in firm operating flexibility.

Karki (2020) [33] examined the effect of inventory management on profitability in Nepal. Listed in Kathmandu from 2013 fiscal year to 2018 fiscal year. The secondary data had been collected from the annual financial statements using regression technique considering statistical patterns Minitab 16 version to analyze the data and also finished goods inventory values were identified and employed as independent variables while net income was employed as proxy of profitability. Concluded that there is a positive impact of inventory management upon the profitability of uniliver Nepal.

Nasution (2020) [48] determined the effect of inventory turnover on profitability in automotive companies listed on Indonesia stock Exchange from 2015-2017. Profitability is measured by Return on Assets (ROA) which was the dependent variable. The data used are the financial statements of each sample company, which are obtained through ICMD (Indonesia Capital Market Directory) The analytical method used in this study is a quantitative method The variables of this study are inventory turnover, and Return On Assets with a total sample per year of 18 companies. The results of this study are inventory turnover has a negative effect on Return on Assets.

Aljaaidi and Bagais (2020) [5] investigated the association between Days Inventory Outstanding (DIO) and firm performance of energy industry in Saudi Arabia, from 2013-2019. The sample comprises of 21 firm year observations. Firm performance was measured by 2 dependent variables ROA and ROE. The Regression results indicated that DIO was negatively associated with firm performance. Vikas and Sandeep Malik (2020) examined the effect of a well-managed inventory on a manufacturing company as well as to enhance the performance of inventory management in an organization and to reduce risk those are facing inventory management. Data used were collected through personal interviews, discussion with Finance-Executive and from the company for the past years since 2014-2019. This paper used ABC analysis and economic order quantity (EOQ) to test the effect. Therefore, implementing advanced inventory management always sounds good in theory, in practice, the balance of cost and benefit should be considered.

Golas and Bieniasz (2020) determined the effect of inventory management on profitability of Listed firms in Poland from 2005 to 2017. The method that was used in this study is inventory-performance relationship analysis and the regression models (INVIC, RMIC, WIPC, and FGIC) were measured by ROA. As a conclusion for this study was that the day's sales of inventory for total stocks tended to become shorter due to reduction in the days in inventory ratio for materials and finished products also the improvement that was found in inventory management efficiency was positively correlated with financial performance.

Nugroho *et al*. (2020) [53] investigated the association among supply chain management (SCM), just in time and quality management and also their impact on organizational performance. 650 questionnaires have been received from the 2780 questionnaires sent to the different corporations in Indonesia. Corporations lie in the range of 100 to 2000 workforces and the median is 100 personnel. Further to check reliability analysis was conducted by making use of Cronbach's Alpha in order to make sure that components used to operationalize just-in-time, total quality management, supply chain management and performance were evaluated to check that the components are from statistical errors. Recognizing SC collaborations is not just an emphasis on quality but also a primary factor of FP. Either through cooperation and assimilation of operations across the SC or by the acknowledgement of the skills of direct manufacturers, recognizing the aspects of the SC has a positive effect on FP. Moreover, policymakers should focus on the encouragement of the firms to introduce efficient manufacturing through JIT and TQM to improve performance from all aspects.

Khan *et al*. (2020) [34] investigated the effect of various inventory management factors on firm's efficiency of listed companies in China. These factors included capacity utilization, inventory accuracy, lean inventory, and stock availability. Firm's efficiency was measured by firm performance and profitability. Data was collected by questionnaire from 250 individuals from different departmental stores in Karachi in Pakistan. Data was analyzed using structural equation modeling. The results showed inventory accuracy, lean inventory, and stock availability has positive and significant impact on efficiency. However, Capacity Utilization doesn't seem to affect efficiency. Stock availability can lead to effective inventory management.

Opoku *et al*. (2020) [54] examined the effect of different inventory management practices on the operational performance of manufacturing firms Listed in Ghana between 2019 and 2020. The variables that was used in the study are: SPP, ABC, VMI, EOQ, and MRP AND JIT. The study concluded that any unit increase in any of the practices would lead to significant and positive unit increase in operational performance of the firm's studied. George (2020) analyzed whether the inventory management has any direct impact on the net profits of the company. Inventory management was measured by inventory conversion cycle and inventory turnover ratio; net profits measured the firm performance. 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 analyzing the data. The study showed that inventory conversion cycle is directly related to the net profits of the company.

Ugwu and Nwakoby (2020) [73] looked at how Nigerian firms performed in relation to inventory management. By Using Opinion from the Grass companies. Determining the effects of the ABC model, the low, medium, and high models, and the economic order quantity (EOQ) models on firm performance are some additional specific goals. The study used a survey research design and focused on ten firms that were specifically sampled and had 710 employees in 2020. In order to analyze the data, the study used descriptive statistics, specifically Pearson Correlation and OLS regression. The outcome indicates that the independent variables (ABC, LMH, and EOQ) on firm stock management jointly explained the Adjusted R-squared value of 0.879, which is 88% of the systematic variations in the dependent variable in the pooled firms. The overall statistical significance of the OLS pooled model at the 5% level is demonstrated by the F-statistic value of 429.250 and P-value o f 0.0000. The ABC, LMH, and EOQ inventory models have a positive and significant impact on firm performance in Nigeria, according to additional findings of the explanatory variables. The study concludes that the tested inventory management model techniques significantly improve firm performance.

Atnafu and Balda (2020) [11] examined the impact of inventory management practice on firms' competitiveness (price, quality and delivery) and organizational performance. Data for the study were collected from 188 micro and small enterprises (MSEs) operating in the manufacturing sub-sector in Ethiopia and the relationships and hypothesis proposed in the conceptual framework were tested using structural equation modeling (SEM). Inventory management was measured by ABC, EOQ, JIT and vendor managed inventory. Firm performance was measured by profitability, level of output, cost efficiency and market share. The results indicate that higher levels of inventory management practice can lead to an enhanced competitive advantage and improved organizational performance. Also, competitive advantage can have a direct, positive impact on organizational performance.

Sunday and Joseph (2020) examined the effect of inventory management on profitability of SMEs in Nigeria. The study used a descriptive research design. The population consists of all SMEs operating in Delta State. The study used stratified random sampling. 10 SMEs were randomly selected from stratum making a total of 30 firms for the study. Data for the study were obtained through the administration of a self-designed questionnaire to mangers or accountants of the sampled firms. The questionnaire was structure to elicit information about the trading and financial activities for the last two accounting years. A multiple regression analysis was conducted to test the model established for the study. Findings of the study revealed that inventory turnover has a significant positive relationship with financial performance of SMEs. The study also reveals that there is negative relationship between inventory conversion period and profitability and no significant positive relationship between inventory, leanness and profitability.

Qu *et al*. (2019) [62] investigated the effect of inventory management factors on technical universities. These factors were made up of accuracy, capacity, investment, shrinkage, performance and turnover. Data was collected by the use of Likert scale questionnaire from 399 various units in the

technical universities in Ghana. The Smart PLS was employed to analyze the data. A well-organized inventory control system does not deal in the same way with all products, but it applies methods of control and analysis in agreement with the economic importance related to each of the product. Inventory management derives from the importance of stock for the company, and therefore, the need to manage and control them is essential to maintain a level of inventory that allows at a minimum cost and maximum service to customers.

