The Journal of Accounting and Management

Inventory Control System and Profitability of Companies: A Study of Selected Listed Firms in Nigeria

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Abstract: Inventory management is critical to a company's efficient operations. Inventory management is a crucial aspect of profitability. The purpose of the study was to determine the impact of inventory management on the profitability of two (2) industrial goods firms listed on the Nigerian Stock Exchange. The independent variable (Inventory Management) was measured using opening inventory, closing inventory and average inventory. The dependent variable (Firm Profitability) was measured using Profit After Tax gathered for the study for a period of 5 years (2015-2019), was analysed using descriptive statistics, correlation analysis and ordinary least square method. The results of the study showed that inventory management had a significant effect on Profit After Tax. Therefore, the study recommends that in order for companies to improve on their Net Profits as a measure of profitability, they should implement strategies in order to improve their inventory management systems.

Keywords: Inventory management; Profitability; Firms

JEL Classification: G31; L25

1. Introduction

The items and supplies that a company keeps on hand for resale or repair purposes.is referred to as inventory. Inventory can be regarded as one of the most important liquid assets that a business entity could have, due to the fact that inventory is considered as one of the main sources, by which revenue is generated and subsequently increases the earnings of a company's shareholders.

Industrial goods companies all over the world have run into challenges in their daily activities. This has been particularly noticeable in areas where companies must constantly contend with physical products or inventories. Some of the reasons for the decline in industrial goods company performance include insufficient or improper inventory management by firms. Many problems have arisen, all of which are posing a threat to the performance of many industrial goods firms. Low product rotation, excess inventory, obsolete inventory, inability to monitor stock, low quality of service, and complexity in recognizing demands are just but a few of the problems these companies confront. (Sonko & Akinlabi, 2020).

The management of material control, utilization, and acquisition is referred to as inventory control (Prempeh, 2016). Since it is directly linked to demand, it also serves the function of bringing the right

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inventory to the proper place at the perfect time in the right quantity. Any company's goal is to get a good return on every amount invested in it (Prempeh, 2016).

Stock management and control contribute major challenges for many businesses, and efficient inventory management in the supply chain is one of the most important aspects in stock management and control. Inventory management is important for a company's growth and long-term viability, because poor and ineffective inventory management results in. the loss of customers and a decrease in revenue (Sonko & Akinlabi, 2020)

Profitability refers to how much money a company can make from the capital it has. The ultimate aim of every business is to maximize its profits. As a result, businesses will be able to reap the benefits of improved profitability. Profitability plays an imperative role in assessing an establishment's performance (Niresh & Thirunavukkarasu, 2014).

Inventory remains an important component of liquid assets, especially in industrial goods companies. Massive sums of money have been re-committed to inventories in order to maintain a level flow of supply and satisfy market demand. The task at hand is to establish an equilibrium amongst inventory supply and demand (Amahalu, 2018).

The key intention of inventory management is in the direction of striking an equilibrium between the competing. economics of not having to keep too little or excess stock at any given time (Kumar & Bahl, 2014).

In an ideal world, businesses should better control their inventories in order to maximize operational productivity and effectiveness, which would result in a profit increase. Many organizations claim to efficiently control their inventories, but despite their claims, several issues exist, including stock outs, obsolete inventory, decreased efficiency and profitability, and consumer dissatisfaction (Agu, Obi-Anike, & Nnate, 2016).

According to Tom-Jose et al; (2013), In most businesses, inventory investment is the largest component of current assets. This will, of course, necessarily require a large amount of resource commitment in order to ensure a smooth flow of production/operations while still meeting customer demand as a result, research into the connection between inventory management and profitability is needed in an organization. Many industrial goods companies in Nigeria are faced with the problems of effective inventory management system and practices. The concerns of this include material procurement, storage; stock-out and unpredictable change in prices and conversion period.

The fact that not many studies looked into inventory management in the industrial goods industry was one of the differences found from previous literatures. Several studies in this field have concentrated on the brewery industry and consumer goods industry, while others have chosen companies at random to conduct their research on. In this regard, a thorough examination of the industrial goods industry is essential, in order to discover the consequential outcome of a proper inventory management arrangement.

Therefore, in view of the above, this study was undertaken to measure the influence of Inventory management on the profitability of listed industrial goods firms in Nigeria.

1.1. Objectives of the Study

The comprehensive objective of this research study is to evaluate the influence of Inventory management on the profitability of selected listed industrial goods companies in Nigeria.

Specifically, the study addresses the following objectives:

i. Determine the relationship between opening inventory and the profitability of selected listed industrial goods companies in Nigeria.

ii. Examine the effect of closing inventory on the Profitability of selected listed industrial goods companies in Nigeria.

iii. Ascertain the effect of average inventory on the Profitability of selected listed industrial goods companies in Nigeria.

1.2. Research Hypothesis

The subsequent research hypotheses have been expressed to guide the study. The hypotheses guiding the study are stated in its null form;

$H0_1$: There is no significant impact of opening inventory on the profitability of industrial goods companies in Nigeria

$H0_2$: There is no significant impact of closing inventory on the profitability industrial goods companies in Nigeria

$H0_3$: There is no significant impact of average inventory on the profitability of industrial goods companies in Nigeria

2. Literature Review

The conceptual framework provides a detailed assessment of the various concepts of Inventory management as the independent variable and profitability of companies as the dependent variable. This section explains the links between the variables as well as how they pertain to the research project in great detail. In this study, the variables will be depicted visually, as illustrated below:

Inventory Management and Profitability of Companies

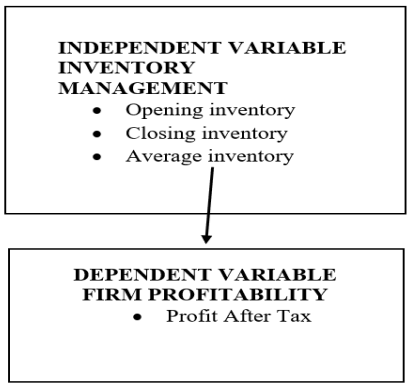

Figure 2.1. Operationalization of Variables

Source: Researchers Computation 2021

2.1. Inventory

Inventory has been defined in many ways, Inventory is a critical asset for many businesses since it offers a source of returns in the near future by means of sales of items and it is frequently a large asset presented in fiscal statements. (Gokhale & Kaloji, 2018).

The selection of raw materials and nearly finished goods, occasionally referred to as work-in-progress. and finalized commodities that an organization keeps on hand to fulfil its operating requirements is known as inventory. Inventory is a stock of items maintained on hand in expectation of possible future demand by a firm. (Sheikh, 2018)

For effective processing and in-transit management, any business endeavour requires a suitable amount of inventory. Because inventory is an inactive asset with a elevated holding cost, it is always desirable to retain inventory investment to its lowest amount. Perpetually, the right measure of inventory should be obtainable, neither more nor less than is required (Panigrahi, 2013).

2.1.1. IAS 2 Inventories

IAS 2 explains how to compute the cost of inventories and then record the cost as an expense, including any write-downs to net realizable worth. It also includes advice on how to assign expenses to inventory using cost formulae. In order to determine inventories, the smaller of cost and net realisable value is employed. The net realisable value is the anticipated selling price in the ordinary course of commercial activities less the expected completion expenses and the financial projections required to execute the transaction. (IFRS, 2021).

The cost of inventory encompasses all acquisition costs, conversion charges (direct labor and production overhead), as well as other costs associated with transferring stocks to their current location and state.

Explicit cost assessment is utilized for inventory items that are not often replaceable; for products that are typically similar, the first-in, first-out or weighted average cost method is employed (Generally, a vast number of inconsequential items) (IFRS, 2021).

