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Research Article

Inventory Management and Financial Performance of Listed Manufacturing Firms in Nigeria

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Abstract

Introduction: This study investigates the impact of inventory management on the financial performance of listed manufacturing firms in Nigeria. By examining data from twenty-eight manufacturing firms across Consumer Goods, Industrial Goods, Health Care, and Agricultural sectors, the research focuses on key inventory metrics, including Inventory Conversion Period (INVCP), Accounts Receivable Period (ACRVP), and Accounts Payable Period (ACPP), and their relationship to Return on Assets (ROA).

Method: Employing panel data regression analyses, the study compares fixed and random effects models to understand sector-specific influences on financial outcomes.

Results or Findings: The findings reveal that inventory management practices vary in significance across sectors, with Consumer Goods and Industrial Goods firms showing a strong dependency on efficient inventory conversion and debt levels for profitability. In contrast, firm size positively influences profitability in the Health Care sector, while Agricultural firms display broader sectoral dependencies.

Discussion or Conclusion: These insights underscore the need for tailored inventory management strategies within each sector to optimize financial performance. The study contributes to the contingency theory of inventory management and provides a foundation for sector-specific inventory practices.

Keywords: inventory management, financial performance, manufacturing firms, sectoral analysis

JEL Codes: M21, M42, G3

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Araştırma Makalesi

Nijerya'daki Kayıtlı Üretim Şirketlerinin Envanter Yönetimi ve Finansal Performansı

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Öz

Giriş: Bu çalışma, envanter yönetiminin Nijerya'daki halka açık üretim firmalarının finansal performansı üzerindeki etkisini araştırmaktadır. Tüketici Malları, Endüstriyel Mallar, Sağlık Hizmetleri ve Tarım sektörlerindeki yirmi sekiz üretim firmasından gelen verileri inceleyerek araştırma, Envanter Dönüşüm Süresi (INVCP), Alacaklar Dönemi (ACRVP) ve Borçlar Dönemi (ACPP) dahil olmak üzere temel envanter metriklerine ve bunların Varlık Getirisi (ROA) ile ilişkilerine odaklanmaktadır.

Yöntem: Panel veri regresyon analizlerini kullanan çalışma, finansal sonuçlar üzerindeki sektöre özgü etkileri anlamak için sabit ve rastgele etkiler modellerini karşılaştırmaktadır**.**

Sonuçlar ya da Bulgular: Bulgular, envanter yönetimi uygulamalarının sektörler arasında önemli ölçüde değiştiğini, Tüketici Malları ve Endüstriyel Mallar firmalarının karlılık için verimli envanter dönüşümüne ve borç seviyelerine güçlü bir bağımlılık gösterdiğini ortaya koymaktadır. Buna karşılık, firma büyüklüğü Sağlık Hizmetleri sektöründe karlılığı olumlu yönde etkilerken, Tarım firmaları daha geniş sektörel bağımlılıklar göstermektedir.

Tartışma ya da Yapılan Çıkarımlar: Bu içgörüler, finansal performansı optimize etmek için her sektörde özel envanter yönetimi stratejilerine olan ihtiyacın altını çizmektedir. Çalışma, envanter yönetiminin olasılık teorisine katkıda bulunmakta ve sektöre özgü envanter uygulamaları için bir temel oluşturmaktadır.

Anahtar Kelimeler: envanter yönetimi, finansal performans, üretim firmaları, sektörel analiz

JEL Kodlar: M21, M42, G3

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Introduction

Manufacturing companies produce diverse goods, ranging from consumer goods, industrial goods, agricultural products and health related products that are essential to human consumption and for sustainable economic growth and development. These companies create jobs, and boosts national income, making it vital to any nation's growth (Olorunfemi et al. 2013).

Inventory management involves strategic planning, coordination, and control of all inventory operations inside an organization, from acquisition to disposal (Schroeder et al., 2011). Effective inventory management is vital to companies' financial performance in a competitive and ever-changing business climate. Inventory—raw materials, work-in-progress, and finished goods—is a major financial commitment and current asset for a corporation. Efficient inventory management balances customer demand, stock-outs, and storage, obsolescence, and opportunity costs. Inventory management controls the procurement, storage, and use of inventory components. It involves balancing inventory to satisfy consumer demand, reducing stock-outs, and minimizing inventory expenditures (Koumanakos, 2008).

Inventory holding length, or conversion period in days, is an important inventory management parameter. It is the number of days a company takes to sell inventory. It is calculated by dividing the inventory value by COGS and multiplying by 365 days (Gaur et al., 2005). The company's return on assets (ROA) is connected to its inventory holding time or conversion period in days. A shorter inventory conversion period means the corporation can sell its inventory faster, indicating better inventory management. Increased asset utilisation and profitability can boost ROA (Deloof, 2003; Gill et al., 2010). A lengthy inventory conversion period may imply ineffective inventory management, which keeps items idle, wasting money and perhaps causing obsolescence or spoilage. ROA might decline due to asset utilisation and profitability issues (Koumanakos, 2008; Gaur et al., 2005). Industries and companies choose inventory conversion periods based on lead times, manufacturing cycles, and demand. Companies must combine reducing inventory with having enough stock to meet consumer demand and avoid stock-outs, which can hurt financial performance (Arnold et al., 2008; Jacobs, 2011).

The accounts receivable period, or the average time it takes for a firm to collect payments from customers, can influence how firms manage their inventory. A long ARP could delay cash inflows, increasing pressure on the firm to maintain lower inventory levels to preserve liquidity. A short ARP, on the other hand, ensures quicker cash recovery, which may allow the firm to hold larger inventory volumes to meet demand consistently. The ARP moderates ICP by influencing how much working capital is available for inventory investments and overall operational efficiency.

The accounts payable period refers to the time a company takes to settle its obligations with suppliers. It plays a critical role in inventory management. A long APP provides more flexibility and liquidity, enabling the firm to maintain higher inventory levels without immediate cash outflows. Conversely, a short APP forces the firm to manage inventory more tightly, as cash is required to pay suppliers quickly. APP moderates ICP by determining the firm's ability to delay cash outflows while maintaining optimal inventory levels. Manufacturing companies need to work with credible suppliers to ensure the procurement of quality materials.

The capital structure, or the mix of debt and equity used by a firm to finance its operations, directly impacts inventory management. Firms with high debt levels might face strict financial constraints due to higher interest obligations, forcing them to optimize and

reduce their ICP to minimize holding costs. Firms with a balanced or equity-heavy capital structure might have more flexibility in maintaining inventory, as they face fewer cash flow restrictions. Capital structure moderates ICP by influencing the firm's ability to invest in and manage inventory based on its financial leverage and cost of capital.

The size of a firm can play a moderating role in inventory management. Large firms typically benefit from economies of scale, better supplier relationships, and advanced inventory systems, which allow them to maintain shorter ICPs while meeting demand efficiently. Small firms, in contrast, may have limited resources and bargaining power, potentially leading to longer ICPs or less efficient inventory management practices. Firm size moderates ICP by affecting the firm's access to resources, technologies, and market positioning, which in turn influences inventory strategies.

