POLAC INTERNATIONAL JOURNAL OF ECONS & MGT SCIENCE (PIJEMS)
DEPARTMENT OF ECONOMICS & MANAGEMENT SCIENCE NIGERIA
POLICE ACADEMY, WUDIL-KANO

EFFECT OF INVENTORY MANAGEMENT AND CONTROL ON FINANCIAL PERFORMANCE OF DANGOTE CEMENT PLC

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Abstract

This study examined the effect of inventory management and control on the financial performance of manufacturing companies in Nigeria, using Dangote Cement Plc as a case study. The objectives were to determine the effect of Inventory Turnover (ITR) and Inventory Conversion Period (ICP) on Return on Assets (ROA) of the company. Secondary data were obtained from the audited annual reports of Dangote Cement Plc for a period of five years (2020-2024), and the data were analyzed using regression analysis. The findings revealed that both Inventory Turnover and Inventory Conversion Period have positive and significant effects on the financial performance of the company. This implies that efficient inventory management practices enhance profitability and asset utilization in manufacturing firms. The study concludes that proper inventory control contributes significantly to improved liquidity, reduced holding costs, and sustainable operational efficiency. It recommends that manufacturing companies adopt modern inventory management systems, and should maintain optimal stock levels in order to achieve long-term profitability. The study contributes to existing literature by providing empirical evidence from Nigeria's manufacturing sector and underscores the importance of inventory management as a strategic tool for enhancing firm performance.

Keywords: Inventory, Management, Financial Performance, Cement

1. Introduction

Globally, inventory control is still a critical constituent of every enterprises owing to the fact that ineffective inventory systems could lead to forfeiture of clients and revenues of companies whereas efficient inventory control brings about increase in sales for the business. it play a crucial role in determining the financial performance and competitiveness of manufacturing firms. In today's dynamic business environment, where cost efficiency and customer satisfaction are critical, managing inventory effectively has become a strategic necessity rather than a mere operational function. Inventory constitutes a significant portion of a manufacturing firm's current assets, and improper handling either through overstocking or stock-out scan adversely affect liquidity, profitability, and production continuity. Inventory of all kinds represent a major component of capital, and the success or failure of a business depends on the performance of its inventory management, since effective inventory management not only helps to solve the liquidity problem, but also increases the company's profitability (Dangote Cement 2019 Financial Reports). Inventory also plays an important role in determining the financial positions of these organizations, and it effectively contributes to determining their profitability. According to (Dangote Cement 2019 Financial Reports) any company's ability to succeed and expand depends on having an adequate and timely flow of inventory. An enterprise's inventory of raw materials is often considered current assets because of the frequency of consumption in a given year

In Nigeria, the manufacturing sector faces several challenges, including supply chain disruptions, inflationary pressures, and foreign exchange volatility, all of which underscore the importance

of effective inventory management practices. For leading firms like Dangote Cement Plc, maintaining optimal inventory levels is essential to ensure uninterrupted production, minimize holding costs, and enhance profitability. Proper inventory control systems enable such firms to streamline production processes, reduce waste, and improve cost management, thereby contributing positively to their financial performance. This study therefore examines the effect of inventory management and control on the financial performance of manufacturing companies in Nigeria,

2. Literature Review

inventory management is defined as keeping an eye on the supplies required for manufacturing and striving to supply them in accordance with the schedules that have been set in order to guarantee the regularity of operations and the utilization of capabilities, which results in lower costs and the regular delivery of finished goods to clients on predetermined dates . A company's ability to generate revenue and expand its operations through the use of assets from its primary mode of business is measured subjectively by its financial performance (Njoroge & Opuodho, 2022).

Theories have shown the relationship between inventory control and financial performance, for instance theory of Lean Inventory propounded by Henry Ford in 1450 stress that companies should maintain the smallest quantity of inventory required to satisfy the requirements of their manufacturing procedures (Edwin & Florence, 2015). While Conservative Plan Theory of Working Capital formulated by Brigham and Gapenski in 1987. argue that the expense incurred in Working capital is funded at the expense of the long-term fund, which is calculated by multiplying the average yearly loan amount by the long-term rate of interest.

Recent emipirical studies on the subject include the work of Rodrigo *et al*. (2020) whose study indicate that the market value added of a company, cash flow from operations, and return on assets are significantly impacted negatively by the inventory conversion period.