The carrying value of the inventory is recognized as an expenditure in the same period as the relevant earnings when inventories are transferred. All stock losses and write-downs on the net achievable value will be reported as expenses in the time the drop or loss takes place. (IFRS, 2021).

2.1.2. Components of Inventory

Raw materials/components, WIP, finished goods, and Maintenance, Repair and Operations (MRO) are the four primary forms of inventory. A few individuals, on the other hand, only recognize three types of inventories, ignoring MRO.

2.1.3. Raw Materials/Components

This is the original source for a company's production process. It can literally be "raw" materials that require significant restructuring to become a product. (Inventory definition, 2021)

The raw materials that a company incorporates in the creation and finishing of products are known as raw materials. When the process ends, the raw materials, are usually unrecognizable from their original state. (Jenkins, 2020)

2.1.4. Work in Progress (WIP)

Raw materials in the course of being turned into final goods through a manufacturing process are referred to as this. This can range from a relatively small amount if the manufacturing procedure is quick to a large sum if the product being manufactured takes months to complete. (Inventory definition, 2021)

2.1.5. Finished Goods

Items that are ready for sale are known as finished goods. They have been made from raw materials or bought from a source, and they are ready to sell to clients. Manufacturer's regard finished products that are purchased ready to sell as merchandise (Tunney, 2019)

2.1.6. Maintenance, Repair and Operations

MRO inventory is made up of goods that assist a manufacturing business run competently. Staff uniforms, machine tools, cleaning supplies, and protective equipment, and any other components used to restore or manage manufacturing equipment, can all be found in MRO inventory (Tunney, 2019).

2.1.7. Opening Inventory

The level of inventory which a business has on hand at the onset of an accounting period, such as a new financial year or quarter, is referred to as opening inventory. This inventory is presumed to become the first lot to be sold during the current accounting year.

2.1.8. Closing Inventory

The amount of stock that an organization possesses at the conclusion of a fiscal period is known as closing inventory. Raw resources, work in progress (WIP), and final commodities are all part of it.

2.1.9. Average Inventory

Average inventory is an indication of the amount or worth of inventory a company has over a certain amount of time.

2.1.10. Motives for Holding Inventory

i.Transactional Motive: This refers to the storage of goods in order to encourage uninterrupted production and sales. Every business must keep a certain amount of inventory on hand for day-to-day sales, production procedures, and customer requests. The corporation keeps finished goods and raw materials as materials to ensure a seamless manufacturing process (Sharma & Arya, 2016);

ii.Speculative Motive: This refers to raising or lowering the amount of inventory held in order to take advantage of price fluctuations. In order to optimize any potential of profit in the face of price volatility, the company may hold some inventory (Sharma & Arya, 2016);

iii. Precautionary Motive: It simply refers to retaining inventory in response to supply and demand fluctuations. This refers to stockpiling goods to serve as a contingency in the event that actual activity levels differ from those projected. This stockpile serves as a buffer against unexpected shifts in supply and demand. Unexpected circumstances, such as hardship due to disastrous occurrences, should prompt companies to maintain a percentage of their inventory on hand (Sharma & Arya, 2016).

2.1.11. Reasons for Holding Inventory

According to Banjoko (2004) the reasons for holding inventory include

i. Ensuring a steady flow of manufacturing process;

ii. Meeting alterations in item demand;

iii. Allowing flexibility in production planning;

iv. Detaching progressive task phases;

v. Ranking production activities;

vi. Providing a level of protection against future price disruptions that may occur during delivery;

vii. Making opportunities to gain economic lot size available.

2.1.12. Inventory Cost

Inventory is a financial investment for a company. When it comes to inventory management considerations, some charges have to be taken into account. Valuable inventory reduces these expenditures by minimizing the overall amount of inventory required to run a business. (Nemtajela & Mbohwa, 2017). According to Kumar and Bahl (2014) inventory cost can be classified into ordering costs and carrying costs. Nemtajela and Mbohwa (2017) further went on to break down the concept of setup costs and shortage costs. Inventory costs includes holding cost, ordering cost and shortage cost which was identified by Drury(2004) which was cited in the works of Lwiki, Mugend, Ojera and Wachira (2013)

2.1.13. Ordering Costs

These are expenses incurred when additional inventory is purchased. It refers to the administrative expenditures associated with placing a manufacturing or procurement order. (Nemtajela & Mbohwa, 2017)

These costs include expenses incurred during the order process, travel allowances, sales division salaries, cost of evaluation, cost of obtaining the material, shipping fees, and so on.

According to Kumar and Bahl (2014), the ordering cost for each order stays unchanged, which means that obtaining smaller quantities more regularly results in higher ordering costs, whereas ordering significantly larger volumes less commonly results in lower ordering costs.

For ordering costs, it is feasible to have a constant component that does not change based on order size and a variable component that changes dependent on order size (Sharma & Arya, 2016).

2.1.14. Carrying Costs

These are the expenses incurred when inventory is kept on hand. They include interest on goods held down, hoarding costs, deterioration waste charges, insurance, dissipation, pilferage, downsizing, outmoded inventory, and other retail overhead (Kumar & Bahl, 2014).

These costs are expected to be contrasted per inventory unit, with an increase in inventory mass resulting in an increase in transportation expenses, and vice versa. They're sometimes referred to as holding charges (Nemtajela & Mbohwa, 2017). Carrying costs basically include cost of storage and cost of financing (Sharma & Arya, 2016).

2.1.15. Shortage Costs

When demand for a certain item exceeds the amount of inventory available, the item may be out of stock and the customer's goodwill may be lost. The shortage cost is the cost associated with the

associated cost. Some authors predict that scarcity costs will be equivalent to the product's contribution margin, whereas others disagree (Nemtajela & Mbohwa, 2017).

2.1.16. Stock Out Costs

Costs associated with stock outs are referred to as "hidden costs." The stock out situation occurs when the corporation does not possess units of the product in store outlets, but manufacturing division customers are already on the ground requesting it. On a frequent basis, stock outs are costly to the organization (Sharma & Arya, 2016).

2.1.17. Inventory Turnover

The number of times per year that retailers and producers may sell or use up their whole inventory of raw materials or finished items is referred to as inventory turns (Coyle, Bardi, & Langley, 2003).

To optimize sales with the lowest amount of inventory, the companies should focus on meeting demand by ordering smaller quantities more consistently from suppliers, resulting in higher inventory turns (Goldsby & Martichenko, 2005)

2.1.18. Concept of Inventory Management

Inventory management is critical to a company's efficient operations. Managing inventory is a crucial aspect of profitability. It may be considered effective if it is based on an inventory management system, a solid demand projection, enough understanding of lead times, and appropriate evaluations of holding costs, ordering costs, and scarcity costs. (Kolawole, Akomolafe, & Olusipe, 2019). Inventory management is becoming an increasingly significant aspect of a company's operational activities. The rationale for this is that effective inventory management can boost a company's profitability.

2.1.19. Goals of Inventory Management

i. To preserve a constant supply of raw materials to facilitate non-stop production

ii. To maintain a sufficient inventory of finished goods that will ensure smooth sales operations and efficient customer services

iii. To ensure that a sufficient level of raw materials is maintained in periods where short supply exists and in anticipation of changes in price

iv. To guarantee that there is stable control on the investment in inventory by maintaining optimum inventory levels

v. To ensure that there is a reduction of loss arising from theft or wastage

vi. To clear off slow moving goods i.e., goods that take too long to be sold

2.1.20. Challenges of Inventory Management

Due to the complex nature of anticipating demand and customer expectations regarding product availability, wholesalers and retailers who are important participants in downstream delivery channels confront a unique challenge in maintaining inventory at sustainable levels (Coyle, Bardi, & Langley, 2003).