Financial Performance metrics comprehensively measure a company's overall financial strength over time. It is an indication of a company's financial stability and profitability. It serves as a basis of comparison of companies' performance in the same industry as well as comparative analysis of performance over the years within the entity. The goal of assessing an organization's financial health is to offer information to various stakeholders inside the company (Alhassan & Muhammad, 2022). Manufacturing firms' financial performance depends on inventory and its management. Inventory is a major current asset and it affects liquidity and working capital management (Koumanakos, 2008). Effective inventory management optimizes working capital and cash flow, which boosts financial success. Thus, it locks up a major portion of industrial businesses' cash. Effective inventory management can reduce capital locked up in inventory, freeing up funds for additional productive uses and improving asset utilization and profitability (Deloof, 2003). Overstocking can increase storage, obsolescence, and opportunity expenses, which can hurt a company's profitability (Gaur et al., 2005). Just-in-time (JIT) and vendor-managed inventory (VMI) can reduce these costs and enhance profits. Inventory shortages, lost sales, production delays, and unhappy customers can harm a company's revenue and financial performance (Wisner et al., 2016). Effective inventory management ensures resources and finished goods are available to meet customer demand and maintain production, enhancing income. The time it takes a company to convert its inventory into revenues is closely related to its return on assets (ROA) (Gill et al., 2010). Efficient inventory management reduces inventory conversion time, increasing asset utilization and ROA.

Statement of the Problem

Inventory is one of the most crucial assets for companies, particularly manufacturing firms. According to Carter (2002), current assets constitute approximately 60 to 70 percent of the total funds employed by many manufacturing companies, with inventory being the most significant component. This includes raw materials, work-in-progress, and finished goods, surpassing other current assets such as cash in hand and bank balances. Kolias, Dimelis, and Filios (2011) emphasize in their study that, among current assets, managing inventory should receive greater attention in manufacturing firms due to its direct impact on production and profitability. They argue that poorly managed inventory can negatively affect a firm's performance and, over time, may even lead to the liquidation of the organization.

Many firms carry excessive inventory levels, leading to increased storage costs, obsolescence risks, and opportunity costs associated with the capital tied up in inventory. This can negatively affect profitability and overall financial performance. Poor inventory management can result in stock-outs or shortages of raw materials and finished goods, leading

to production disruptions, lost sales, and customer dissatisfaction, ultimately impacting revenue generation and financial performance. Inefficient inventory management can lead to an imbalance in working capital, with excessive cash tied up in inventory or insufficient inventory levels, resulting in cash flow problems and liquidity issues. Many firms lack proper inventory tracking and monitoring systems, making it difficult to accurately assess inventory levels, identify bottlenecks, and make informed decisions regarding inventory management. This hinders them from fully utilizing modern inventory management techniques, such as just-in-time (JIT), vendor-managed inventory (VMI), or material requirements planning (MRP), which could improve operational efficiency and financial performance.

Effective inventory management (IM) helps firms avoid liquidity problems by facilitating the swift conversion of inventories into cash or cash equivalents. Kim, Mauer, and Sherman (1998) argue that firms experiencing liquidity constraints often struggle to secure external funding. Therefore, it is essential for managers to have a clear understanding of their firm's cost of capital (COC).

Effective inventory management strategies can help mitigate the impact of these challenges and improve operational efficiency, profitability, and overall financial performance. In addition to these challenges, many manufacturing firms in Nigeria still struggle with inefficiencies in their inventory control practices. This situation often leads to excess inventory holding costs, stockouts, and suboptimal utilization of resources, ultimately undermining financial performance and competitiveness in both domestic and international markets.

Past empirical studies conducted on inventory management and firms' performance had mixed findings. Some studies revealed positive effect of inventory management on firms' performance, while some reported negative effects, and even some studies reported insignificant effects of inventory management on financial performance of the companies. None of the previous studies incorporated accounts receivable period, account payable period, capital structure and firm size as moderating factors. These variables shape a firm's ability to effectively manage its inventory conversion period. Their combined influence determines how efficiently a firm can balance liquidity, profitability, and operational effectiveness while minimizing risks associated with overstocking or stockouts. This study covered this gap. This research provided insights into the impact of effective inventory management on overall financial performance. The study further carried a sectoral analysis of effect of inventory management on financial performance in different sectors. Therefore, this study established best practices and strategies for improving inventory management in the Nigerian manufacturing sectors, ultimately contributing to the competitiveness and sustainability of these firms.

Literature Review

Conceptual Review

Inventory

A manufacturing company's inventory includes raw supplies, work-in-process and finished goods for seamless production and sales. The stock of any organisational resource is called inventory (Chase & Jacobs, 2018). Inventory is the range of things used in any manufacturing process (Wisner et al., 2016). Inventory is supplies needed to meet consumer demand or produce goods and services (Schroeder et al., 2011). Inventory is materials utilized in manufacturing or to meet consumer demand (Jacobs & Chase, 2018).

Inventory Management

Inventory management controls the procurement, storage, and use of inventory components. It involves balancing inventory to satisfy consumer demand, reducing stock-outs, and minimizing inventory expenditures (Koumanakos, 2008). Inventory management ensures the appropriate amount of inventory is available at the right moment (Wisner et al., 2016). Inventory management involves planning, organizing, and controlling inventory flow into and out of an organization (Schroeder et al., 2011). Inventory management organises an organisation's movement and storage (Chase & Jacobs, 2018). Inventory management controls commodity supply, storage, and accessibility to avoid overabundance (Jacobs & Chase, 2018).

Inventory management involves inventory control and planning. Monitor and regulate inventory levels with inventory control methods and systems. Set optimal reorder points, determine economic order quantities, and monitor inventory levels using physical counts or computerised methods (Arnold et al., 2008). Inventory planning: Predicting demand, coordinating inventory levels across locations or product lines, and integrating inventory decisions with production planning and purchasing (Jacobs et al., 2011). The linkages between inventory control and planning are critical. Inventory planning requires precise inventory levels and movements from inventory control. Conversely, inventory planning guides inventory control by setting targets and regulations (Muller, 2011).

Financial Performance

Return on Assets (ROA).ROA, a prominent financial term, estimates a company's profitability based on its total assets. It indicates a company's financial performance and capacity to generate money from its assets. Here's how ROA measures financial performance. Company ROA is calculated by dividing net income (after taxes) by total assets. ROA = Net Income/Total Assets. ROA shows how well a company uses its assets to make money. A higher ROA indicates that a company is more efficient at using its assets to generate money, whereas a lower ROA indicates that it may not be managing its assets or earning enough profit.

Theoretical Framework

The Contingency Theory of Inventory Management.