Ugwu and Nwakoby (2020) looked at how Nigerian firms performed in relation to inventory management. The study revealed that inventory management model techniques significantly improve firm performance. Orobia *et al.* (2019) found a correlation between financial performance, managerial competence, and inventory management.

Yakubu, *et al*. (2019) found that a subgroup of Nigerian listed enterprises had considerably better financial performance when their inventory turnover ratio was higher. Folajimi, et al. (2020) found that security control, usage control procurement control of inventories significantly influences financial performance, while inventory turnover had a minor positive effect on performance.

Etale and Sawyer (2020) results showed that all predictive indicators and return on assets had a positive link at the 5% level, while only the inventory to asset ratio was significant. Emmanuel *et al.* (2021) findings demonstrated a substantial positive relationship at the 5% significant level between return on capital employed, firm growth, and effective inventory management practices in addition to a positive and non-significant association between return on investment and inventory management practices.

Tarurhor *et al*. (2022) analyzed the performance of listed manufacturing businesses in Nigeria in relation to inventory management. Longitudinal research method was applied. 40 manufacturing firms listed between 2010 and 2020 on the Nigerian exchange constitutes the study’s sample.
Fatie and Ali (2022) Findings indicate that inventory management frequently enhances

financial performance of consumer goods businesses. Muhammad (2022). discovered that Nigerian listed industrial businesses' financial performance is significantly improved by inventory control. Jonah, *et al*. (2023) examined the connection between inventory management and performance of listed industrial products businesses in Nigeria. Ex post facto research approach was applied. Ikechi, *et al*. (2023) discovered that turnover of accounts receivable and account payable turnover had considerable beneficial influence on ROA of manufacturing businesses.

3. Methodology

This study is designed to cover specifically Dangote cement plc during a five year period, 2020-2024 using extracted data from annual reports and accounts of Dangote cement PLC for the period of the study. The population consists of the four (4) listed cement firms on the Nigeria exchange group (NGX) as at 31st December, 2024. Using a purposive sampling technique, Dangote cement plc was chosen as a sample for this study. Dangote Cement Plc was chosen because of its proven record of quality, reliability and offering locally produced goods that meet the international standards.

3.1 Model Specification

The model adapted from the work of Mathuva (2010), with a little modification.

$$\mathbf{ROA = \beta_0 + \beta_1\ ITO_{it} + \beta_2\ ICP_{it} + \beta_3\ FS_{it} + £_0}$$

Where

ROA= Return on Assets (Proxy for Financial Performance)

ITO=Inventory turn over

ICP= Inventory conversion period

FS = Firm Size

β_0 = Constant

β_1 - β_2 = Coefficient of the variables

$£_1$ = Error term

3.2 Variable Measurement

The variables of the study and their measurements are presented in Table 1 as follows:

Table 1: Variable Measurement

Variables	Measurement
Return of asset (ROA)	(Net Income ÷ Total Assets) x 100 (Nassaza, 2018).
Inventory turnover (ITR)	Cost of goods sold ÷ Average Inventory (Mathuva, 2010).
Inventory conversion period (ICP)	(Average Inventory/ Cost of goods sold) x 365 (Mathuva, 2010).
Firm Size	Natural Logarithm of total assets (Nassaza, 2018).

Source: Author's compilation (2025)

4. Results and Discussion

4.1 Descriptive Statistics

The descriptive statistics in Table 2 shows that the return on asset (ROA) has a minimum value of 0.6979, Maximum value of 1.3384; mean value of 0.930400 and standard deviation of 0. .2569009, inventory turnover (ITR) has a minimum value of approximately 0.1675, Maximum value of 0.7798, Mean value of 0.4374 and standard deviation value of 0.5428167, Inventory conversion period (ICP) has a minimum value of 60 days, Maximum value of 239 days, Mean value of 119.84 days and standard deviation of 105.483 while Firm Size (FS) has a minimum value of 8.17, Maximum value of 8.39, Mean value of 8.2568 and standard deviation value of 0.08659 respectively

Table 2: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	5	.6979	1.3384	.930400.2569009	
ITR	5	.1675	.7798	.4374	.5428167
ICP	5	60.59	239.08	119.84	105.483
FS	5	8.17	8.39	8.2568	.08659

Source: SPSS outputs (2025)

The Correlations table above shows that ROA has a positive relationship with inventory turnover (ITR), inventory conversion period (ICP), and firm size (FS). Also, the correlation table shows that there exist moderate correlations among the independent variables, which proof the absence of autocorrelation.