When we consider the variety of items, the issue becomes even greater. To further clarify the issue, we suppose that an exact demand prediction exists; nevertheless, the cumulative demand must be split

down by numerous product conditions into sub-total demand forecasts in order for the company's stock holding units to fulfil the final customer's order. (Bai & Zhong, 2008).

The challenge of precisely estimating demand inevitably leads to two problems: overstock and stock-out of goods. Companies tend to overstock in order to avoid missed sales due to inventory shortages. However, because maintaining inventory is costly and affects profit margins, corporations aim to lower inventory levels, resulting in the inclination to stock-out inventories. We can gain a sense of the inventory management challenge by imagining two competing forces tugging the inventory in opposite directions. It's difficult to maintain constant balance between the two powers and keep the inventory at the proper level (Bai & Zhong, 2008).

2.1.21. Advantages of Inventory Management

According to the works of Gencer (2018) the advantages of inventory management are: Assuring a continuous and uninterrupted production cycle because appropriate inventory management guarantees the supply of raw materials and items at all times when they are required. It also aids in the comfort of cost accounting.

2.1.22. Inventory Management Methods

Economic Order Quantity

The Economic Order Quantity (EOQ) Model is amongst one of the most well-acknowledged conventional production planning models. This formula was formed in 1913 by Ford W. Harris, while this model's application and in-depth examination are credited to R. H. Wilson. This model established the most economic size of order to place. Companies can reduce costs connected with acquiring and inventory holding by employing this model (Kumar R. , 2016). The EOQ model is used to calculate the best order size for minimizing the total cost of ordering and holding (Ziukov, 2016). This model was developed under the notion that at any one time, demand equals the annual total quantity requested by the entity. (Milicevic, Davidovic & Stefanovic, 2012).

This inventory management methodology presupposes that the item's necessity is guaranteed, the lead time is clear and constant, the order is obtained in an instant, Price cuts in volume as part of the model are not considered, and inventory shortages or stock outs do not exist.

Just in Time Model

Just in Time (JIT) is a business approach that aims to advance a company's economic performance by reducing oversupply of inventory and allied costs (Shin, Ennis, & Spurlin, 2015). The JIT approach is founded on three key propositions: waste elimination, continual produce and labour quality improvement, and employee involvement in the development and implementation of the company's initiatives (Hanson, Ackah & Agboyi, 2015).

JIT is a management concept that was created to assist businesses in avoiding or reducing waste. JIT supports waste reduction as well as increased production. The JIT model can detect value chain issues and aid in the decrease of production leftovers in the system (Kootanaee & Nagendra, 2013).

JIT (Just-In-Time) refers to having the appropriate items, in the appropriate amount, at the appropriate time and place. JIT has the ability to progress production excellence, enhance productivity, enhance manufacture competence, and finally lessen waste and other unnecessary costs coupled with manufacturing if properly applied. (Kootanaee & Nagendra, 2013).

JIT allows a company's inventory levels to be reduced. As a result, businesses reduce their inventory investments. JIT places a premium on having the bare minimum of materials on hand for instant usage. As a result, inventory storage costs are significantly decreased (Kootanaee & Nagendra, 2013).

Stock Out

Different possibilities will play out if there is a stock-out. When there is a distribution inventory stockout or a production inventory stockout, the impression on the dealer and the client is distinct as regards the scope and magnitude, i.e., one party is affected more severely than the other. As a result, the attitude regarding stock-out fluctuates.

The production line-up will be closed down, and the restarting costs will be prohibitively expensive. As a result, such stock-outs are prohibited. Because the impact on customers is usually minimal in the event of distribution inventory stockouts, such as when patrons meet such a stock-out, their adversaries - traders such as wholesalers and retailers—endure stock-outs. When a dealer's inventory is insufficient to meet orders, one of four things can happen: (1) the client awaits for the new replacement; (2) the consumer places a backorder; (3) the transaction is gone; (4) the customer is lost (Coyle, Bardi, & Langley, 2003)

ABC Model

The ABC analysis was founded on the principle of dollar volume and the assumption that the majority of the dollar volume is accounted for by a minimal amount of goods (category A). Then again, a significant number of items (category C) make for only a small portion of the entire dollar volume. In terms of both quantity and dollar worth, category B items fall somewhere amongst categories A and C. A products are both of inestimable value and high-demand, while C items are both low-value and low-demand, according to this definition (Ravinder & Misra, 2014).

Issue Pricing methods

They are made up of the following

First In First out

This process implies that the products that are brought into the store must then likewise be brought out first. Inventory is not used up in successive requests for this issue price approach, but instead for price reasons, as the inventory that went initially is used up first. The strategy is best for objects that move slowly yet have a high cost per unit.

Last In First Out (LIFO)

This is the technique in which the supply that is placed last is the first to be sold. This method ensures that materials are issued at the correct price. It is founded on the principle that costs should be as closely associated with current value levels as possible. The replacement cost is used to determine the cost of this technique's manufacturing. This technique's production cost is calculated using the replacement cost as a starting point.

Standard Price

This price is determined after careful analysis of all price-influencing elements, such as the quantity of material acquired by the organization on a regular basis. The discount rate is then compared to the current value, which includes or excludes cargo and circulation center expenses. For each resource, a standard cost is established, and the real cost is compared in proportion to the standard cost. When the

actual price exceeds the standard price, a losses occur, but when the standard price exceeds the actual, a profit exists (Sharma & Arya, 2016).

Weighted Average Price

This is established by dividing the cost of the inventory items. from where the material is to be valued by the total number of items in the inventory. Because price issue is established on receipts of materials rather than issuance of materials, this technique differs from all others. When extra inventory is acquired quickly, a new pricing is established.

Profit and Profitability

Profitability is a relative notion, but profit has a clear connotation, and despite being closely connected and commonly associated, profit and profitability are two distinct concepts (Tulsian, 2014)

Profitability is a key component of financial reporting because it measures a company's performance (Odusanya, Yinusa & Ilo, 2018)

Profitability can be described as having an estimate of just how successfully a company utilizes its assets from its major business activities to create revenue, and it refers to a broad assessment of an establishment's monetary health over a period of time (Dioha, Mohammed, & Okpanachi, 2018). Profitable businesses add value, employ individuals, are more inventive, socially conscious, and benefit the entire economy through tax payments (Odusanya, Yinusa & Ilo, 2018).

One of the most central aims of financial management is profitability. Financial managers strive to increase the wealth and profitability of the company's owners, resulting in improved financial performance (Dioha, Mohammed & Okpanachi, 2018).

Profitability ratios are calculated to evaluate an organization's end result, which is the single criterion of the whole company concern's efficiency (Tulsian, 2014)

2.2. Theoretical Review

2.2.1. Resource Based View Theory

It was developed in the 1980s by Wernerfelt (1984), Rumelt (1984), and Barney (1986) and has subsequently become one of the most prominent active methods to the evaluation of sustainable advantageous position.

The resource-based view's basic premise is that organizations participate on the foundation of existing capabilities and reserves. The theory emphasizes a company's resources as the key indicators of competitive advantage and performance. In assessing sources of competitive advantage, the resource-based view (RBV) makes two key assumptions.

To begin, the theory predicts that firms in an industry or market structure may be heterogeneous in nature of the pool of resources they manage, and that this heterogeneousness is bound to grow over time for the reason that the assets used to implement firms' techniques are not easily transferable across firms; in other words, some of the resources a company controls are often not accessible to most other firms.