Capkun *et al*. (2019) [15] studied the relationship between inventory management and financial performance in manufacturing companies in Ethiopia, They studied 52 businesses for the period between 2012-2018. The study used multiple regressions to determine the correlation between financial performance and various inventory management practices. The study measured financial performance using gross profits and operating profit results and inventory levels in regard to raw materials, partially manufactured products and finished products. The results revealed a positive correlation between a company's raw material and its financial performance. The study also noted that degrees of correlation vary depending on the type of inventory and the financial performance reference. The study was done in another country while the current study is carried out in Nigeria; also the study used gross profit to measure financial performance while this current study used ROA to measure financial performance.

Alrjoub and Ahmad (2019) examined the moderating effect of cost of capital on the relationship between inventory types and firm performance in Jordan. The data of 48 firms for the period 2010 – 2016 which formed 279 firm year observations were used in this study. With the use of Pearson Correlation and Panel Generalized Method of Moments (GMM) estimation, the findings show that work-in-progress has positive significant effect on firm performance in the long-term. In addition, it is also found that cost of capital moderates the relationship between inventory management and firm performance. However, the interaction between cost of capital and inventory types has different implications.

Raheman and Nasr (2019) studied the effects of inventory turnover in days and current ratio of the net operating profit of Pakistani firms. They selected a sample of 94 Pakistani firms listed on the Karachi Stock Exchange for a period of six years from 2010 – 2016 and found a strong negative relationship between inventory conversion period and profitability of the firms. The study was carried out in Pakistan while the current study is in Nigeria, also the scope of the work was 2010– 2016 while the current study scope covered 2014 to 2023. In a similar manner, Falope and Ajilore (2019) used a sample of 50 Nigerian quoted non-financial firms for the period of 2009 – 2017. The study utilized panel data econometrics in a pooled regression where time series and cross-sectional observation were combined and estimated. The study found a significant negative relationship between operating profit and the inventory turnover in days for a sample of 50 Nigerian firms listed in the NSE. The study is an old study, there is need to determine the current impact of inventory management on financial performance.

Panigrahi (2019) [59] examined the relationship between inventory conversion period and the profitability of cement companies in India for the period 2008 to 2019. The study adopted gross operating profit as the dependent variable and proxy for profitability and inventory conversion period as the independent variable. In addition, current ratio, size of the firm and financial debt ratio were used as control variables. The study found significant negative linear relationship between inventory management and profitability. The study was carried out in India while the current study is in Nigeria.

Moridipour and Mousavi (2019) [42] evaluated the effect of inventory turnover on gross profit margin and sales stocks in listed companies in Tehran Stock Exchange. The study estimates the research model by dependent and independent variables using panel regression technique of data analysis. To test the hypothesis, cumulative data of 79 companies listed in Tehran Stock Exchange for the year 2007 to 2018. The results indicate that there is a significant inverse turnover. The results also indicate no significant relationship between variables of sales shocks and inventory turnover. The study was carried out in Iran while the current study is in Nigeria.

In a related study, Sitienei and Memba (2019) [69] using similar analysis techniques examined the effect of inventory management on the profitability of cement manufacturing companies in Kenya. The study findings revealed that inventory turnover, inventory conversion period and inventory storage costs were negatively related to profitability. The study was carried out in Kenya while the current study is in Nigeria.

Edwin and Florence (2019) [19] assessed the effect of inventory management on profitability of cement manufacturing companies in Kenya: A case study of listed cement manufacturing companies in Kenya. A cross-sectional data from 2006 to 2017 was gathered for the analysis of the annual reports for the three sampled firms listed at Nairobi Securities Exchange. The OLS stated in the form of multiple regression models was applied in the data analysis to establish the relationship between inventory management and firm's profitability. The variables used include inventory turnover, inventory conversion period, inventory levels, storage cost, size of firm, gross profit margin, return on assets and growth of the firm. The results provide a negative relationship between inventory turnover, inventory conversion period and storage cost with the profitability of the company. In addition, inventory level was found to be directly related to firm's size and storage cost. The study was carried out in Kenya and the results emanated from the study cannot be used in Nigeria as a result of differences in environment.

Amahalu *et al*. (2019) [8] determined the effect of backflush accounting on financial performance with particular reference to food and beverage firms. The study therefore examines the effect of backflush accounting on financial performance of food and beverage firms quoted on NSE from 2010 to 31st December, 2015. The research design employed in this study is the ex-post facto research. Only secondary data were used in this study. Three hypotheses were formulated and tested in the course of this study. The statistical tools used to test the hypothesis were coefficient of correlation and ordinary least square regression. The study revealed that backflush accounting has a positive and statistically significant effect on ROA, ROE and EPS of food and beverage firms quoted on the floor of Nigerian Stock Exchange. The study area was on food and beverage

firms while this current story is on Champion Brewery in Nigeria.

Mulandi and Ismail (2019) [45] investigated the effect of inventory management practices on performance of commercial state corporations Listed in Kenya between 2011 and 2018. The specific objectives were used to determine the effect of just-in-time inventory system on performance of commercial state corporations. The variables of the study included IT based system: JIT, VMI, and ERP system of managing inventories techniques of forecasting demand. Concluded from this research that MRP has positive and significant relationship with performance of commercial State Corporation.

Riza *et al*. (2019) tested inventory turnover (IT) as a performance measure in manufacturing processes because IT ratios are critical in the manufacturing industry and publicly available objective measures. Using the data of 421 manufacturing companies in Korea from 2010 to 2018, it conducted an extensive analysis of the factors affecting it by segment and its correlation with other financial ratios. They Compared performances between the top and bottom companies determined by Altman's Z score approach. It was found that, for the overall manufacturing industry, IT ratios were negatively correlated with gross margin and debt cost, but positively correlated with capital intensity, although the results varied by segment.

Elking *et al*. (2019) [20] investigated the impact of focal firm and supplier financial dependence on focal firm financial performance of companies listed in United States of America using the lens of resource dependence theory They used an innovative supply chain structure data set provided by Bloomberg, which allows implementation of unique measures for focal firm and supplier financial dependence within a supply chain Focal firm financial dependence is calculated by identifying the percentage of the focal firm's cost of goods sold spent with each supplier in 2018. Taking a sample of 3,638 buyer-supplier relationships in the U.S. manufacturing firms that are presented in both Composted and Bloomberg's SPLC supply chain database module during 2012. Their analysis found that both buyer and supplier financial dependence impact a buyer firm's financial performance. Specifically, they found that higher levels of buyer dependence on supply chain partners negatively affect the financial performance of the focal firm, while supplier dependence on the focal firm positively affects the financial performance of the focal firm. Interestingly, they found that the buyer's dependence has a much greater magnitude of impact than the suppliers' dependence.

Golas and Bieniasz (2019) [25] determined the relationships between the results of inventory management and the financial performance of enterprises. Listed in Poland between 2007 and 2018. The research was based on the econometric analysis of the influence of the length of inventory cycles on financial performance of branches measured with return on sales, assets and equity, although the effectiveness of inventory management was measured with the length of inventory cycles. Regression analysis was applied to determine the strength and direction of the influence of the results of inventory management, measured with the length of cycles. Concluding from this research that the inventory management was directly correlated with financial effectiveness of enterprises and it should be subject to optimization.