James L. Heskett proposed the Contingency Theory of Inventory Management. Heskett was a Harvard Business School professor and operations and supply chain management pioneer. This theory indicates that inventory management has no single optimum practice for all enterprises or scenarios. The best inventory management approach depends on internal and external elements unique to each company and its operating environment (Heskett, 1977). The theory suggests that firms should tailor inventory management to their product features, demand patterns, supply chain complexity, and environmental uncertainties. The notion states that inventory management strategies must match an organization's situational factors to perform well

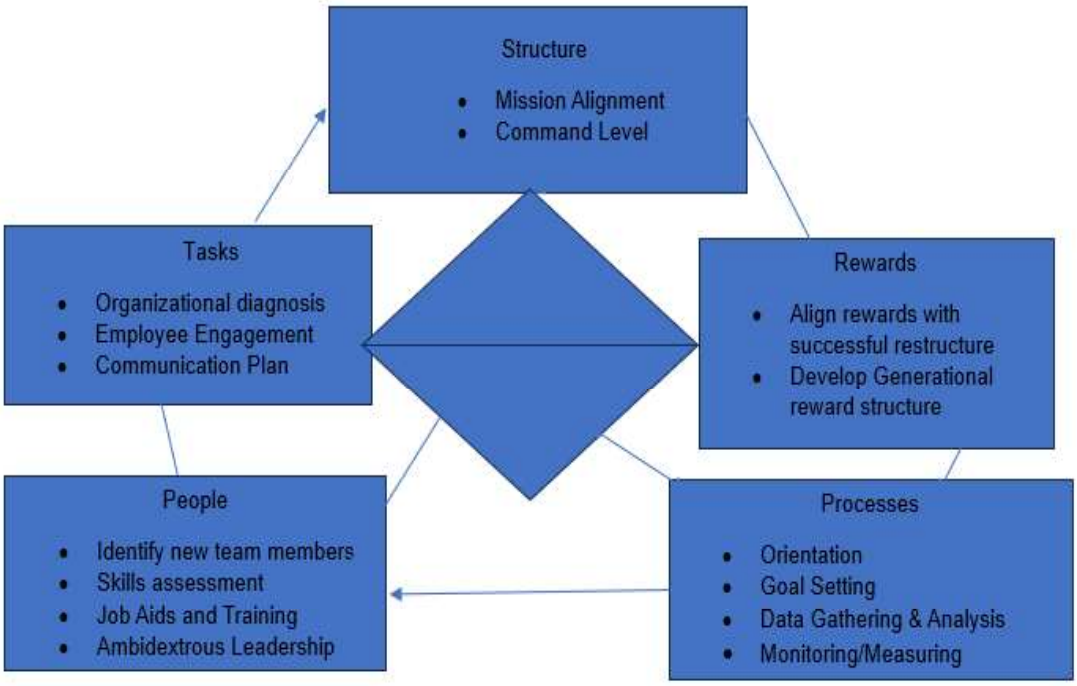
For various reasons, the Contingency Theory of Inventory Management is pertinent to the study on inventory management and the financial performance of listed manufacturing enterprises in Nigeria. According to the Contingency Theory, industry-specific considerations should impact inventory management strategies to improve performance. Nigerian manufacturing enterprises vary in product lines, production techniques, supply chain complexity, and organizational resources. Inventory management should be customized to each firm's circumstances to maximize financial performance (Heskett, 1977). Nigerian businesses face economic instability, regulatory changes, and market uncertainty. The Contingency Theory

emphasizes adapting inventory management practices to environmental uncertainties and improving organizational performance and recognizes that there is no one-size-fits-all inventory management approach. It encourages organizations to tailor inventory management to their own needs to improve financial performance (Heskett, 1977).

The Contingency Theory of Inventory Management helps explain how inventory management practises affect financial performance, but it is complex, subjective, difficult to implement, and limited in generalizability (Heskett, 1977). Despite its shortcomings, the Contingency Theory of Inventory Management provides a solid theoretical foundation for studying inventory management and Nigerian listed manufacturing enterprises' financial performance.

Figure 1

Contingency Theory Conceptual Model



Note. Created by the Authors. Figure 1. Contingency theory conceptual model for a customer-centric organization. Adapted from "Organizing to Deliver Solutions," by J. R. Galbraith, 2012, Organizational Dynamics.

This diagram represents a conceptual model of the Contingency Theory, which can be applied to the context of inventory management and its relationship with financial performance in manufacturing firms.

Structure. Inventory management practices should align with the overall mission, goals, and strategies of the manufacturing firm. The level of centralization or decentralization in inventory management decision-making can impact its effectiveness and financial performance.

Tasks. These involve assessing the firm's current inventory management practices, challenges, and contingencies, involving employees in the development and implementation of

inventory management strategies, and adopting effective communication of inventory management policies and procedures throughout the organization.

People. The right people with the necessary skills and expertise must be involved in inventory management. There is a need for training and development opportunities to enhance inventory management capabilities. There must be an alignment of job roles and responsibilities with inventory management requirements. There must also be in place, effective leadership that balances efficiency and flexibility in inventory management practices.

Processes. There should be a common understanding of inventory management objectives and processes and the setting of clear and measurable goals for inventory management performance. Also, relevant data must be collected and analysed to inform inventory management decisions. Lastly, there must be continuous monitoring and measuring of inventory management performance against established goals.

Rewards. There must be an alignment and implementation of reward systems with successful performance that incentivize effective inventory management practices.

The central idea is that by aligning these various elements with the specific contingencies or situational factors faced by a manufacturing firm, such as industry dynamics, supply chain complexities, demand patterns, and environmental uncertainties, the firm can develop and implement inventory management practices that are tailored to its unique circumstances. This, in turn, can lead to improved operational efficiency, asset utilization, and ultimately, better financial performance.

Empirical Review

Pong and Mitchell, (2012) compared inventory management practices and their financial impact on retail firms in the UK and Germany. The objectives included analyzing the relationship between inventory turnover, holding costs, and profitability across two different market environments. Utilizing a comparative research design, data were collected from 40 retail firms in each country over a ten-year period (2006-2015). The methodology involved the use of descriptive statistics and multivariate regression analysis. The findings revealed that firms in both countries with higher inventory turnover and lower holding costs experienced better financial performance. However, the impact was more pronounced in the UK due to higher market competition. The study concluded that efficient inventory management is crucial for retail firms' financial success in both developed markets and recommended the adoption of lean inventory practices

Dedunu and Weerasinghae (2018) investigated the relationship between company performance and inventory management in Sri Lanka. Thirty-three companies were examined over the 2013 -2017 period. The study used inventory days as a dependent variable and gross profit and net profit as independent variables and employed descriptive analysis, correlation analysis and regression analyses to investigate effect of inventory management, on the listed manufacturing company performance. The study revealed that inventory management and gross profit had a positive relationship, net profit had a negative relationship and inventory management significantly affect to gross profit margin and net profit margin. The study concluded that organizations have to take a correct the decision regarding the inventory management administrative cost and another relevant cost to increase the performance of the organization.