Resource uniqueness is regarded one of the requirements to achieve or help a competitive edge (Bridoux, 2004).

However, a company's long-term competitive advantage is derived from highly valued, limited, imperfectly imitable, and non-substitutable resources and skills. These assets, which include a company's management proficiencies, business developments and habits, and the data and information and understanding it regulates, can be seen as an acquisition of quantifiable and intangible assets (Barney, Wright & Ketchen, 2001).

2.2.2 Theory of Constraints

Eli Goldratt established the constraints theory in the mid-1980s. The optimized production timetables (OPT) system gave rise to the theory of constraints, which was later renamed optimized production technologies (OPT). The theory of constraints (TOC) was coined in 1987 to describe the entire approach, which Goldratt described as "an overall theory for operating an organization.".

The theory of constraints is a strategic approach that aims to improve manufacturing efficiency primarily measured by sales by identifying the procedures that are causing the manufacturing system to be constrained.

According to the theory of constraints, manufacturing efficiency as measured by sales can be improved by identifying the processes that are causing the manufacturing system to be confined and modifying those processes. There are many difficulties in the theory of constraints, including long lead times, a large amount of delivery delays, an elevated level of worthless inventories or a scarcity of meaningful inventories, improper raw material orders, a huge proportion of emergency orders and excursion levels, a lack of user engagement, A decline of influence over priority ordering , which results in resource agenda conflicts (Goldratt, 2004).

According to the concept, it is critical to properly control the size and competence of these constraints in order to boost efficiency, which may be performed by manufacturing firms through proper inventory control methods. The idea of constraints is a production methodology that is used to reduce inventory levels in manufacturing (Cooper, 2006).

2.3. Empirical Review

Mamoor and Raana (2020) investigated the implications of inventory management on the profitability of Bangladeshi local companies. The research covered a period of ten (10) years. The research used a regression analysis framework with the assistance of SPSS Version 22. The study made use of primary data which involved a total of 112 participants located in the capital city of Dakar, Bangladesh. The findings of the study discovered that inventory management of small businesses has a positive and relevant relationship with profitability of small businesses.

Sonko and Akinlabi (2020) evaluated the influence that inventory management had on the profitability of food and beverage manufacturing enterprises In Lagos State, in Nigeria. The researcher utilised a cross-sectional survey strategy. to examine the population sample of 2027 food industry managers. The study employed a stratified random sampling technique. The study collected primary data using a structured questionnaire. The conclusions show that Inventory management does have a substantial influence on the earnings of selected food and beverage manufacturing enterprises in Lagos State.

Otuya and Eginiwin (2017) studied the effect of inventory management on SMEs profitability of manufacturing firms in Delta State, Nigeria. The study covered a period of 2 years, 2015 and 2016. The research used multiple regression analysis to test the study model, the study made use of primary

data which involved a total number of thirty (30) SMEs located in Delta State. The study discovered that inventory management plays a critical role in a firm 's profitability, and that firms' inventory systems should maintain continuous, acceptable stock levels in order to maximize profitability and minimize inventory costs associated with maintaining overabundance of stock in warehouses.

Sang and Kihara (2016) both examined the effect that inventory management practices had on performance of the manufacturing firms in Kenya, the case study was Sameer Africa. The study made use of primary data and out of a target population of a hundred and thirty-one (131) respondents, the total number of respondents was ninety-six (96). The study employed a descriptive case design. Primary data was gathered with the use of questionnaires SPSS was the main tool used to analyse the data. The study made it known that there is a positive and significant correlation between all the predictor variables used and the progress of manufacturing firms.

Amahalu (2018) investigated the existing relationship amongst inventory management and the financial performance of Nigeria's publicly traded beer enterprises. The study spanned seven (7) years, from 2010 to 2016. Panel data were derived from obtainable publications of the Nigerian Stock Exchange (NSE), yearly reports, fact books, and financial statements of listed brewery enterprises. STATA 13 was used to analyse the data, a statistical package that makes use of the correlation coefficient and the approach of ordinary least squares regression. At the 5% level of significance, the study discovered a strong positive association amid return on assets, company development, and inventory conversion period.

NdiranguKung'u (2016) studied the effect of inventory control on profitability of industrial and allied firms in Kenya. The study spanned a time frame of six (6) years from 2009-2014. The study used a correlational research methodology and SPSS software was used to analyse the data. The study gathered primary and secondary data through the aid of a questionnaire and a record assessment document. The research reveals that financial analysts of manufacturing enterprises felt it necessary to maintain optimal inventory levels of both raw and finished goods, which resulted in greater profitability for the firms in Kenya. The result reached was that inventory control and profitability are positively related.

Prempeh (2016) examined the influence that efficiency in inventory management had on profitability of the manufacturing firms in Ghana. The study covered the period from 2004-2014. The ordinary least squares specified in the form of a multiple regression model was useful in the investigation. The study made use of secondary data in the form of annual reports from four (4) listed manufacturing firms on the Ghanaian Stock Exchange (GSE). The study revealed that there is a significantly solid and positive influence on profitability of firms when inventory has been managed efficiently.

Adekoya and Olumayokun (2020) studied inventory management and profitability of listed hospitality companies in Nigeria. The analysed covered a period of ten (10) years 2008-2017. Statistical investigation of the data was done using the descriptive statistics, the hypotheses were tested using Pearson's moment correlation co-efficient and multiple regression analysis of ordinary least square techniques. Findings of this study discovered that there is an affiliation between inventory management and profitability of the listed hospitality companies located in Nigeria selected for the research, and that a substantial relationship exists between inventory management and EPS and that there is a significant positive effect of inventory management on dividend per share.

George (2019) examined the influence of inventory management on profitability of firms and focused majorly on the steel industry. Five years of financial data from 2011 to 2015of selected companies

were used. Instruments such as ratio analysis, trend analysis and correlation analysis had been employed for this study. The research findings revealed that inventory conversion cycle is directly associated to companies' net profits.

Mwangi (2016) examined the impact of inventory management on the profitability and operating cash flows of Kenya's breweries limited, a Nairobi-based beer distributor. The study analysed secondary data gathered through data collecting sheets from six firms which spanned a ten-year period (2006-2015). SPSS was used to analyse the data gathered using ordinary least squares in the form of regression equations. The study's findings showed a substantial correlation between inventory management and operational cash flows of Kenyan breweries' beer circulation firms in Nairobi Province, as well as the fact that inventory management has a significant impact on the operating cash flows and firm profitability.

Kolawole, Akomolafe and Olusope (2019) conducted research on the existent relationship between inventory management and profitability in Nigerian manufacturing enterprises. The case study for this research was International Breweries Plc. Secondary data was gathered from the company's regulatory filings for a time frame of ten (10) years. To establish the correlation between the variables, a simple linear regression model was utilized. The study's findings which indicated that the selected company has an efficient inventory management system, which in turn has a significant impact on the firm's profitability. Findings from this study indicated that good inventory management contributed significantly to manufacturing firms' profitability and recommended that manufacturing firms enhance their inventory management system by further implementing an appropriate tactic for employing inventory items.

Mbah, Obiezekwem and Okuoyibo (2019) examined the relationship that exists between inventory management and also operational performance in Nigeria's South-Eastern region. Three hundred and seventy-one (371) questionnaires were provided to five hundred and thirty-eight (538) randomly selected respondents from four (4) listed manufacturing enterprises which were in the south-eastern area. The study analysed the acquired data using SPSS and also Excel-based descriptive statistics. The study's hypotheses were tested using regression analysis. The study's findings indicate that there is a substantial beneficial association between inventory management and the operational success of the listed manufacturing organizations chosen for this study.