Elzamly *et al*. (2019) [21] examined the relationship between inventory management and company's performance of companies listed in Malaysia between 2008 and 2017. The relationship was determined based on inventory days and return on asset (ROA) analysis, and inventories days can be defined as to measure how many days on average it takes for the inventory to turnover and also they made sure that the cost of over or under stocks are always low. Concluded that the company had a few inventory problems such as unorganized inventory arrangement, large amount of inventory days / no cycle counting and no accurate records balance due to unskilled workers and also proved that there was a significant relationship between return on asset (ROA) and inventory days.

Nawaz *et al*. (2019) [49] empirically evaluated the impact of inventory performance on firm performance in Pakistan for non-financial firms listed on KSE-100 index for the period 2010-2017. Correlation indicated that firm performance was measured by ROA and ROE and both have weak positive relationship with Inventory turnover ratio which measured inventory performance. ROE has a positive weak relationship with Inventory turnover, total assets and Leverage ratio. Total Asset has positive impact and Financial Leverage has significant negative impact on ROA. Inventory performance has positive impact on ROE significantly and Total Asset has positive impact and FLR has significant negative impact on ROE.

Prempeh (2019) [61] evaluated the impact of efficient inventory management on the profitability of manufacturing firms in Ghana. A cross sectional data from 2004 to 2017 was gathered for the analysis from the annual reports of four manufacturing firms listed on the Ghana Stock Exchange. Financial performance was measured by return on assets. And the Measures of profitability were examined and related to proxies for efficient inventory management by manufacturers. The study revealed that the main variable raw materials inventory management designed to capture the effect of efficient management of raw material inventory by a company on its profitability is significantly strong and positive and impacts on the profitability of the manufacturing firms in Ghana.

Lwiki *et al*. (2019) [38] examined the impact of inventory management practices on the financial performance of sugar manufacturing firms in Kenya. The research survey was conducted in all the eight operating sugar manufacturing firms from the period 2002-2017. The primary data was collected using structured and semi- structured questionnaires administered to key informants in the organizations. Secondary data was obtained from annual financial performance statements available in the year Book sugar statistics. Descriptive statistics was used to test the impact of inventory management practices and Correlation analysis was used to determine the nature and magnitude of the relationship among inventory management variables. The results indicate that there exists a positive correlation between inventory management and financial performance which was measured by Return on Sales and with Return on Equity.

3. Research Methodology

This section explains the techniques and approaches employed in carrying out the empirical assessment of the effect of strategic inventory management practices on financial performance of Champion Breweries in Uyo,

Akwa Ibom State. This section therefore covers the research design, followed by the population of the study, sample size and sampling techniques, the method of data collections, model specification and techniques of data analysis.

3.1 Research Design
The study utilized the survey research design. This design was suitable for this study because the data used was primary and acquired through the use a self-constructed questionnaire.

3.2 Population of the Study
The population of this study was made up of all the staff of Champion breweries located at Aka Offot Industrial Estate Uyo Akwa Ibom State. According to the information obtained from the human resource department as at 31st May, 2025, there were about 195 employees working in the company.

3.3 Sample of Study
The sample size of this study was be 85 staff of Champion Breweries, PLC, Uyo.

3.4 Sampling Technique
The purposive sampling technique was adopted to select the sample size of the study. The respondents were carefully selected from employees from the procurement/purchasing department, inventory management/warehouse department, production/manufacturing department and Finance/Accounting department.

3.5 Sources of Data
This study made use of primary data obtained from the researcher's self-constructed and well-structured 5-point Likert questionnaire.

3.5.1 Method of data collection
The research instrument used in the collection of data for this study was the 5-point Likert questionnaire. Thereafter, Microsoft Excel was used to code the data that were used for the analysis. The Questionnaires were coded as 5-Strongly Agree, 4-Agree, 3-Undecided, 2-Disagree, and 1-Strongly Disagree. Furthermore, both the dependent variable and the independent variables were operationalized using a 5-point Likert Scale. A weighted average were obtained for each response of the participants relating to the Questionnaire questions of the variables under study.

3.6 Validation of Instrument
Copies of the questionnaires were given out to lecturers in the Accounting Department to read through the sections and the questions raised in the questionnaire. They also gave their opinions and corrections which were also taken into consideration for the purpose of objectivity and reliability.

3.7 Reliability of Instrument
In this study, the Alpha Cronbach test were employed to ascertain the reliability of the study instrument.

Reliability Statistics	
Cronbach's Alpha	No. of Items
.828	30

Source: Author's computation (2025)

The acceptable threshold of the result coefficient for the items is 0.6 and above. From the result below, the research instrument was proven reliable.

3.8 Method of Data Analysis
The Ordinary Least Square (OLS) regression technique was employed in analysing the data set and the statistical package employed was SPSS version 21.

3.9 Model Specification
In this study, the model was adapted from the work of Etale and Sawyerr (2020) and modified to suit this study as stated below;

$$\text{Financial performance} = f(\text{strategic financial management}) \quad (1)$$

$$GPM = \beta_0 + \beta_1 JITS + \beta_2 EOQS + \beta_3 LEAN + \beta_4 MRPS + \beta_5 VMIS + £ \quad (2)$$

Where:
GPM = Gross profit margin
JITS = Just in time strategy
EOQS = Economic order quantity
LEAN = Lean inventory strategy
MRPS = Material requirement planning
VMIS = Vendor managed inventory
β_0 = Constant
β_1- β_3 = Slope Coefficient
μ = Error term

Table 3.1: Operationalization of variables

Concept	Proxy	Measurement	Source
Strategic inventory management practices (Independent variable)	Just in time practices	Transformed from respondents' responses using 5-Point likert scale	Radzuan (2022) [63]
	Economic order quantity (EOQ)	Transformed from respondents' responses using 5-Point likert scale	Ordu (2024) [56]
	Lean inventory (LEAN)	Transformed from respondents' responses using 5-Point likert scale	Etale and Sawyerr (2020)
	Material requirement planning (MRP)	Transformed from respondents' responses using 5-Point likert scale	Agu *et al.* (2024)
	Vendor managed inventory	Transformed from respondents' responses using 5-Point likert scale	Maina and Were (2024) [40] vendor
Dependent variable	Gross profit margin	Transformed from respondents' responses using 5-Point likert scale	Etale and Sawyerr (2020)

Source: Researchers operationalization (2025)

3.10 Decision Rule
The generally expected criterion for decisions is that H_o (null hypothesis) should be accepted if the P-value is greater than the 5% significant level. That is, accept the null

hypothesis if the p-value ≥ 5%; reject the null hypothesis and accept the alternative hypothesis if the p-value < 5%.

4. Data Presentation, Analysis and Discussion of Findings

This section presented the data collected for this study, the statistical and econometric analysis of the data, hypotheses testing, as well as making deductions from the testing and analysis of the data, and discussion of the findings.

4.1 Data Presentation

The copies of questionnaire were sent and administered to the sampled respondents and the summary is as shown in table 4.1 below;

Table 4.1: Summary of questionnaires administered

Questionnaires	Number of questionnaires	Percentage (%)
Usable	82	96.47
Not usable	3	3.53
Total administered	85	100.00

Source: Field survey (2025)

Table 4.1 above shows that a total of 85 questionnaires representing 100% were sent out to the sampled respondents in Champion Breweries PLC, Uyo, Akwa Ibom State. Out of the administered questionnaires, 82 were usable representing 96.47% while 3 were not usuable representing 3.53%.