Akinlabi (2021) investigated the impact of inventory management practices on the operational performance of selected flour milling companies in Nigeria. The study utilized a

cross-sectional survey research design, targeting a population of 2,237 employees across the selected companies. A stratified random sampling technique was employed to determine a sample size of 776 respondents. Data were collected using a structured, self-administered questionnaire that was adapted, validated, and found to have Cronbach's alpha coefficients ranging from 0.783 to 0.971, indicating reliability. Of the 776 questionnaires distributed, 82.6% were successfully completed and returned. Descriptive and inferential statistics, including Pearson Product Moment Correlation and Regression Analysis, were used to analyze the data. The findings revealed that Automated inventory systems had a positive and significant relationship with operational performance; Inventory shrinkage was negatively and significantly related to operational performance; Inventory investment showed a positive and significant relationship with operational performance. Inventory record accuracy was positively and significantly associated with operational performance.

Alhassan and Muhammad (2022) examined the impact of inventory management on the financial performance of Nigerian listed manufacturing companies. The study focused on inventory turnover and inventory control and their impacts on the financial performance of Nigerian listed manufacturing firms. The study used both primary and secondary data collected from ten (10) listed manufacturing firms in Nigerian Stock Exchange over a ten-year period from 2011 to 2020. Questionnaire was structured to collect primary data from the employees of store and finance divisions. Data on return on assets as a dependent variable was collected from the annual reports of the selected companies. The study revealed that Inventory Turnover Period (ITP) has an insignificant positive effect on financial performance. As regards, inventory control system, the study revealed that Inventory Procurement Management (IPC) had a significant positive effect on financial performance, in the same direction, Inventory Security Control (ISC) also had a positive and significant impact on the financial performance of Nigerian listed manufacturing enterprises. It was also observed that Inventory Usage Control (IUC) had a substantial positive effect on financial performance. The study indicated that inventory control had a significant impact on the financial performance of quoted companies in Nigeria.

Jonah et. al. (2023) examined the relationship between inventory management and financial performance of listed industrial goods companies in Nigeria. The study used inventory turnover and inventory conversion period as independent variables while the net profit margin and return on assets were used to proxy dependent variables. Secondary data which was collected from the annual reports of ten selected listed industrial goods companies in Nigeria for the 2018 to 2020 financial years. The study adopted an ex-post facto research design. The statistical tools used for the study were descriptive statistics, regression analysis and Pearson's product-moment correlation coefficient. The result of the finding showed that there was a significant positive relation between inventory turnover, inventory conversion period and net profit margin as well as return on assets of listed industrial goods companies in Nigeria.

Odumusor, (2024) examined the effect of inventory availability on the production efficiency of selected manufacturing firms in Calabar, Nigeria. The study adopted the descriptive research design. The population of the study was seven hundred seven (707), which cuts across management and non-management employees in the selected companies. A sample size of 370 was selected using the Taro Yamane formula. The study adopted a stratified random sampling technique, while a standardized questionnaire was used to gather responses from the research participants. The descriptive statistics and Ordinary Least Squares regression were used for statistical analyses. The regression analysis revealed that inventory availability had a significant and positive impact on the organizational production efficiency of the selected

manufacturing businesses in Calabar. The study emphasized the need for maintaining accurate records of inventory to enhance production efficiency**.**

Zhu and Liu (2024) investigated the impact of flexible inventory management on financial performance, focusing on the ability to quickly adjust inventory deviations. Their study also examined the moderating roles of firm growth and firm size. Drawing on empirical data from 1,953 listed manufacturing firms in China between 2005 and 2021, the researchers employed a moderation model and three-way interaction analysis to test their hypotheses. The findings indicated a positive relationship between inventory flexibility and financial performance. However, firm growth was found to weaken this relationship. Additionally, firm size mitigated the negative moderating effect of firm growth on the link between inventory flexibility and financial performance.

Gaps Identified in the Empirical Review

Empirical studies of the link between inventory management and financial performance have concentrated on assessing whether inventory reduction or inventory responsiveness leads to higher financial performance. The empirical reviews provided valuable insights into the relationship between inventory management and financial performance of manufacturing firms in Nigeria, several gaps remain that this study addressed. None of the previous studies incorporated accounts receivable period, accounts payable period, capital structure and firm size as moderating variables. Zhu and Liu (2024), explored firm size and growth. These factors, ARP, APP, capital structure, and firm size—act as moderating variables by shaping a firm's ability to effectively manage its inventory conversion period. Their combined influence determines how efficiently a firm can balance liquidity, profitability, and operational effectiveness while minimizing risks associated with overstocking or stockouts. Many studies aggregated data across various manufacturing sectors without delving into sector-specific impacts. A more detailed analysis within specific sectors (e.g., pharmaceuticals, food and beverages, textiles) can provide tailored insights that general studies might overlook. Several studies utilized relatively short time frames (5-7 years). Extending the period of analysis capture long-term trends and effects of inventory management on financial performance, providing a more robust understanding. The present study covers a period of twelve (12) years 2011-2022. This research will fill these gaps by adopting a comprehensive, approach to investigate the impact of inventory management on the financial performance of manufacturing firms in Nigeria on sectoral basis.

Methodology

This study's research design is quantitative and expo facto with a focus on gathering numerical data to analyse the relationship between inventory management and financial performance of Nigerian listed manufacturing enterprises. The panel data were collated from the annual reports and accounts of the selected manufacturing firms over a period of twelve years (2011-2022). The financial documents provide detailed information on critical factors such as return on assets, inventory conversion period in days, accounts receivable and payable term in days. The population of interest for this study is forty-eight (48) listed manufacturing enterprises in the specific sectors of the manufacturing firms in Nigeria selected for this study. The sample for this is twenty-eight (28) manufacturing companies from four different sectors: consumer products, industrial goods, health, and agricultural manufacturing. The sampling technique is purposeful sampling. These companies were selected based on the availability of the relevant data over the period of the study. The sample's characteristics were summarised using descriptive statistics of means and standard deviations. Correlation analysis was used to

determine the association between inventory management variables and financial performance (return on assets). Panel data regression analyses comprising fixed and random effects models were used to determine the extent to which inventory management variables predict financial performance after accounting for other confounding factors.

Table 1

Population and Sample Size

SEQUENCE NUMBER	SECTORS	POPULATION	SAMPLE SIZE
1	Consumer Goods	20	11
2	Industrial Goods	13	07
4	Agricultural	5	04
5	Healthcare	10	06
	Total	**48**	**28**

Note. Authors' design 2024.

Table 2

Measurement of Variables

Return on Assets (ROA)	(Net Income / Total Assets) * 100.
Inventory Conversion Period in Days	(Inventory / COGS) * 365.
Accounts Receivable Period in Days	(Accounts Receivable / Revenue (sales) * 365.
Accounts Payable Period in Days	(Accounts Payable / Cost of sales. * 365.
Current Ratio	Current Assets/Current Liabilities
Firm Size	Logarithms of Total Assets
Leverage	Total Debt/Total Assets

Note. Authors' design 2024.

Model Specification

$$ROA=\beta 0+\beta 1INVCR_{it}+\beta 2ACRVP_{it}+\beta 3ACPP_{it}+\beta 4CURR_{it}+ +\beta 5FZ_{it}+\beta 6DEBTAR_{it}+\varepsilon$$

Where:

ROA is the Return on Assets, the dependent variable.