Boruah (2020) decided to examine the affiliation between inventory management and profitability of Numaligarh Refinery limited in Assam, in India. This research covered a period of 4 years 2009-2010 and 2015-2016. The basis of this research is secondary information which was ultimately sourced from the yearly reports of the company. The data was analysed using co-efficient correlation and ANOVA technique. The findings of the author of the study when concluded revealed that proper maintenance of smaller inventory conversion days eventually supports in improving the profitability of the business.

Golas (2020) studied the effect of inventory management on profitability and focused on the Polish food industry. The study was conducted to verify the causative link between inventory management, and this was carried out using panel data methodology. The research covered a period of thirteen (13) years 2005-2017. The study discovered that as the days in inventory proportion for materials and completed goods decreases, the day sales of inventory for total goods tend to become shorter. The study revealed a significant but negative relationship exists between inventory management efficiency and financial performance.

Mensah, Morrison and Ackah (2017) studied how inventory management affects profitability with focus being made on wholesale and supply firms in the chosen Metropolis of Kumasi located in ,Ghana. A descriptive method was adopted as the research design of this study and a quantitative analysis of data was done. The research covered a period of about a year 2016-2017 which was between the months of February 2016 and January 2017. A convenience sampling technique was designated to take 100 firms from among the target population of all the wholesale and distribution firms operating within the area selected. Both primary and secondary data were gathered and used in the course of this research. A questionnaire was used to gather primary data and secondary data was gathered from the yearly financial records of the companies selected for the study. A LINLOG regression model was used to establish the extent of impact inventory management has on profitability. The study recognised that there is a strong positive effect of inventory management on the profitability of the selected firms.

Usman, Karaye and Abubakar (2020) studied how inventory management had an impact on the profitability of listed Nigerian pharmaceutical firms. Historical panel data analysis was carried out for the focal purpose of this research, and the applied research design used was the *ex-post factor* design. Secondary sources of data were mainly obtained from the yearly reports and circulated accounts of the publicly registered firms for a time frame of ten (10) years from 2009-2018 and the fact book of the national stock exchange. Tools of analysis utilized in this study include descriptive statistics, Pearson correlation as well as multivariate regression procedures. The study brought to light the knowledge that inventory management has a major impact on Nigerian Pharmacological enterprises profitability.

Bodunde and Anisere-Hameed (2021) had investigated the effect of inventory management on the profitability of Nigerian manufacturing organisations. The study used an *ex-post factor* analysis and spanned five (5) years, from 2015 to 2019. The goal of this study was to analyse data using descriptive and analytical methodologies. The study's aims are to investigate the influence of inventory management on the return on assets (ROA), investment, net operating margin, and net earnings of targeted manufacturing enterprises. Inventory management has a substantial impact on the return on assets, investment, net operating margin, and net earnings of manufacturing enterprises in Nigeria, the study indicates.

Ngọc and Hà (2017) looked at the Publication and School Supplies Industries in Vietnam to see how inventory management affects profitability. The research covered a period of nine (9) years from 2008–2016.

2.3.1. Summary of the Literature Review

S/N	Authors & Year	Country of study	Purpose of Study	Method of Data Analysis	Findings/ Critique
1	Lydia Mwangi (2016)	Kenya	To assess the role inventory management played on the firm profitability and operating cash flows of Kenyan Breweries	Pearson Correlation and regression equations	Inventory management had a significant impact on firm profitability and organizational cash- flows
2	Otuya & Eginiwin (2017)	Nigeria	The drive of the research was to gauge the role inventory management plays when it comes to the profitability of SME's in the country.	Multiple Regression Analysis	The investigation found a link between inventory management and firm financial viability and proposed that a firm's inventory levels should be kept at a satisfactory limit to

					avoid excess inventory costs while maximizing profit.
3	George (2019)		To establish to what extent inventory management affects the steel productions industry profits.	Ratio analysis, trend analysis and correlation analysis	Inventory conversion cycle is directly linked to establishments' net profits
4	Kolawole, Akomolafe & Olusipe (2019)	Nigeria	To determine the relationship that exists between the profitability of International Breweries Plc. firms and inventory management.	Correlation Analysis	Effective inventory management contributed significantly to the profitability of the company
5	Golas (2020)	Poland	To clarify if an affiliation existed between inventory management and the manufacturing industry	Panel data methodology.	Less days in inventory for materials and finished goods means less days in inventory for total goods, according to the study
6	NdiranguKung'u (2016)	Kenya	To discover what effect inventory control has on industrial and allied firms' profitability in Kenya.	Pearson Correlation	The study found that production firms in Kenya were more profitable when their finance specialists maintained optimal raw and finished goods inventory levels. The conclusion was that inventory control and profitability go hand in hand.
7	Bodunde and Anisere-Hameed (2021)	Nigeria	To explore the effect on a manufacturing company's profitability when proper inventory management systems are put in place	Descriptive and analytical methodologies	The research concluded that inventory management inhibits manufacturing firms' return on assets, investment, net operating margin, and net profitability.
8	Mensah, Morrison and Ackah (2017)	Ghana	To study how inventory management affects profitability with focus being made on wholesale and supply firms in the selected Ghanian Metropolis	LINLOG regression model	The outcomes recognised that there is a sturdy positive outcome of profitability when inventory management is applied properly.
9	Boruah (2020)	India	To determine how profitability of Numaligarh refinery would be affected by inventory management.	Correlation coefficient and ANOVA.	Appropriate preservation of lesser inventory conversion days pointedly affects profitability.
10	Mbah, Obiezekwem and Okuoyibo (2019)	Nigeria	To ascertain the results of operational performance after it has been exposed to the effects of inventory management.	Excel based descriptive statistics and regression analysis	The results of the undertaken study revealed that a solid positive affiliation subsists between profitability and operational performance.
11	Adekoya and Olumayokun (2020)	Nigeria	To determine the results of the power of inventory management on the profitability of listed	Pearsons moment correlation coefficient	The study found a significant association between inventory management and EPS and a considerable beneficial effect of inventory management on

			hospitality firms		dividend per share.
12	Prempeh (2016)	Ghana	To examine the extent to which inventory management has an impact on manufacturing firms profitability	Ordinary Least Squares Regression	The effect of inventory management is positive and strong when there is evidence that inventory is being properly managed.
13	Amahalu (2018)	Nigeria	Investigated what relationship is existing between both inventory management and the financial performance of Nigeria's publicly traded beer enterprises	Correlation coefficient and the approach of ordinary least squares regression	A strong positive association is existing between the company's return on assets, company economic acceleration, and inventory conversion period.
14	Sang and Kihara (2016)	Kenya	Examined the effect of inventory management practices on performance of manufacturing firms in Kenya	A descriptive case design	The study revealed that there is a positive and significant correlation between all the predictor variables used and the progress of manufacturing firms.
15	Sonko and Akinlabi (2020)	Nigeria	To bring to knowledge how inventory management has an effect on manufacturing companies profitability.	Pearson's correlation coefficient.	A significant impact on profitability by inventory management was discovered.
16	Usman, Karaye and Abubakar (2020)	Nigeria	To study how inventory management had an impact on the profitability of listed Nigerian pharmaceutical firms	descriptive statistics, Pearson correlation as well as multivariate regression procedures.	Inventory management has a substantial impact on the return on assets, investment, net operating margin, and net earnings of manufacturing enterprises in Nigeria, the study indicates.
17	Mamoor and Raana (2020)	Bangladesh	To ascertain the effect of inventory management on the profitability of small businesses in Bangladesh.	Regression Analysis	inventory management of small businesses has a positive and relevant relationship with profitability of small businesses

3. Methodology

3.1. Research Design

The research design is the structure determined by the researcher fully intent on discovering answers to the identified research questions. This research was generally conducted to identify the link between Inventory management and the profitability of listed industrial goods companies in Nigeria. Due to the nature of this research, the research design adopted was the *ex-post facto* design. Because the events relating to the research have already occurred and the data used to conduct the research is still alive, an *ex-post facto* design was chosen as the research design for this study (Asaolu, Agboola, Ayoola, & Salawu, 2012) and there are no intents to regulate or manipulate the variables by the researcher.