4.2 Data analysis

4.2.1 Analysis of respondents' demographics

The questionnaire contained the demographic data of the study including gender, age bracket, highest educational qualification and years of working experience. Sampled respondents were made to answer these questions to capture more information about the study group, the data obtained were presented in Table 4.2 below.

Table 4.2: Gender of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	55	67.1	67.1	67.1
	Female	27	34.9	34.9	100.0
	Total	**82**	**100.0**	**100.0**	

Source: Researcher's compilation from field survey (2025)

Table 4.2 above presents the gender of respondents. It was observed that from the total number of respondents 82, making up about 67.1% were males while 27 representing 34.9% were females. This indicates that majority of the respondents were males while females were fewer.

Table 4.3: Age of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30	21	25.6	25.6	25.6
	31-40	25	30.5	30.5	56.1
	41-50	21	25.6	25.6	81.7
	51 and above	15	18.3	18.3	100.0
	Total	**82**	**100.0**	**100.0**	

Source: Field survey (2025)

As presented in Table 4.3, 21 respondents, representing 25.6% of the sample, were within the age range of 20 to 30 years. A total of 25 respondents (30.5%) were between the ages of 31 and 40, while 21 respondents, also accounting for 25.6%, fell within the 41 to 50 years' age bracket. In addition, 15 respondents, representing 18.3%, were aged 51 years and above. This distribution indicates that the majority of the sampled staff at Champion Breweries were between 31 and 40 years of age, suggesting a workforce predominantly composed of individuals in their prime working years.

Table 4.4: Educational qualification of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SSCE	22	26.8	26.8	26.8
	ND/NCE	18	22.0	22.0	48.8
	HND/B.Sc	33	40.2	40.2	89.0
	M.Sc and above	9	11.0	11.0	100.0
	Total	**82**	**100.0**	**100.0**	

Source: Field survey (2025)

According to the output presented in Table 4.4, 22 respondents, representing 26.8% of the sample, held SSCE qualifications. A total of 18 respondents (22.0%) possessed OND/NCE certificates, while 33 respondents, accounting for 40.2%, were HND/B.Sc. holders. Additionally, 9 respondents (11.0%) had attained M.Sc. or higher qualifications. This distribution indicates that the majority of the sampled respondents were holders of HND or B.Sc. degrees, reflecting a workforce with a substantial level of tertiary education.

Table 4.5: Years of working experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 5 years	23	28.0	28.0	28.0
	5-10 years	29	35.4	35.4	63.4
	11-15	19	23.2	23.2	86.6
	16 years and above	11	13.4	13.4	100.0
	Total	**82**	**100.0**	**100.0**	

Source: Field survey (2025)

From the computation in Table 4.5, it was revealed that 23 respondents, representing approximately 28.0%, had less than 5 years of experience working in the industry. A larger proportion, 29 respondents (35.4%), had between 5 to 10 years of working experience. Furthermore, 19 respondents, accounting for 23.2%, had worked for 11 to 15 years, while 11 respondents (13.4%) reported having over 16 years of industry experience. These figures suggest that the majority of the respondents had between 5 to 10 years of experience working in or for a brewery, indicating a relatively seasoned workforce with considerable exposure to the industry.

4.2.2 Regression analysis

Table 4.6: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.830	.689	.668	2.63237	1.862
a. Predictors: (Constant), JITS, EOQS, LEAN, MRPS, VMIS					
b. Dependent Variable: GPM					

Source: Field survey (2025)

Table 4.7: Analysis of variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.239	5	0.618	12.296	.000[b]
	Residual	92.193	76	0.346		
	Total	117.432	81			
a. Dependent Variable: GPM						
b. Predictors: (Constant), JITS, EOQS, LEAN, MRPS, VMIS						

Source: Field survey (2025)

Table 4.8: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	12.318	2.6345		5.111	.000		
	JITS	.515	.182	.502	3.317	.000	.798	1.101
	EOQS	.483	.153	.444	3.032	.000	.874	1.215
	LEAN	-.102	.160	-.094	-0.933	.318	.949	1.112
	MRPS	.333	.121	.315	2.921	.021	.836	1.102
	VMIS	.217	.186	.206	1.796	.083	.922	1.018
a. Dependent Variable: GPM								

Source: Field survey (2025)

Tables 4.6, 4.7 and 4.8 above presents the results obtained from the regression analysis for this study. The model summary indicated that the pooled OLS regression had an R-squared value of 0.689. This implies that the independent variables of the study could explain approximately 69% of the systematic changes in the gross profit margin of Champion Breweries, Uyo. However, the unexplained part (31%) could be attributed to other variables not captured in the model but captured in the error term. Also, the result of the F-statistics (12.296) in the ANOVA with associated p-value of 0.000 indicatee that the independent variables (proxies of inventory management) have a statistically significant effect on the dependent variable (financial performance) of Champion Breweries, Uyo.

4.3 Test of hypotheses

Hypothesis one

H_{o1}: Just-in-Time strategy does not have significant effect on gross profit margin of brewing companies.

H_{11}: Just-in-Time strategy has significant effect on gross profit margin of brewing companies.

According to the results from table 4.8, it was observed that the effect of just-in-time on gross profit margin of Champion Breweries Plc presented a coefficient of 0.502 and a probability value of 0.000. The p-value was statistically significant at the 5% level of significance, and as such, the null hypothesis was rejected and the alternative accepted. Thus, it was concluded that Just-in-Time strategy has a significant positive effect on gross profit margin of brewing companies.

Hypothesis two

H_{o2}: Economic order quantity strategy does not have significant effect on gross profit margin of brewing companies.

H_{12}: Economic order quantity strategy has significant effect on gross profit margin of brewing companies.

According to the results from table 4.8, it was observed that the effect of economic order quantity on gross profit margin of Champion Breweries Plc presented a coefficient of 0.444 and a probability value of 0.000. The p-value was statistically significant at the 5% level of significance, and as such, the null hypothesis was rejected and the alternative accepted. Thus, it was concluded that economic order quantity strategy has a significant positive effect on gross profit margin of brewing companies.

Hypothesis three

H_{o3}: Lean inventory strategy does not significant effect on gross profit margin of brewing companies.

H_{13}: Lean inventory strategy has significant effect on gross profit margin of brewing companies.

According to the results from table 4.8, it was observed that the effect of lean inventory strategy on gross profit margin of Champion Brewery Plc presented a coefficient of -.094 and a probability value of 0.318. The p-value was statistically non-significant at the 5% level of significance, and as such, the null hypothesis was accepted and the alternative rejected. Thus, it was concluded that lean inventory strategy had a negative but insignificant effect on gross profit of brewing companies.

Hypothesis four

H_{o4}: Material requirement planning strategy does not have significant effect on gross profit margin of brewing companies.

H_{14}: Material requirement planning strategy has significant effect on gross profit margin of brewing companies.