INVCR is the Inventory Conversion Period.

ACRVP is the Accounts Receivable Period.

ACPP is the Accounts Payable Period.

CURR is the Current Ratio.

FZ is the Firm Size

DEBTAR is the Debt-to-Equity Ratio.

$\beta 0$ is the intercept term.

$\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$, $\beta 5$, $\beta 6$, $\beta 7$, $\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$, $\beta 5$, $\beta 6$, are the coefficients of the independent variables.

$\varepsilon\varepsilon$ is the error term.

Results and Discussion of Findings

Results

Table 3

Descriptive Statistics of the Selected Manufacturing Firms in Nigeria

Consumer Goods Firms		ROA	INVCP	ACRVP	ACPP	FIRM_SIZE	DEBTAR
	Mean	0.077	91.300	54.241	162.852	1.242	7.460
	Maximum	0.265	208.466	203.110	512.350	8.120	8.824
	Minimum	-0.092	30.292	5.977	7.154	0.412	0.358
	Std. Dev.	0.073	36.524	34.936	86.377	1.786	1.907
Industrial Goods Firms		**ROA**	**INVCP**	**ACRVP**	**ACPP**	**FIRM_SIZE**	**DEBTAR**
	Mean	0.123	108.770	55.171	180.385	7.481	0.473
	Median	0.097	101.965	29.265	149.803	7.216	0.444
	Maximum	0.540	263.517	313.685	1513.351	9.306	0.827
	Minimum	-0.14	45.191	0.0178	20.325	6.271	0.041
	Std. Dev.	0.122	44.934	73.628	167.030	1.007	0.151
Health Care Firms		**ROA**	**INVCP**	**ACRVP**	**ACPP**	**FIRM_SIZE**	**DEBTAR**
	Mean	-0.007	189.928	100.929	252.262	6.717	0.553
	Maximum	0.266	578.583	310.172	1118.744	7.633	1.253
	Minimum	-0.352	65.974	8.343	11.330	5.590	0.215
	Std. Dev.	0.116	105.242	66.250	232.708	0.581	0.175
Agricultural Firms		**ROA**	**INVCP**	**ACRVP**	**ACPP**	**FIRM_SIZE**	**DEBTAR**
	Mean	0.032	194.444	808.309	336.804	7.168	0.586
	Maximum	0.298	577.948	36026.22	3923.742	8.156	1.300
	Minimum	-0.199	52.224	0.162	11.313	6.191	0.178
	Std. Dev.	0.117	129.284	5191.915	620.479	0.531	0.271

Note. Analyzed using EViews

Table 3 presents Descriptive statistics. As regards Consumer goods firms, the average ROA is 0.077, indicating positive profitability, though the range varies widely (from -0.092 to 0.265), suggesting that some firms struggle with profitability. The inventory conversion period (INVCP) has a mean of 91.3 days, with a relatively high standard deviation (36.524). This indicates varying efficiency in inventory management among firms in this sector, which can influence cash flow and profitability. Firm size (mean = 1.242) and DEBTAR (mean = 7.460) suggest relatively high leverage, with larger firms being more financially stable.

In industrial goods manufacturing firms**,** this sector shows a higher average ROA (0.123) than Consumer Goods, with a broader range (from -0.14 to 0.540), indicating variability in profitability. The mean INVCP is 108.77, and the DEBTAR is significantly lower (0.473), suggesting that industrial firms operate with lower leverage.

Health Care firms have a negative average ROA (-0.007), indicating profitability challenges. The large range in ROA (-0.352 to 0.266) highlights financial struggles in parts of this sector. INVCP and ACRVP are notably high, with means of 189.928 and 100.929, respectively, suggesting extended periods in converting inventory and collecting receivables.

Agricultural firms have an average ROA of 0.032, with considerable variability (standard deviation of 0.117), showing inconsistent profitability across firms. The mean INVCP is high (194.444), and ACRVP is significantly elevated at 808.309, indicating prolonged periods for inventory turnover and receivables collection.

Table 4

Correlation Matrix

Consumer Goods

	ROA	INVCP	ACRVP	ACPP	FIRM_SIZE	DEBTAR
ROA	1					
INVCP	-0.3	1				
ACRVP	0.07	-0.02	1			
ACPP	0.02	-0.02	0.56	1		
FIRM_SIZE	-0.04	-0.1	0.24	0.14	1	
DEBTAR	0.01	0.08	-0.27	-0.08	-0.97	1

Note. Analyzed using EViews

Industrial Goods Sector

	ROA	INVCP	ACRVP	ACPP	FIRM_SIZE	DEBTAR
ROA	1					
INVCP	-0.17	1				
ACRVP	-0.15	0.05	1			
ACPP	-0.17	-0.18	0.11	1		
FIRM_SIZE	-0.05	-0.13	-0.09	-0.04	1	
DEBTAR	-0.09	-0.24	-0.12	0.39	-0.28	1

Note. Analyzed using EViews

HealthCare Sector

	ROA	INVCP	ACRVP	ACPP	FIRM_SIZE	DEBTAR
ROA	1					
INVCP	-0.24	1				
ACRVP	-0.38	0.64	1			
ACPP	-0.35	0.09	0.43	1		
FIRM_SIZE	0.68	-0.26	-0.27	-0.29	1	
DEBTAR	-0.11	0.08	0.18	0.45	0.08	1

Note. Analyzed using EViews

Agricultural Firms Sector

	ROA	INVCP	ACRVP	ACPP	FIRM_SIZE	DEBTAR
ROA	1					
INVCP	-0.36	1				
ACRVP	-0.07	0.44	1			
ACPP	-0.16	0.71	0.86	1		
FIRM_SIZE	0.61	-0.17	-0.14	-0.01	1	
DEBTAR	-0.69	0.53	0.19	0.42	-0.45	1

Note. Analyzed using EViews

Table 4 presents correlation matrix. In the consumer goods firms, a negative correlation between ROA and INVCP (-0.3) implies that longer inventory holding periods negatively impact profitability. Firm size and DEBTAR have a strong negative correlation (-0.97), indicating that larger firms tend to rely less on debt financing. In Industrial goods firms, he negative correlation between ROA and both INVCP (-0.17) and DEBTAR (-0.09) suggests that longer inventory periods and higher debt levels might reduce profitability, though these effects are weaker than in the Consumer Goods sector. In the healthcare manufacturing firms, ROA is negatively correlated with ACRVP (-0.38) and ACPP (-0.35), indicating that extended collection and payment periods reduce profitability. FIRM_SIZE shows a strong positive correlation with ROA (0.68), suggesting that larger firms in this sector are more profitable. In the Agricultural manufacturing firms, there is a strong negative correlation between ROA and DEBTAR (-0.69), suggesting that firms with higher debt levels are less profitable. A strong positive correlation between ROA and firm size (0.61) implies that larger firms have a profitability advantage, possibly due to greater operational efficiency and better financial leverage.