4.2. Correlation Analysis

The correlation result of the study is shown in Table 3 thus:

Table 3: Correlation Results

	ROA	ITR	ICP	FS
ROA	1.000			
ITR	0.557	1.000		
ICP	0.593	0.185	1.000	
FS	0.634	0.258	0.464	1.000

Source: SPSS outputs (2025)

The result of the regression analysis shows a constant value of 22.894 which is significant at 1% (p-value = 0.001). Table 4 also shows that R square is 0.847 while Adjusted R square is 0.788 which indicates that about 78% of the variations in the dependent variable are accounted for by the independent variables. In addition, the estimated F-Statistics value is 5.942 which is significant at 1% (p-value less than 0.05 ($p<0.05$), indicates the fitness of the model.

Table 4: Regression Results

Variables	Coefficient	Std. Error	T	Sig.
(Constant)	22.894	5.855	3.910	0.001
ITR	0.026	0.027	0.891	0.026
ICP	0.039	1.223	0.850	0.000
FS	2.629	0.788	3.338	0.071
R^2	0.847			
Adjusted R^2	0.788			
F-Statistics	5.942			
Prob. of F	0.002			

Source: SPSS Output (2025).

4.3 Discussion of findings

The regression result in Table 4 revealed that Inventory Turnover (ITR) has a positive and significant effect on Return on Assets (ROA) of manufacturing companies in Nigeria. This finding aligns with several prior studies. For instance, Enyi (2019) found a positive relationship between inventory turnover and profitability among Nigerian manufacturing firms, suggesting that firms that effectively manage their inventory cycles experience improved financial outcomes. Similarly, Akindipe (2020) reported that higher inventory turnover enhances profitability by reducing holding costs and promoting efficient resource utilization. Adebayo and Adedokun (2021) also observed a significant positive association between inventory turnover and ROA among cement manufacturing firms in Nigeria, concluding that rapid inventory movement positively influences financial performance.

However, the result contrasts with the findings of Owolabi and Dada (2018), who reported a negative relationship between inventory turnover and profitability in selected manufacturing companies. They argued that excessive turnover may lead to frequent stockouts and production interruptions, which could harm profitability.

The analysis also revealed that the Inventory Conversion Period (ICP) has a positive and significant effect on ROA. This suggests that as the time taken to convert inventory into finished goods and eventually into sales increases within a reasonable range, the firm's profitability tends to improve. A positive relationship between ICP and ROA may indicate that the company manages its production and sales cycles efficiently, ensuring that inventory is converted into cash at a pace that supports steady operations and revenue generation.

This finding is consistent with the work of Ukaegbu (2014), who found a positive association between inventory conversion period and profitability among manufacturing firms in selected African countries. He argued that longer but well-managed conversion periods may allow firms to take advantage of economies of scale and maintain stable operations. Similarly, Akinlo and Asaolu (2019) reported that efficient management of the cash conversion cycle, including the inventory conversion component, significantly enhances firms' profitability in Nigeria's manufacturing sector.

Conversely, the result contradicts the findings of Lazaridis and Tryfonidis (2006) and Raheman and Nasr (2007), who found a negative relationship between ICP and profitability, asserting that prolonged inventory conversion periods tie up funds and reduce liquidity, thereby harming performance. The divergence may be due to differences in operational efficiency, industry characteristics, or firm size. For a large-scale manufacturer like Dangote Cement Plc, maintaining a balanced conversion period may indeed foster stability and profitability rather than impose liquidity constraints..

5. Conclusion and Recommendations

Based on the findings, the study concludes that inventory management and control have a significant positive effect on the financial performance of manufacturing companies in Nigeria. Efficient management of inventory turnover enhances profitability through optimal resource utilization and improved cash flow, while an effectively controlled inventory conversion period ensures continuous production and customer satisfaction.

The study thus establishes that sound inventory management practices are integral to achieving strong financial performance in manufacturing firms. Manufacturing companies that maintain appropriate inventory policies and employ modern control systems are better positioned to minimize costs, avoid production delays, and maximize returns on assets.

In line with the outcomes of the study, the researcher hereby recommends that the management of Dangote cement Plc should continuously evaluate their inventory policies to ensure they maintain optimal stock levels neither excessive nor insufficient to balance between liquidity and profitability. They should also invest in automated and data-driven inventory management systems such as Enterprise Resource Planning (ERP) and Just-in-Time (JIT) models to enhance accuracy, reduce wastage, and improve inventory control.

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