According to the results from Table 4.8, it was observed that the effect of material requirement planning on gross profit margin of Champion Brewery Plc presented a coefficient of 0.315 and a probability value of .021. The p-value was statistically significant at the 5% level of significance, and as such, the null hypothesis was rejected and the alternative was accepted. Thus, it was concluded that material requirement planning strategy has significant positive effect on gross profit margin of brewing companies.

Hypothesis five

H_{o5}: Vendor managed inventory strategy does not have significant effect on gross profit margin of brewing companies.

H_{15}: Vendor managed inventory strategy has significant effect on gross profit margin of brewing companies.

According to the results from Table 4.8, it was observed that the effect of vendor managed inventory on gross profit margin of Champion Brewery Plc presented a coefficient of 0.206 and a probability value of 0.083. The p-value was statistically non-significant at the 5% level of significance, and as such, the null hypothesis was accepted and the alternate rejected or ignored. Thus, it was concluded that vendor managed inventory strategy does not have any significant effect on gross profit margin of brewing companies.

4.4 Discussion of Findings

Just-in-Time strategy and gross profit margin

According to the results from Table 4.8, it was observed that the effect of just-in-time strategy on gross profit margin of Champion Brewery Plc presented a coefficient of 0.502 and a probability value of 0.000. The p-value was statistically significant at the 5% level of significance, and as such, it was concluded that Just-in-Time strategy has a significant positive effect on gross profit margin of Champion Brewery Plc, Uyo. This implies that the use of just-in-time strategy brings about increase in gross profit margin in the company

studied. Obviously, this result can be explained by the core principles of the JIT system, which focuses on reducing waste, minimizing inventory holding costs, and improving production efficiency.

This is in line with the apriori expectation of this study. The positive finding further strengthens the position of Ordu (2024) [56] which was that just-in-time is an inventory management strategy that dictates materials and products should be acquired and produced only when they are needed, precisely at the moment they are required for production or sale. This means that production costs are only incurred when actual production takes place enhancing cost efficiency. It was added that it minimizes the need to hold large quantities of inventory. This was also in line with the idea of Seth *et al*. (2020) [68] which was that just-in-time is a system whose objective is to produce or procure products/components as they are needed or required than for inventory. It was also mentioned in the literature that JIT forces companies to streamline processes, identify bottlenecks, and improve operational flow, resulting in a positive relationship with gross profit margin or financial performance. JIT leads to increased productivity with fewer resources, which contributes to overall profitability. This study's finding is in line with that of Ndubuisi *et al*. (2020) [50] and Nugroho *et al*. (2020) [53] who all found positive significant relationships between JIT and financial performance of breweries in Nigeria.

Economic order quantity and gross profit margin

According to the results presented in Table 4.8, the effect of Economic Order Quantity (EOQ) on the gross profit margin of Champion Brewery Plc showed a coefficient of 0.444 with a probability value (p-value) of 0.000. Since the p-value is statistically significant at the 5% level, it was concluded that the EOQ strategy has a significant positive effect on the gross profit margin of Champion Breweries Plc, Uyo. This implies that the adoption and application of EOQ principles in inventory management lead to an increase in the company's gross profit margin. In other words, there exists a direct and positive relationship between EOQ and gross profit margin, meaning that improvements in EOQ implementation are associated with corresponding increases in profitability. This relationship can be explained by the fundamental objective of the EOQ model, which is to determine the optimal order quantity that minimizes the total cost of inventory; comprising ordering costs and holding costs.

This result is in line with the a priori expectation that economic order quantity would have a positive effect on gross profit margin. It is now a cliché that; EOQ balances the trade-off between ordering costs (e.g., administrative costs, shipping fees) and holding costs. If all these costs could be minimized, the implications for the gross profit margin would be undoubtedly positive. All these are true because ordering at the EOQ means avoiding excessive inventory, which directly lowers expenses related to storage, insurance, taxes, and capital tied up. Also, ordering larger, but optimal, quantities mean fewer orders need to be placed over a period, saving on administrative costs, processing fees, and per-order transportation expenses. Economic order quantity determination is knowing the right quantity of inventory to order or purchase, and of course, knowing the optimal order quantity helps in planning warehouse space, labor, and transportation, leading to more efficient use of these resources. A view about it in the literature also included the fact that it reduces the likelihood of stockouts, which can lead to lost sales, customer dissatisfaction, and potential damage to reputation. This study's finding is in line with Ordu (2024) [56] and Ugwu and Nwakoby (2020) [73] who all found a positive association between EOQ and financial performance.

Lean inventory strategy and gross profit margin

According to the results presented in Table 4.8, the effect of the lean inventory strategy on the gross profit margin of Champion Brewery Plc showed a coefficient of –0.094 with a probability value (p-value) of 0.318. Since the p-value is greater than the 5% level of significance, the result is statistically non-significant. Consequently, it was concluded that the lean inventory strategy does not have a significant effect on the gross profit margin of Champion Breweries Plc, Uyo. Although the relationship observed was negative, it was also statistically insignificant, suggesting that the adoption of lean inventory practices may not be contributing meaningfully to the company's performance.

A reason why an insignificant negative effect is that while lean inventory strategies aim to reduce waste and improve efficiency, their successful implementation requires a high level of operational coordination, real-time data visibility, and supplier reliability. In the absence of these supporting factors, the reduction of inventory levels under lean practices may actually lead to stockouts, production delays, and missed sales opportunities, ultimately affecting profit margins negatively. Although this turned out to be the case, past literature had many proponents for a positive relationship, stating that lean theory is an extension of ideas of just in time (slam *et al*., 2019). Islam *et al*. (2019) [29] elaborated that just in time as a pull-based system was designed to align the production and business processes throughout the supply chain. Islam *et al*. (2019) [29] also indicated that companies successfully optimize material through lean supply chain practices and systems to achieve higher levels of asset utilization and customer satisfaction leading to improved organizational growth, profitability and market share. This study's finding was a total opposition to these ideas. This finding is further contrary to those of Eneje *et al*. (2019) which assessed the impact of lean theory on service delivery and noted that the lean theory may eliminate buffer stock and minimize waste in production process; and Rono and Miroga (2019) [67] which was that leanness positively affects profitability of a business firm and therefore the best material control tool.

Material requirement planning and gross profit margin

According to the results presented in Table 4.8, it was observed that the effect of Material Requirement Planning (MRP) on the gross profit margin of Champion Brewery Plc yielded a coefficient of 0.315 and a probability value (p-value) of 0.021. Since the p-value is statistically significant at the 5% level, it was concluded that the material requirement planning strategy has a significant positive effect on the gross profit margin of Champion Breweries Plc, Uyo. This result indicates a direct relationship between MRP and gross profit margin, implying that an improvement or increase in the effectiveness of MRP systems leads to a corresponding increase in gross profit margin. A possible explanation for this finding lies in the nature and purpose of material requirement planning. MRP is designed to ensure

that the right materials are available for production at the right time, in the right quantities, and at the right cost.

When properly implemented, it minimizes inventory holding costs, reduces the risk of stockouts or overstocking, and improves production scheduling. This creates a more responsive and cost-efficient production system. From a practical standpoint, this means fewer delays in production, less wastage of resources, and more efficient use of capital; all of which contribute to lowering operational costs and boosting profitability. In a company like Champion Breweries, where staying competitive is a necessity, a well-functioning MRP system ensures that materials flow smoothly through the supply chain, allowing for consistent output and better financial performance. Similar finding existed in Radzuan (2022) [63] who found a positive association between MRP and financial sustainability of firms.