3.2. Population of the Study

Population refers to the entire number of people who are relevant to the investigation. It comprises all individuals or items with the attribute in question. For the purpose of this research, the population consists of thirteen (13) industrial goods companies listed on the Nigerian Stock Exchange (NSE).

Table 3.1. List of Selected Industrial Goods Companies Listed on the Nigerian Stock Exchange (NSE)

NO.	COMPANY	SECTOR
1.	Dangote Cement PLC	Industrial Goods
2.	BUA Cement PLC	Industrial Goods
3	Austin Laz & Company plc	Industrial Goods
4	Berger Paints Plc	Industrial Goods
5	Premier Paints Plc.	Industrial Goods
6	Portland Paints & Products Nigeria Plc.	Industrial Goods
7	Meyer Plc	Industrial Goods
8	Lafarge Africa Plc	Industrial Goods
9	Greif Plc	Industrial Goods
10	Cutix Plc	Industrial Goods
11	Cap Plc	Industrial Goods
12	Beta glass Plc.	Industrial Goods
13	Notore Chemical Industries Plc.	Industrial Goods

3.3. Sample Size and Technique

A sample is a subset of people drawn from a larger number. The sample size of two (2) listed industrial goods companies were selected using judgemental sampling technique, which is one of the types of the non-probabilistic sampling method. The justification for the sample size was based on the availability of data. The selected companies represented those listed on the Nigerian Stock Exchange (NSE).

3.4. Source of Data

A secondary data survey was used for the purpose of this study. Annual reports and financial statements of the selected companies were carefully examined and analysed for a period of five (5) years 2015-2019. The research made use of annual reports and the financial statements published by companies being considered under this study.

3.5. Validity and Reliability of Research Instruments

The validity of a research instrument is simply defined as when it has accurately and validly measured something. Instrument reliability simply refers to the consistency of outcomes regardless of the number of tests performed. The research instruments for this study are the financial statements and yearly reports of listed industrial goods companies in Nigeria. The financial statements and annual reports which are used as the instruments for data collection for this research are reliable and valid because they have been audited.

3.6. Method of Data Analysis

The statistical model that has been adopted for this research is the panel regression analysis. The analysis reveals the effect of inventory management on the profitability of industrial goods companies.

This study will make use of EViews statistical package to evaluate the data obtained from the yearly reports of the selected companies for the period 2015-2019.

3.7. Model Specification

The study employs return on assets as the proxy for the measuring profitability, while inventory turnover, inventory conversion period and day sales of inventory are used in measuring inventory management.

The regression equation can be computed as:

$Y = \beta_0 + \beta X_1 + \beta X_2 + \ldots \mu_{it}$

Where,

Y = Firms' profitability (dependent variable)

X = Inventory management (independent variable)

B = Coefficient

μ_{it} = Error term

The above model can be specifically applied to this study as;

$PAT = \beta_0 + \beta_1 OI + \beta_2 CI + \beta_3 AI + \mu_{it}$

Where;

PAT = Profit After Tax

OI = Opening Inventory

CI = Closing Inventory

AI = Average Inventory

β_0 = Coefficient of the parameter estimate

β_1-β_3 = intercept

μ_{it} = Error term

Table 3.2. Measurement of Variables

Variable	Variable Type	Unit of Measurement
Profit After Tax	Dependent	Profit After Tax
Opening Inventory	Independent	Opening Inventory
Closing Inventory	Independent	Closing Inventory
Average Inventory	Independent	Opening Inventory + Closing Inventory/2

4. Presentation and Interpretation Of Results

4.1. Introduction

Following the specification of the model for this study in the earlier chapter, this chapter focuses on data presentation, analysis, and estimation, as well as the interpretation of the generated results. This chapter also aims at achieving the objectives of the study; to determine the effect of inventory management on the profitability of selected listed industrial goods companies in Nigeria.

4.2. Trend and Descriptive Statistics

This section discusses the graphical trend of variables essential to this study as well as descriptive statistics of variables.

4.2.1. Trend Analysis of Data

The graphical trend of data aids in illustrating the flow and direction of variables throughout the period interval. Depending on the nature of the panel series, the variables may display a fluctuating or stable trend. As a result, the graphical analysis will show whether the variables changed or remained constant, rose or declined from 2015 to 2019.

The graphical representations shown below depict the movement of the model proxies over the course of this study.

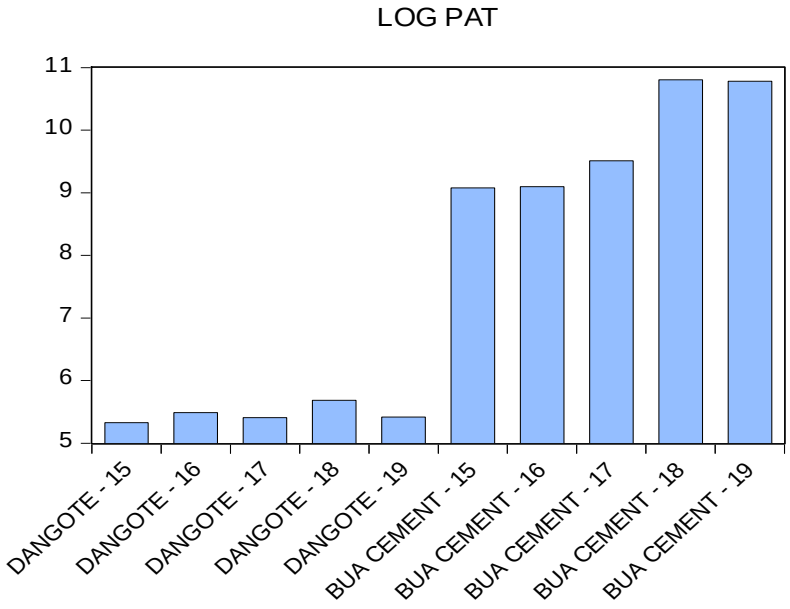

Figure 4.1. Trend of Profit After Tax of Companies
Source: Researcher's Computation (E-Views 10) 2021

Figure 4.1 illustrates the pattern of Profit After Tax levels in the two companies from 2015-2019. Dangote cement having it's highest level of Profit after tax in 2018 and it's lowest in 2015, while BUA cement has its highest level in 2018 and its lowest in 2015.