Unit Root Tests

The unit root tests indicate that most financial variables (such as ACRVP, ACPP, FIRM_SIZE, and DEBTAR) tend to be non-stationary at level across sectors, suggesting these factors are influenced by trends or external economic conditions. To achieve reliable modeling, these variables must be differenced to ensure their stability.

Table 5

Consumer Goods

Null Hypothesis: Unit root (Individual unit root process)

	At Level			At 1st Difference		
	ADF Fisher Chi-Square	P-Value	Decision	ADF Fisher Chi-Square	P-Value	Decision
ROA	34.432	0.0444	Stationary	-	-	-
INVCP	43.939	0.0036	Stationary	-	-	-
ACRVP	27.542	0.1913	Non-Stationary	93.693	0	Stationary
ACPP	21.881	0.467	Non-Stationary	84.586	0	Stationary
FIRM_SIZE	24.572	0.318	Non-Stationary	77.327	0	Stationary
DEBTAR	8.5724	0.9953	Non-Stationary	55.697	0.0001	Stationary

Note. Analyzed using EViews

In the Consumer Goods Sector, ROA and INVCP are stationary at level, as indicated by p-values less than 0.05 (e.g., ROA has a p-value of 0.0444, INVCP has 0.0036), suggesting these variables are stable and mean-reverting without differencing. ACRVP, ACPP, FIRM_SIZE, and DEBTAR are non-stationary at level, with p-values greater than 0.05, indicating that these variables exhibit trends or fluctuations over time. All non-stationary variables (ACRVP, ACPP, FIRM_SIZE, and DEBTAR) become stationary after first differencing, meaning they stabilize in terms of mean and variance only after this transformation. The stationary nature of ROA and INVCP implies these variables are inherently stable over time in the Consumer Goods sector, making them reliable indicators for modeling profitability and inventory efficiency. The need to difference ACRVP, ACPP, FIRM_SIZE, and DEBTAR suggests that these variables have underlying trends, which, if unaddressed, could distort regression analysis. Differencing stabilizes them, allowing for more accurate modeling and interpretation.

Table 6

Industrial Goods

Null Hypothesis: Unit root (Individual unit root process)

	At Level			At 1st Difference		
	ADF Fisher Chi-Square	P-Value	Decision	ADF Fisher Chi-Square	P-Value	Decision
ROA	35.996	0.001	Stationary	-	-	-
INVCP	29.43	0.0091	Stationary	-	-	-
ACRVP	14.18	0.4364	Non-Stationary	41.91	0.0001	Stationary
ACPP	23.507	0.0525	Non-Stationary	39.3	0.0003	Stationary
FIRM_SIZE	9.0613	0.8271	Non-Stationary	41.121	0.0002	Stationary
DEBTAR	21.345	0.0931	Non-Stationary	57.626	0	Stationary

Note. Analyzed using EViews

In the Industrial Goods Sector, ROA and INVCP are stationary at level (p-values: ROA = 0.001, INVCP = 0.0091), indicating they are consistent and mean-reverting. Other variables, including ACRVP, ACPP, FIRM_SIZE, and DEBTAR, are non-stationary with p-values above 0.05. Non-stationary variables become stationary upon first differencing, which stabilizes their mean and variance for more accurate analysis. ROA and INVCP's stability make them reliable metrics for ongoing assessment without needing transformation.

Table 7

Health Care

Null Hypothesis: Unit root (Individual unit root process)

	At Level			At 1st Difference		
	ADF Fisher Chi-Square	P-Value	Decision	ADF Fisher Chi-Square	P-Value	Decision
ROA	17.664	0.1263	Non-Stationary	60.344	0	Stationary
INVCP	23.471	0.024	Stationary	-	-	-
ACRVP	101.64	0.5604	Non-Stationary	39.658	0.0001	Stationary
ACPP	16.625	0.1642	Non-Stationary	45.659	0	Stationary
FIRM_SIZE	4.7443	0.966	Non-Stationary	33.161	0.0009	Stationary
DEBTAR	23.691	0.0224	Stationary	-	-	-

Note. Analyzed using EViews

In the Health Care Sector, INVCP and DEBTAR are stationary at level (p-values: INVCP = 0.024, DEBTAR = 0.0224), which suggests these are stable, mean-reverting factors in this sector. ROA, ACRVP, ACPP, and FIRM_SIZE are non-stationary at level, implying variability and potential trends. All non-stationary variables (ROA, ACRVP, ACPP, and FIRM_SIZE) become stationary after differencing, meaning they stabilize for analysis after accounting for trends. The stationary nature of INVCP and DEBTAR means these variables are consistent, allowing firms to use them reliably to assess financial and inventory stability.

Table 8
Agricultural Sector

	At Level			At 1st Difference		
	ADF Fisher Chi-Square	P-Value	Decision	ADF Fisher Chi-Square	P-Value	Decision
ROA	12.409	0.1339	Non-Stationary	25.499	0.0013	Stationary
INVCP	17.718	0.0234	Stationary	-	-	-
ACRVP	10.954	0.2043	Non-Stationary	41.227	0	Stationary
ACPP	8.4676	0.3892	Non-Stationary	28.346	0.004	Stationary
FIRM_SIZE	4.8424	0.7743	Non-Stationary	25.154	0.0015	Stationary
DEBTAR	5.4087	0.7131	Non-Stationary	24.143	0.0022	Stationary

Note. Analyzed using EViews

Agricultural Sector, INVCP is stationary at level (p-value = 0.0234), meaning inventory management is relatively consistent in this sector. ROA, ACRVP, ACPP, FIRM_SIZE, and DEBTAR are non-stationary, indicating that these metrics experience trends and variability over time. INVCP's stability indicates predictable inventory turnover, a valuable asset for agricultural firms dealing with perishable products or seasonal cycles.

Overall implication across sectors, ROA and INVCP tend to be more stable, meaning profitability and inventory turnover may serve as more reliable indicators for short-term financial planning without needing further transformation.