Vendor managed inventory and gross profit margin

According to the results from Table 4.8, it was observed that the effect of vendor managed inventory on gross profit margin of Champion Brewery Plc presented a coefficient of 0.206 and a probability value of 0.083. The p-value was statistically non-significant at the 5% level of significance, and as such, it was concluded that vendor managed inventory strategy does not have any significant effect on gross profit margin of Champion Breweries Plc, Uyo. This result implies that although VMI may have a directional positive influence, its effect is not strong enough within the context of this study to be deemed reliable or impactful on financial performance because of the probability value. The reason for this kind of finding could be rooted in the implementation or maturity level of the VMI system within the organization. As mentioned in the earlier sections of this study, vendor managed inventory requires high levels of coordination, trust, and information sharing between the vendor and the company and may be hard to hit the nail sometimes.

Be that as it may, Elking (2019) emphasized that the primary objective of Vendor Managed Inventory (VMI) is to streamline inventory levels and enhance supply chain efficiency for both the supplier and the customer. According to Elking, this is achieved by shifting the responsibility for inventory management from the customer to the vendor, who typically has better access to demand trends and production schedules. With this approach, the vendor closely monitors the buyer's inventory and replenishes stock as needed, relying on pre-agreed inventory thresholds and real-time consumption data. In theory, this collaborative strategy reduces stockouts, minimizes excess inventory, and improves responsiveness across the supply chain. However, the findings from this study appear to challenge this theoretical perspective, as VMI was found to have no statistically significant effect on the gross profit margin of Champion Breweries Plc. This outcome stands in contrast to several empirical studies that have shown a significant positive relationship between inventory strategies, such as Economic Order Quantity (EOQ) and financial performance. For instance, Maina and Were (2024) [40], as well as Migwi and Kwasira (2024) [41], reported that adopting EOQ principles led to measurable improvements in cost efficiency and profitability.

5. Summary, Conclusion and Recommendations

5.1 Summary of Findings

This study examined the effect of inventory management practices on financial performance of Champion Breweries, Uyo, Akwa Ibom State, Nigeria. The independent variable; inventory management practices was proxied by just in time, economic order quantity, lean inventory strategy, material requirement planning, and vendor managed inventory and the dependent variable; financial performance was proxied by gross profit margin. The empirical findings derived from this research were as follows:

1. Just-in-time strategy {0.502(0.000)} has a significant positive effect on gross profit margin of Champion Breweries Plc, Uyo. This implies that the use of Just-in-Time strategy brings about higher profit margin for the brewery.
2. Economic order quantity {0.444(0.000)} has a significant positive effect on gross profit margin of Champion Breweries Plc, Uyo. This means that that the establishment and use of an economic order quantity level brings about higher profit margin for the brewery.
3. Lean inventory strategy {–0.094(0.318)} has an insignificant negative effect on gross profit margin of Champion Breweries Plc, Uyo. This means that lean inventory strategy has no significant effect on gross profit margin of Champion Breweries Plc, Uyo.
4. Material requirement planning {0.315(0.021)} has a significant positive effect on gross profit margin of Champion Breweries Plc, Uyo. This means that the material requirement planning brings about higher profit margin for the brewery.
5. Vendor managed inventory {0.206(0.083)} has an insignificant positive effect on gross profit margin of Champion Breweries Plc, Uyo. This means that vendor managed inventory has no significant effect on gross profit margin of Champion Breweries Plc, Uyo.

5.2 Conclusion

This study examined the effect of inventory management practices; specifically, just in time, economic order quantity, lean inventory strategy, material requirement planning, and vendor managed inventory on financial performance of Champion Breweries Plc, Uyo. The findings showed that while, just-in-time and economic order quantity and material requirement planning significantly affected gross profit margin positively, vendor managed inventory and lean inventory strategy had no significant effect on gross profit margin of Champion Breweries Plc. As such, the study concluded that inventory management practices have significant effect on financial performance of Champion Breweries Plc, Uyo. The study concluded that effective inventory management strategies play a critical role in improving the gross profit margin of Champion Breweries.

5.3 Recommendations of the study

In line with the findings, the study made the following recommendations:

1. The management of Champion Breweries, the company should strengthen and maintain its JIT practices. This can be achieved by enhancing supplier relationships to ensure timely delivery of raw materials and reducing lead times, which will minimize inventory holding costs and increase profitability.

2. Champion Breweries should continue to adopt EOQ for its inventory purchases. Management should periodically review demand forecasts, ordering costs, and holding costs to ensure that the EOQ model is accurately implemented and adjusted to changing market conditions.
3. Since lean inventory has an insignificant effect on gross profit margin, Champion Breweries should reassess its lean inventory practices to identify gaps in implementation. The company could train staff on waste reduction and process efficiency, and possibly integrate lean with JIT practices to enhance its effectiveness.
4. The management of Champion breweries PLC should fully integrate MRP with its production scheduling and procurement systems. The company should also invest in enterprise resource planning (ERP) software to enhance accuracy in forecasting material requirements and avoid stock-outs or overstocking.
5. Since VMI has an insignificant effect on gross profit margin, the company should evaluate its vendor partnerships, strengthen collaboration with vendors and enhance real-time inventory monitoring.