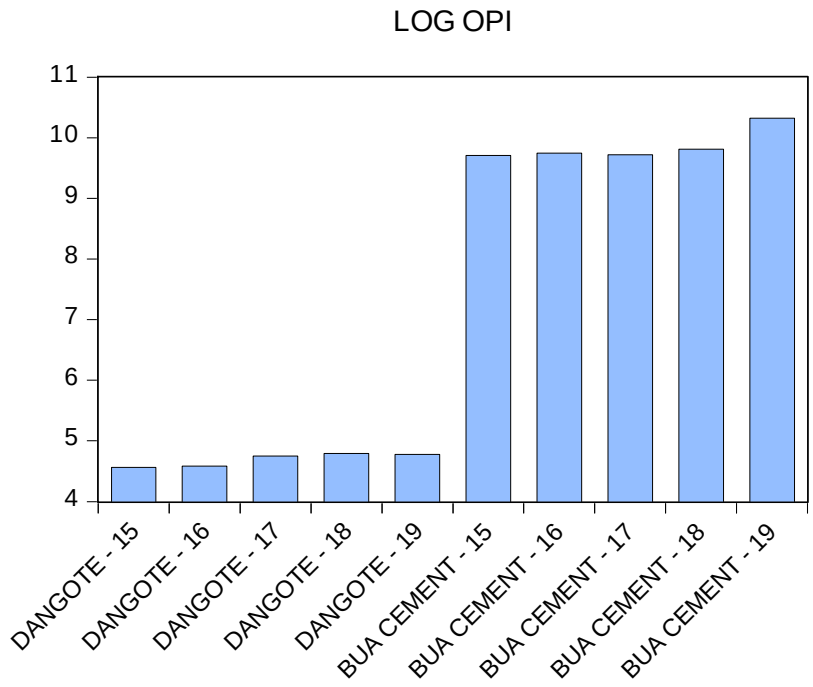

Figure 4.2. Trend of Opening Inventory of Companies
Source: Researcher's Computation (E-Views 10) 2021

Figure 4.2 illustrates the pattern of Opening Inventory in the two companies from 2015-2019. Dangote cement having its highest level of Opening Inventory in 2018 and its lowest in 2015, while BUA cement has its highest level in 2019 and its lowest in 2017.

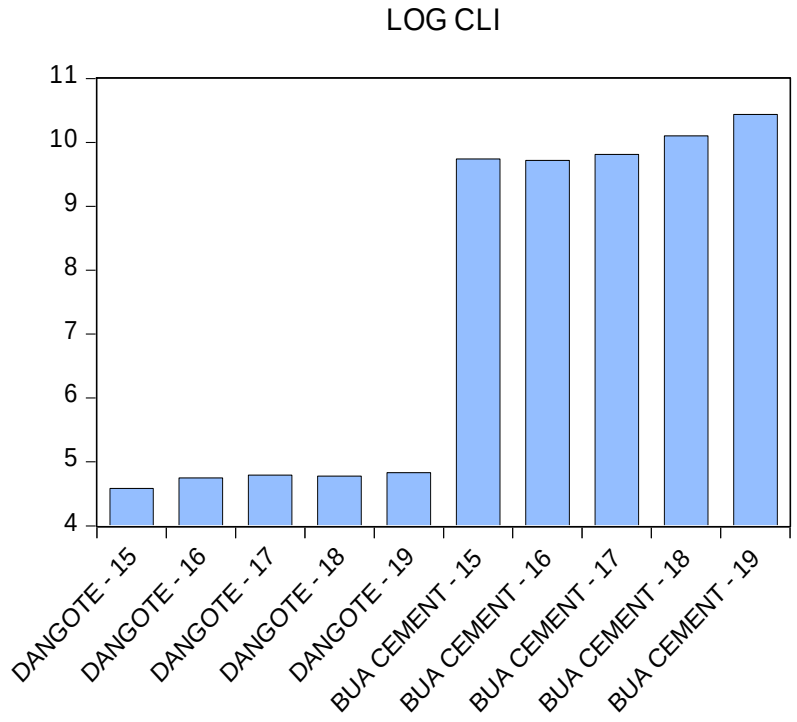

Figure 4.3 Trend of Closing Inventory of Companies
Source: Researcher's Computation (E-Views 10) 2021

Figure 4.3 illustrates the pattern of Closing Inventory levels in the two companies from 2015-2019. Dangote cement having its highest level of Profit after tax in 2019 and its lowest in 2015, while BUA cement has its highest level in 2019 and its lowest in 2016.

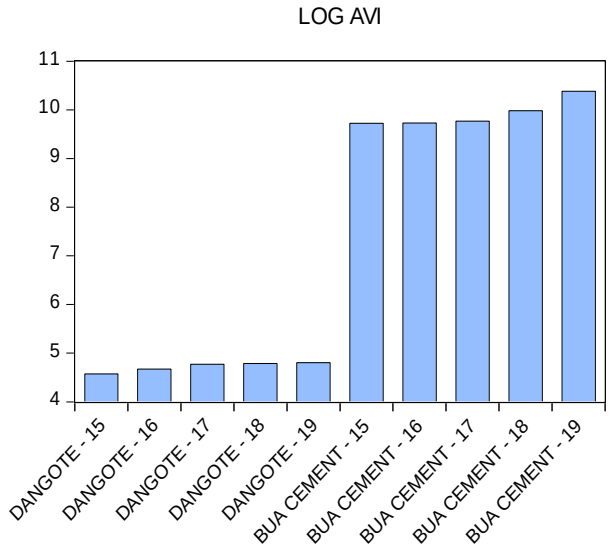

Figure 4.4. Trend of Opening Inventory of Companies

Source: Researcher's Computation (E-Views 10) 2021

Figure 4.4 illustrates the pattern of Average Inventory levels in the two companies from 2015-2019. Dangote cement having its highest level of Average Inventory in 2019 and its lowest in 2015, while BUA cement has its highest level in 2019 and its lowest in 2016.

4.2.2. Descriptive Statistics

Descriptive Statistics of Data

The study evaluated a summary of the study's primary variables' features. E-views 10 was used to create a basic descriptive statistic. The mean, most extreme and least qualities, standard deviations, skewness, and Kurtosis are all calculated using these metrics.

Table 4.1 Summary Statistics

	LOG_PAT	LOG_OPI	LOG_CLI	LOG_AVI
Mean	7.659589	7.276579	7.354324	7.319403
Median	7.381069	7.249985	7.275321	7.263987
Maximum	10.80667	10.32084	10.43459	10.38143
Minimum	5.328728	4.560086	4.583980	4.572198
Std. Dev.	2.388260	2.730479	2.757071	2.745693
Skewness	0.175449	0.010396	0.015114	0.012599
Kurtosis	1.257724	1.021230	1.025739	1.022636
Jarque-Bera	1.316107	1.631652	1.624425	1.629418
Probability	0.517858	0.442274	0.443875	0.442768
Sum	76.59589	72.76579	73.54324	73.19403
Sum Sq. Dev.	51.33406	67.09966	68.41299	67.84947
Observations	10	10	10	10

Source: Researcher's Computation (E-Views 10) 2021

The mean for PAT stood at 7.659589 with a median value of 7.381069. The maximum value is 10.80667 and a minimum value of 5.328728. The standard deviation of the distribution stood at

2.388260. The distribution has a positive skewness which means that PAT has a long right tail. The kurtosis is less than 3, which makes it flat relative to the normal distribution. The series is normally distributed as the p-value of the Jarque-Bera is greater than 0.05.

The mean value of OPI is 7.276579 with a median of 7.249985. The maximum value is 10.32084, while the minimum value is 4.560086. The standard deviation of the series stood at 2.730479. the distribution has a positive skewness which means OPI has a long right tail. The kurtosis is less than 3, which makes it flat relative to the normal distribution. The series is normally distributed as the p-value of Jarque-Bera is greater than 0.05.

The mean value of CLI is 7.354324 with a median of 7.275321. The maximum value is 10.43459, while the minimum value is 4.583980. The standard deviation of the series stood at 2.757071. the distribution has a positive skewness which means CLI has a long right tail. The kurtosis is less than 3, which makes it flat relative to the normal distribution. The series is normally distributed as the p-value of Jarque-Bera is greater than 0.05.