Panel Data Regression Analysis

Table 9

Hausman Specification Tests: Consumer Goods Manufacturing Firms

Test Summary		**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
Period random		13.916006	5	0.0162
Variable	**Fixed**	**Random**	**Var (Diff.)**	**Prob.**
INVCP	-0.0005	-0.000762	0	0.0297
D(ACRVP)	0.0001	0.000109	0	0.925
D(ACPP)	-4E-05	-0.000075	0	0.2209
D(FIRM_SIZE)	0.0473	0.031541	0.000257	0.3261
D(DEBTAR)	0.0361	0.018591	0.000231	0.2494

Note. Analyzed using EViews

Table 10

Fixed Effect Model

Dependent Variable: ROA
Method: Fixed Effect Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.120075	0.022580	5.317810	0.0000
INVCP	-0.000539	0.000244	-2.211125	0.0294
D(ACRVP)	0.000102	0.000225	0.455239	0.6500
D(ACPP)	-3.57E-05	0.000101	-0.351403	0.7261
D(FIRM_SIZE)	0.047291	0.043211	1.094438	0.2765
D(DEBTAR)	0.036107	0.040985	0.880978	0.3806
Cross-section		Fixed Effect		
Unilever Plc		-0.030723		
Cadbury Nig		-0.051589		
PZ Cussons Nig Plc		0.007761		
Nestle Nig Plc		0.095988		
Flour Mills		-0.046502		
Honeywell Flour		-0.064380		
Guinness Plc		-0.037246		
Nigerian Breweries		-0.009707		
Vitaform Nig Plc		0.043608		
Dangote Sugar Refinery		0.046093		
Nascon Allied Industries		0.046697		

Note. Analyzed using EViews

Table 9 and Table 10 present the results of Hausman test and random effect of panel data regression respectively in the Consumer goods sector. The Chi-Sq. statistic is 13.916 with a p-value of 0.0162, which is below 0.05. This indicates that the fixed effects model is more appropriate for this sector, suggesting that firm-specific characteristics play a significant role in explaining profitability (ROA) in Consumer Goods firms.

The Fixed Effect Model in Table 10 examines how various factors influence the Return on Assets (ROA) for a sample of industrial manufacturing firms. Looking at the results, the constant term (C) has a coefficient of 0.120075, which is statistically significant (p-value = 0.0000). This indicates that, on average, when all other variables are held constant, ROA is

expected to be 0.120075. This suggests a baseline level of profitability across the firms in the sample, independent of changes in the variables studied.

The inventory conversion period (INVCP) has a negative coefficient of -0.000539, which is statistically significant (p-value = 0.0294). This suggests that as the inventory conversion period (the time required to turn inventory into sales) increases, ROA decreases. This result implies that firms with more efficient inventory management, indicated by shorter conversion periods, tend to experience higher profitability, likely due to quicker asset turnover and lower holding costs.

D(ACRVP), D(ACPP), D(FIRM_SIZE), D(DEBTAR): These variables are not significant in this model, indicating they may not substantially affect ROA in this sector.

Firm-specific fixed effects provide insight into inherent profitability differences across firms. For example, Nestle Nig Plc shows a positive fixed effect (0.095988), suggesting it has a relatively higher baseline ROA compared to other firms in the sample. In contrast, firms like Cadbury Nig and Honeywell Flour have negative fixed effects, indicating that they tend to have a lower baseline ROA, all else being equal. These fixed effects suggest that some firms may possess unique characteristics or efficiencies that influence profitability beyond the variables analyzed in this model.

In conclusion, the results highlight that inventory management efficiency (as represented by the inventory conversion period) is the only variable with a statistically significant effect on ROA. This suggests that improving inventory turnover could positively impact profitability.

Table 11

Hausman Specification Tests: Industrial Goods Manufacturing Firms

Test Summary		**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
Period random effect		1.9578	5	0.855
Variable	**Fixed**	**Random**	**Var (Diff.)**	**Prob.**
INVCP	-0.001092	-0.001112	0	0.8419
D(ACRVP)	-0.000118	-0.000086	0	0.7658
D(ACPP)	-0.000101	-0.000077	0	0.3153
D(FIRM_SIZE)	-0.015967	-0.009152	0.00009	0.4722
DEBTAR	-0.298001	-0.31998	0.000854	0.4521

Note. Analyzed using EViews

Table 12

Random Effect

Dependent Variable: ROA

Method: Panel EGLS (Period random effects)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.23902	0.030905	7.73404	0
INVCP	-0.001112	0.000279	-3.989577	0.0002
D(ACRVP)	-8.64E-05	0.000253	-0.340954	0.7342
D(ACPP)	-7.67E-05	5.33E-05	-1.440407	0.1546
D(FIRM_SIZE)	-0.009152	0.024041	-0.380671	0.7047
D(DEBTAR)	-0.31998	0.082088	-3.898011	0.0002

Note. Analyzed using EViews

In Table 11, the Chi-Sq. statistic is 1.9578 with a p-value of 0.855, which is greater than 0.05. This result supports the use of the random effects model, indicating that differences across firms are more random and are not strongly influenced by unique firm characteristics.

In Table 12, intercept (C) indicates the positive intercept (p=0.000) suggests an overall profitable baseline for firms in this sector. INVCP, this variable has a significant negative effect on ROA (-0.001112, p=0.0002), implying that an extended inventory conversion period reduces profitability. DEBTAR also negatively impacts ROA (-0.31998, p=0.0002), suggesting that higher leverage is associated with lower profitability. D(ACRVP), D(ACPP), D(FIRM_SIZE), these variables are not significant, indicating they may have a lesser role in affecting profitability in this sector.

The random effects model's appropriateness suggests that firm-specific factors are less critical in this sector; instead, general industry practices affect profitability. Inventory management and debt levels are key, and firms should strive to manage inventory conversion times efficiently and limit debt usage to avoid negative impacts on profitability.

Table 13

Health Care Firms

Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random effect		3.782	5	0.5812
Variable	**Fixed**	**Random**	**Var (Diff.)**	**Prob.**
INVCP	-0.000167	-0.000107	0	0.398
D(ACRVP)	-0.000789	-0.000608	0	0.3718
D(ACPP)	0.000081	0.000096	0	0.8066
D(FIRM_SIZE)	0.29304	0.269919	0.006466	0.7737
DEBTAR	0.036043	-0.022835	0.002069	0.1956

Note. Analyzed using EViews

Table 14

Random Effect

Dependent Variable: D(ROA)
Method: Panel EGLS (Period random effects)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.020357	0.066028	0.308304	0.759
INVCP	-0.000107	0.000221	-0.483015	0.631
D(ACRVP)	-0.000608	0.000364	-1.67058	0.1005
D(ACPP)	9.60E-05	0.00013	0.741223	0.4617
D(FIRM_SIZE)	0.269919	0.136959	1.9708	0.0538
DEBTAR	-0.022835	0.100294	-0.227685	0.8207

Note. Analyzed using EViews

In Table 13, the Chi-Sq. statistic is 3.782 with a p-value of 0.5812, supporting the random effects model, as the p-value is above 0.05. This suggests that firm-specific factors are less influential, and the variation in profitability can be attributed more to general industry conditions or random factors.

In Table 14, intercept (C), is not statistically significant, indicating no meaningful baseline profitability across Health Care firms in this sector. D(FIRM_SIZE): This variable shows a positive but borderline significant relationship with ROA (coefficient = 0.269919, p=0.0538), suggesting that larger firms might experience higher profitability. D(ACRVP), D(ACPP), DEBTAR, INVCP: These variables do not have statistically significant coefficients, indicating a weak or non-existent relationship with ROA in this model.

The results suggest that larger firms might have a profitability advantage, possibly due to economies of scale, but there is no strong indication that specific variables like debt levels or payment periods impact profitability. Thus, growth strategies to increase firm size might be beneficial, though the sector appears less dependent on specific financial ratios or practices.