6. References

1. Agu M. The impact of working capital management policies on firm profitability and value: The case of Jordan. International Research Journal of Finance and Economics. 2024; 85(2):1-9.
2. Akindipe OS. Inventory management - A tool for optimal use of resources and overall efficiency in manufacturing SMEs. Journal of Entrepreneurship Management and Innovation. 2014; 10(4):93-113.
3. Akintola TM. Inventory management and financial performance of consumer goods companies in Nigeria. Federal University of Otueke Faculty of Management Sciences Journal. 2023; 7(2):135-153.
4. Akudor RC. Effect of working capital management on financial performance of some selected deposit money banks in Nigeria. International Journal of Innovative Research. 2020; 2(3):34-49.
5. Aljaaidi K, Bagais O. Days inventory outstanding and firm performance: Empirical investigation from manufacturers. Accounting Review. 2020; 6(6):1111-1116.
6. Alrjoub AMS, Ahmad MA. Inventory management, cost of capital and firm performance: Evidence from manufacturing firms in Jordan. Investment Management and Financial Innovations. 2017; 14:4-14.
7. Althaqafi T. Effect of inventory management on financial performance: Evidence from the Saudi manufacturing company: European Journal of Accounting, Auditing and Finance Research. 2020; 8(10):13-26.
8. Amahalu NN, Abiahu M, Obi JC, Nweze CL. Effect of accounting information on market share price of selected firms listed on Nigeria Stock Exchange. International Journal of Recent Advances in Multidisciplinary Research. 2019; 5(1):3366-3374.
9. Anagaw T. Review on: Effect of inflation on economic growth in Ethiopia. American Journal of Applied Statistics and Economics. 2023; 2(1):7-10.
10. Alhassan I, Islam K. Credit management strategies and financial performance of industrial goods sector in Nigeria. Indian Journal of Finance and Banking. 2021; 8(1):59-74.
11. Atnafu D, Balda A. The impact of inventory management practice on firms' competitiveness and organizational performance: Empirical Evidence from Micro and Small Enterprises in Ethiopia. Cogent Business & Management. 2020; 5(1):1503219.
12. Bagaka C. Role of Material Management on Performance of Sugar Manufacturing industrial goods sector in Nigeria. Indian Journal of Finance and Banking. 2020; 8(1):59-74.
13. Bouadam F, Maiza M. Relationship between inventory management and X industrial goods sector in Nigeria. Indian Journal of Finance and Banking. 2022; 8(1):59-74.
14. Cabungcal C, Enriques C, Medios Z, Ruiz H, Villanueva J, Gacrama B, *et al*. Impact of inventory management on financial performance of MSMEs in Santiago City. American Journal of Economics and Business Innovation. 2023; 2(3):33-45.
15. Capkun M, Koin VR, Cheruiyot GK, Mwangangi P. Effect of inventory management on the supply chain effectiveness in the manufacturing industry in Kenya: A case study of Tata Chemical Magadi. International Journals of Social Sciences Management and Entrepreneurship. 2019; 1(2):189-202.
16. Deloof M. Does working capital management affect profitability of Belgian firms? Journal of Business Finance & Accounting. 2018; 30(3-4):573-587.
17. Dervitsiotis KN. Operations management. USA: McGraw-Hill series in Industrial Engineering and Management Science, 2001.
18. Doutimiareye N, Genesis O. Inventory management techniques and financial performance of listed Oil and gas companies in Nigeria. International Journal of Management, Accounting and Human Development. 2022; 11(1):87-111.
19. Edwin RS, Florence PO. Effect of inventory management on the supply chain effectiveness in the manufacturing industry in Kenya: A case study of Tata Chemical Magadi. International Journals of Social Sciences Management and Entrepreneurship. 2019; 1(2):189-202.
20. Elking I, Paraskevas J-P, Grimm C, Corsi T, Steven A. Financial dependence, lean inventory strategy, and firm performance. Journal of Supply Chain Management. 2019; 53(2):22-38. Doi: https://doi.org/10.1111/JSCM.12136
21. Elzamly A, Messabia N, Doheir M, Mahmoud A, Bin Hasan B, Abu Selmiya NS, *et al*. Adoption of cloud computing model for managing e-banking system in banking organizations. International Journal of Advanced Science and Technology. 2019; 22(1):318-326.
22. Eneje BC, Nweze A, Udeh AI. Effect of efficient inventory management on profitability: Evidence from of selected brewery firms in Nigeria. International Journal of Current Research. 2022; 4(11):350-354.
23. Etale LM, Bingilar PF. The effect of inventory cost management on profitability: A study of listed brewery companies in Nigeria. International Journal of Economics, Commerce and Management. 2020; 4(6):446455.
24. Gatari C, Shale N, Osoro A. Inventory management and

sustainable performance of state corporations in Kenya. International Journal of Supply Chain Management. 2022; 7(1):56-68. Doi: https://doi.org/10.47604/ijscm.1667
25. Golas Z, Bieniasz A. Empirical analysis of the influence of inventory management on financial performance in the food industry in Poland. Engineering Economics. 2019; 27(3):264-275.
26. Hugos MH. Essentials of supply chain management. New York. John Wiley & Sons, 2018.
27. Ifeanyi UM, Hiram KM, Willy M. Effect of working capital management on financial performance of listed firms in Nigeria. International Journal of Management and Commerce Innovations. 2024; 5(1):360-369.
28. Imad R, Kilani ZQ, Kaddumi T. Determinants of bank profitability: Evidence from Jordan. Internal Journal of Academic Research. 2021; 3(4):12-19.
29. Islam SS, Pulungan AH, Rochim A. Inventory management efficiency analysis: A case study of an SME company. Journal of Physics: Conference Series. 2019; 1402:1-6. Doi: https://doi.org/10.1088/17426596/1402/2/022040
30. Jibrin AA, Ine-Tonbarapa MM. Lean accounting practices and financial performance of listed consumer food products manufacturing companies in Nigeria. Innovative Journal of Research in Management, Marketing and Accounting. 2022; 10(2):43-58.
31. Joseph FI, Ubani EC, Nwankwo CK, Omeonu OM. Effect of inventory management on financial performance of manufacturing firms in Nigeria. Asian Journal of Economics, Business and Accounting. 2023; 23(19):9-23.
32. Karanja S, Bellisario A, Pavlov A. Modern management accounting techniques in small and medium (SMEs) in developing countries: A case study of SMEs in Kenya. Competitiveness Review. 2022; 23(3):218-233.
33. Karki CB. Effect of Inventory Management on Profitability: Empirical Evidence from Uniliver Nepal Limited. Journal of Management. 2020; 3(1):35-43.
34. Khan F, Siddiqui DA, Karachi Khan F, Siddiqui DA. Impact of inventory management on firm's efficiency-a quantitative research study on departmental stores operating. Social Science and Humanities Journal. 2020; 3(4):964-980.
35. Kolawole AD, Akomolafe AB, Olusipe BJ. Inventory management: An impetus for increased profitability in manufacturing firms. International Journal of Accounting, Finance and Risk Management. 2020; 4(4):110-115.
36. Kwadwo BP. The impact of efficient inventory management on profitability. Evidence from several manufacturing firms in Ghana. Industrial. Journal of Finance and Accounting. 2016; 2(2):29-44.
37. Liu H, Yi X, Yin L. The impact of operating flexibility on firms' performance during the COVID-19 Outbreak: Evidence from China. Finance Research Letters. 2020; 10(1):102-123.
38. Lwiki T, Ojera PB, Mugenda NG, Wachira VK. The impact of inventory management practices on financial performance of sugar manufacturing firms in Kenya. International Journal of Business, Humanities and Technology. 2019; 3(5):75-85.
39. Lyndon ME, Paymaster FB. The effect of inventory cost management on profitability: A study of listed brewery companies in Nigeria. International Journal of Economics, Commerce and Management. 2022; 4(6):78-72.
40. Maina AW, Were S. Influence of vendor managed inventory on performance of retail outlets in Kenya: A case of Tuskys supermarket limited. The Strategic Journal of Business & Change Management. 2024; 5(4):567-581.
41. Migwi BM, Kwasira J. Success factors for the implementation of vendor managed inventory systems in retail supermarkets in nakuru town, Kenya. International Journal of Economics, Commerce and Management, United Kingdom. 2024; 4(9):20-34.
42. Moridipour H, Mousavi Z. Relationship between inventory turnover with gross profit margin and sales shocks. International Research Journal of Applied and Basic Sciences. 2019; 8(8):1106-1109.
43. Mudimba MA, Nyawira JM. Inventory management practices and financial performance of large manufacturing firms in Kenya. International Journal of New Economics and Social Sciences. 2020; 2(10):309-320
44. Muhayimana V. Inventory management technique and its contribution on beter management of manufacturing companies in Rwanda: Case Study: Sulfo Rwanda Ltd, European Journal of Academic Essays. 2015; 2(6):49-58.
45. Mulandi CM, Ismail N. Effect of inventory management practices on performance of commercial state corporations in Kenya. International Academic Journal of Procurement and Supply Chain Management. 2019; 3(1):180-197.
46. Nahid MN, Hosein AA, Azam G, Seyed M. An analytical review of the effect of working capital development on financial performance measures. American Journal of Scientific Research. 2022; 77:110-122.
47. Namusonge SO, Mukulu E, Kirima N. Role of collaborative planning, forecasting & replenishment on hotel performance as mediated by cooperative behavior: A survey of the Kenyan. Industrial. Journal of Finance and Accounting. 2015; 2(2):29-44.
48. Nasution AA. Effect of inventory turnover on the level of profitability. IOP Conference Series: Materials Science and Engineering. 2020; 725(1):12137.
49. Nawaz A, Hamid K, Khurram MU, Nawaz MA. Impact of inventory performance on industrial financial performance of Pakistan. International Journal of Multidisciplinary Approach and Studies. 2019; 3(6):14-32.
50. Ndubuisi AN, Ezechukwu BO, Egolum PU, Obi JC. Inventory management and financial performance: Evidence from brewery firms listed on Nigeria Stock Exchange. International Journal of Research in Business, Economics and Management. 2020; 2(3):72-93.
51. Nnadi KU, Nduoko AE. The impact of lean inventory management practices on firm performance: A study of selected oil and gas companies in Rivers State, Nigeria. International Journal of Research and Scientific Innovation. 2021; 8(3):123-136.

52. NetSuite. How to master your stock levels. Oracle NetSuite, 2022. https://www.netsuite.com/portal/resource/articles/inventory-management/inventory-management.shtml#:~:text=Inventory%20management%20helps%20companies%20identify
53. Nugroho A, Christiananta B, Wulani F, Pratama I. Exploring the Association among Just in Time, Total Quality and Supply Chain Management Influence on Firm Performance: Evidence from Indonesia. Int. J Sup. Chain. Mgt. 2020; 9(2):920-930.
54. Opoku RK, Fiati HM, Kaku G, Ankomah J, Agyemang FO. Inventory management practices and operational performance of manufacturing firms in Ghana. Advances in Research, AIR. 2020; (10):1-18. Doi: https://doi.org/10.9734/AIR/2020/V21I1030246
55. Oluwagbemiga E, Shah SR, Ganji EN. Lean production and supply chain innovation in baked foods supplier to improve performance. British Food Journal. 2024; 19(11):2421-2447.
56. Ordu PA. EOQ in a just in time (JIT) world: An empirical analysis of the impact of EOQ variables on operating profit: The case of Nigerian bottling company Plc. European Journal of Business and Management. 2024; 6(37):127-145.
57. Osundina J, Osundina K. The effect of working capital management on market value of quoted food and beverages manufacturing firms in Nigeria. International Journal of Business and Social Science. 2020; 5(8):110-121.
58. Otuya S, Eginiwin EJ. Inventory management and SMEs profitability: A study of furniture manufacturing, wholesale and eatery industry in Delta State, Nigeria. Journal of Finance and Accounting. 2017; 5(3):75-79.
59. Panigrahi C. Relationship between inventory management and profitability: An empirical analysis of Indian cement companies. Asia Pacific Journal of Marketing & Management Review. 2019; 2(2):71-92.
60. Pluskota L, Sitienei E, Memba F. The effect of financial liquidity on profitability of cement manufacturing companies in Warsaw: A case study of listed cement manufacturing companies in Warsaw. International Journal of Management and Commerce Innovations. 2015; 3(2):111-119.
61. Prempeh KB. The Impact of Efficient Inventory Management on Profitability: Evidence from Selected Manufacturing Firms in Ghana. In Munich Personal RePEc Archive (MPRA), 2019.
62. Qu Y, Obimpeh-Quayson A, Sarpong PB, Ghana W. The impact of inventory management practices on the performance of Ghanaian Technical. Journal of Contemporary Issues in Accounting. 2019; 3(1):17-32.
63. Radzuan K. Inventory Management Practices and its Effects on Vendor Managed Inventory Performance. Advanced Science Letters. 2022; 21:2115-2118.
64. Raheman A, Qayyum A, Afza T. Sector-wise performance of working capital management measures and profitability using ratio analysis. Interdisciplinary Journal of Contemporary Research in Business. 2021; 3(8):71-85.
65. Riza SD, Ganzach Y, Liu Y. Time and job satisfaction: A longitudinal study of the differential roles of age and tenure. 2016; 44(7):2558-2579.
66. Robinson AG, Umo UP. Cost management strategies and profitability of quoted cement manufacturing firms in Nigeria. Srusti Management Review. 2023; 16(2).
67. Rono E, Miroga J. Influence of lean inventory management techniques on performance of manufacturing firms in Nairobi City County Kenya. The Strategic Journal of Business & Change Management. 2019; 6(4):527-541.
68. Seth H, Saurabh C, Namita R, Puneet K, Satyendra K. Assessing working capital management efficiency of Indian manufacturing exporters. Managerial Finance. 2020; 46:1061-1079.
69. Sitienei E, Memba F. The effect of inventory management on profitability of cement manufacturing companies in Kenya: A case study of listed cement manufacturing companies in Kenya. International Journal of Management and Commerce Innovations. 2019; 3(2):111-119.
70. Seyed A, Hariprasad T. Value stream mapping and profitability using ratio analysis. Interdisciplinary Journal of Contemporary Research in Business. 2023; 3(8):71-85.
71. Sunday O, Joseph EE. Inventory Management and SMEs Profitability. A Study of Furniture Manufacturing, Wholesale and Eatery Industry in Delta State, Nigeria. Journal of Finance and Accounting. 2019; 5:75-79.
72. Tanveer B, Muhammad IN, Muhammad AK, Muhammad AK, Sadaf R. The impact of working capital management on firm's financial performance: Evidence from Pakistan. International Journal of Economics and Financial Issues. 2020; 6(3):1097-1105.
73. Ugwu IV, Nwakoby NP. Impact of inventory management on firm performance in Nigeria: Using grass roots opinion. International Journal of Engineering and Information Systems (IJEAIS). 2020; 4(11):34-46.
74. Umenzekwe PC, Okoye EI, Aggreh M. Working capital management and financial performance: Evidence from selected Nigerian manufacturing firms. Journal of Contemporary Issues in Accounting. 2021; 2(1):41-58.
75. Umo TM, Anthony B. Working capital management and financial performance of deposit money banks in Nigeria. Research Journal of Finance and Accounting. 2020; 6(16):20-40.
76. Umo UP. Morale Survey: Exploring employees' views for contributory management advantage and productivity upturn in 21st century firms of a developing economy. Account and Financial Management Journal, Everant Publishers. 2022; 7(7):2818-2830.
77. Umo UP. The management accountant in motivational budgeting and work behaviours management employing contemporary theories. International Journal of Economics, Finance and Management Sciences, Science Publishing Group. 2025; 13(4):192-209.
78. Yashim CY, Senzak DO, Gnegi DO, Danazumi EB. Effect of working capital management on financial performance of some selected deposit money banks in Nigeria. AJORMS Maiden Edit. 2020; 1(1):249-288.
79. Yousaf M, Petr Bris P. Effects of working capital management on firm performance: Evidence from the EFQM certified firms. Cogent Economics & Finance. 2021; 9:1.