Table 15

Agricultural Firms

Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random		43.967	5	0.5542
Variable	**Fixed**	**Random**	**Var (Diff.)**	**Prob.**
INVCP	0.000204	0.000062	0	0.305
D(ACRVP)	-0.000001	0.000001	0	0.6114
D(ACPP)	0.000041	0.000022	0	0.5056
D(FIRM_SIZE)	0.148632	0.124349	0.01739	0.8539
D(DEBTAR)	-0.24717	-0.171656	0.012634	0.5017

Note. Analyzed using EViews

Table 16

Random Effect Model

Dependent Variable: D(ROA)

Method: Panel EGLS (Period random effects)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.019117	0.03505	-0.545402	0.5889
INVCP	6.17E-05	0.000153	0.403302	0.6892
D(ACRVP)	5.20E-07	5.02E-06	0.103718	0.918
D(ACPP)	2.21E-05	5.31E-05	0.414976	0.6807
D(FIRM_SIZE)	0.124349	0.12522	0.993046	0.3275
D(DEBTAR)	-0.171656	0.156149	-1.099311	0.2791

Note. Analyzed using EViews

In Table 15 the Chi-Sq. statistic is 43.967 with a p-value of 0.5542, favoring the random effects model. This result suggests that differences in profitability are largely random rather than firm-specific.

In Table 16 Intercept (C) is not significant, indicating no notable baseline profitability in this sector. D(FIRM_SIZE), while positive, the coefficient for firm size is not statistically significant, suggesting that increases in firm size do not necessarily contribute to profitability. INVCP, D(ACRVP), D(ACPP), DEBTAR, these variables are also not statistically significant, showing that they may not have a direct impact on profitability in the agricultural sector.

In the Agricultural sector, the lack of significant results across variables suggests that profitability may be influenced by external factors not captured in the model, such as environmental conditions, market prices for agricultural products, or government policies. The random effects model's preference further implies that firm-specific characteristics are less influential, and sector-wide trends likely drive performance. Firms may need to focus on broader risk management practices, like diversification and market adaptation, rather than specific financial management metrics.

Discussion of Findings

The findings reveal distinct relationships between inventory management practices and financial performance across the sectors examined.

In the Consumer Goods Sector, the fixed effects model was preferred, emphasizing that firm-specific factors significantly affect profitability (ROA) in this sector. INVCP showed a negative impact on ROA, indicating that efficient inventory conversion is crucial for enhancing profitability. This aligns with Deloof (2003) and Koumanakos (2008), who highlighted the significance of inventory management efficiency in improving firm performance.

In Industrial Goods Sector, the random effects model was selected, suggesting that variations in financial performance are not heavily driven by individual firm characteristics but rather by broader industry practices. INVCP and DEBTAR were negatively associated with ROA, emphasizing that longer inventory periods and high debt levels reduce profitability.

In Health Care Sector, the random effects model was also suitable here, with firm size showing a marginally significant positive effect on profitability, suggesting economies of scale might benefit larger firms. These results suggest that Health Care firms in Nigeria focused on operational expansion rather than inventory-specific strategies, reflecting sectoral nuances.

In Agricultural Sector, the random effects model was used, with no significant influence of inventory metrics or firm size on profitability. This suggests that external factors such as market prices or environmental conditions might be more critical.

This study emphasizes the importance of inventory-related metrics, such as inventory turnover, conversion periods, and debt management, in influencing financial performance. Inventory Conversion Period (INVCP) as a critical factor, particularly in the Consumer Goods and Industrial Goods sectors, where efficient conversion positively impacts profitability. Similar metrics (e.g., inventory days, inventory turnover) are highlighted in studies like Dedunu and Weerasinghae (2018) and Pong and Mitchell (2012), linking inventory efficiency to profitability.

This study specifically analyzes sectoral variations in inventory management's impact on financial performance, whereas many reviewed studies (e.g., Jonah et al., 2023) focus on aggregate impacts across sectors. This sector-specific approach aligns with findings from studies like Zhu and Liu (2024), which emphasize the importance of moderating variables like firm size and growth in sectoral contexts.

This research introduces Accounts Receivable Period (ARP), Accounts Payable Period (APP), capital structure, and firm size as moderating factors, enriching the analysis. Zhu and Liu (2024), explored firm size and growth. The moderating variables were comprehensively examined, making this study a more integrative investigation.

This study uniquely identifies sector-specific drivers (e.g., firm size influencing profitability in Health Care, and inventory turnover in Industrial Goods). In contrast, studies like Dedunu and Weerasinghae (2018) and Alhassan and Muhammad (2022) aggregate findings without focusing on sectoral nuances.

This research spans 12 years (2011–2022), capturing long-term trends. Many empirical studies (e.g., Jonah et al., 2023, with a 3-year window) analyze shorter periods, potentially missing broader trends.

The inclusion of variables like ARP and APP in your study extends beyond traditional metrics (e.g., inventory turnover in Pong & Mitchell, 2012) to explore working capital and liquidity effects. This broader approach contrasts with the narrower scopes of many reviewed studies.

This research exclusively examines Nigerian manufacturing firms, whereas reviewed studies often focus on different countries or regions (e.g., the UK and Germany in Pong & Mitchell, 2012, and China in Zhu & Liu, 2024). This makes your findings highly contextualized for Nigeria.

This contributes a deeper understanding of inventory management's sectoral impacts and introduces additional moderating variables. This sets it apart from many reviewed studies that lack this level of specificity or fail to explore long-term trends. The research also fills empirical gaps by offering a tailored approach to Nigerian manufacturing firms, emphasizing the need for sector-specific strategies to optimize financial performance.

Contribution to Knowledge

This study contributes to the existing body of knowledge in the following ways:

1. it provides a comprehensive analysis of the impact of inventory management on the financial performance of listed manufacturing firms in Nigeria across various sectors, filling a gap in the literature,
2. the study highlights the varying effects of inventory management practices on financial performance across different manufacturing sectors, emphasizing the need for sector-specific approaches and strategies,
3. the findings offer insights into the relative importance of inventory management for profitability and asset utilization in different manufacturing sectors, guiding decision-making processes for firms and policymakers,
4. the study contributes to the understanding of the contingency theory of inventory management by examining the relationship between inventory management practices and financial performance in the context of the Nigerian manufacturing sector,
5. the research provides a foundation for further studies and investigations into the interplay between inventory management, operational efficiency, and financial performance in the Nigerian manufacturing sector.

Suggestions for Further Studies

While this study provides valuable insights into the relationship between inventory management and financial performance in the Nigerian manufacturing sector, there are opportunities for further research:

1. future studies could explore the impact of specific inventory management techniques, such as just-in-time (JIT), vendor-managed inventory (VMI), and material requirements planning (MRP), on financial performance across different manufacturing sectors,
2. qualitative research, including case studies and interviews with industry experts, can shed light on inventory management difficulties, best practices, and decision-making processes in Nigeria's manufacturing sector,
3. comparative studies with other countries or regions could shed light on the unique challenges and opportunities faced by Nigerian manufacturing firms in implementing effective inventory management practices and their impact on financial performance.

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