The mean value of AVI is 7.319403with a median of 7.263987. The maximum value is 10.38143, while the minimum value is 4.572198. The standard deviation of the series stood at 2.745693. the distribution has a positive skewness which means AVI has a long right tail. The kurtosis is less than 3, which makes it flat relative to the normal distribution. The series is normally distributed as the p-value of Jarque-Bera is greater than 0.05.

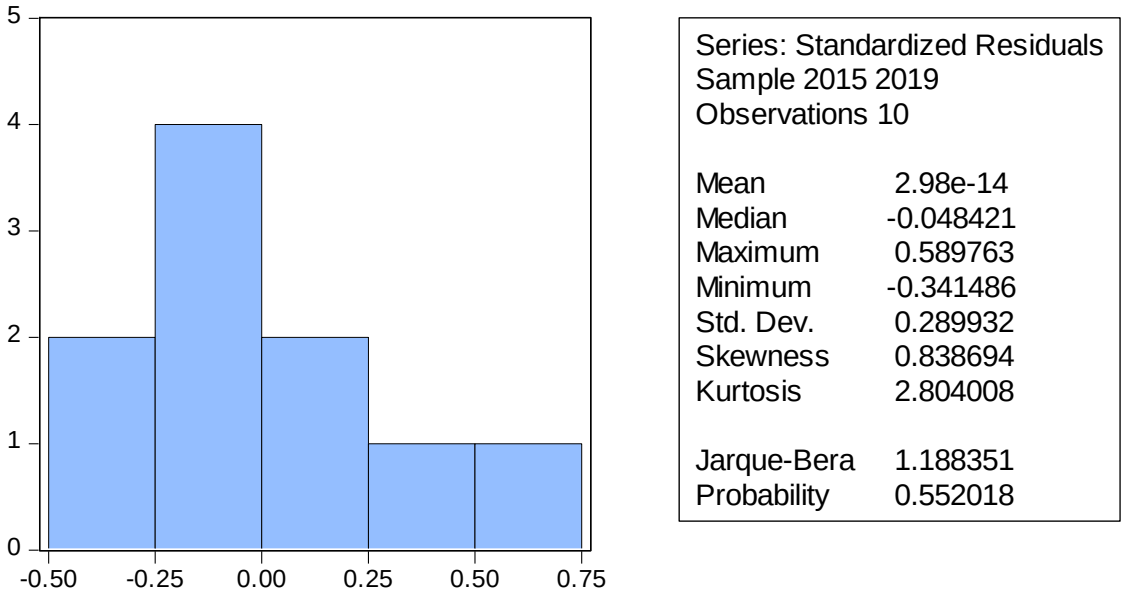

Figure 4.5. Histogram Normality Test
Source: Researcher's Computation (E-Views 10) 2021

Results of the Histogram Normality Test

The chart represents a further test of the normality of data which helps to emphasize the result of the descriptive statistics. The Jarque-Bera is 1.188351 with a probability value of 0.552018 which shows a normal distribution of data.

4.3. Regression Analysis

Table 4.2. Regression Analysis Panel Least Squares

Dependent Variable: LOG_PAT
Method: Panel Least Squares
Sample (adjusted): 2016 2019

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG_OPI	-24.08973	8.705982	-2.767032	0.0697***
LOG_CLI	-26.88837	11.70325	-2.297513	0.1052
LOG_AVI	52.45112	20.55137	2.552196	0.0838***
C	-2.454481	5.607055	-0.437749	0.6912

R-squared	0.995259	Mean dependent var	7.773448
Adjusted R-squared	0.988938	S.D. dependent var	2.500887
S.E. of regression	0.263035	Akaike info criterion	0.436108
Sum squared resid	0.207562	Schwarz criterion	0.485759
Log likelihood	3.255567	Hannan-Quinn criter.	0.101232
F-statistic	157.4478	Durbin-Watson stat	2.642476
Prob(F-statistic)	0.000814		

Source: Researcher's Computation (E-Views 10) 2021
****significant @ 10%*

Table 4.2 shows the result of the panel least squares analysis of the impact of Inventory management on Profit After Tax of selected industrial goods companies. The coefficient of determination (R^2) which measures the goodness of fit of the model, indicates 99% which means that 99% of the total variations observed in the dependent variable were explained by the independent variables. . This was moderated by the Adjusted R-squared of 98%. The results show that Opening inventory has a significant relationship with profitability with a positive value of 0.0697. It also revealed that a significant relationship also exists between Average Inventory and profitability of companies. The results of the analysis revealed that an insignificant relationship exists between Closing inventory and profitability of selected listed industrial goods companies in Nigeria.

4.4. Test of Hypothesis

This study's decision rule for accepting the hypothesis is a 10% level of significance; so, if the probability value (p-value) is less than 0.10, the null hypothesis is rejected. The following are the findings of the hypothesis that was tested:

Hypothesis One

$H0_1$: There is no significant impact of opening inventory on the profitability of industrial goods companies in Nigeria

$H1_1$: There is a significant impact of opening inventory on the profitability of industrial goods companies in Nigeria

Decision Rule: If the estimated coefficient of opening inventory has a positive or negative (+/-) sign and its probability value is less than 0.10, the null hypothesis is rejected and the alternate hypothesis is

accepted. On the contrary if the probability of opening inventory is higher than 0.10, the null hypothesis is accepted, and the alternate rejected.

Hypothesis Two

$H0_2$: There is no significant impact of closing inventory on the profitability industrial goods companies in Nigeria.

$H1_2$: There is a significant impact of closing inventory on the profitability industrial goods companies in Nigeria.

Decision Rule: If the estimated coefficient of closing inventory has a positive or negative (+/-) sign and its probability value is less than 0.10, the null hypothesis is rejected and the alternate hypothesis is accepted. On the contrary if the probability of closing inventory is higher than 0.10, the null hypothesis is accepted, and the alternate rejected.

Hypothesis Three

$H0_3$: There is no significant impact of average inventory on the profitability of industrial goods companies in Nigeria

$H1_3$: There is no significant impact of average inventory on the profitability of industrial goods companies in Nigeria

Decision Rule: If the estimated coefficient of closing inventory has a positive or negative (+/-) sign and its probability value is less than 0.10, the null hypothesis is rejected and the alternate hypothesis is accepted. On the contrary if the probability of closing inventory is higher than 0.10, the null hypothesis is accepted, and the alternate rejected

4.5. Implication of Results

Objective 1: Determine the relationship between opening inventory and the profitability of selected listed industrial goods companies in Nigeria.

The findings revealed that opening inventory has a negative and significant impact on the Profit After Tax of the selected listen Nigerian industrial goods companies. This goes on to show that Opening inventory affects the PAT of these companies. The level of inventory used to start a financial year could significantly affect profits of these companies

Objective 2: Examine the effect of closing inventory on the Profitability of selected listed industrial goods companies in Nigeria.

The results reveal that closing inventory has a negative and insignificant impact on PAT of these companies. This goes on to show that closing inventory does not impact these companies. The level at which stock is kept at the end of the year won't affect companies' profits.

Objective 3: Ascertain the effect of average inventory on the Profitability of selected listed industrial goods companies in Nigeria.

The findings revealed that average inventory has a positive and significant impact on the Profit After Tax of the selected listen Nigerian industrial goods companies. This goes on to show that average inventory affects the PAT of these companies.

5. Conclusion and Recommendations

The intention of this study was to ascertain the effect of inventory management on the profitability of industrial goods companies in Nigeria. In the introductory chapter a comprehensive background was provided on the subject matter. Also, the statement of the research problem, objectives of the research, research questions, hypothesis, scope, significance and the definition of terms were all provided.

In the second chapter, numerous literatures relating to the study were revised, to provide a detailed explanation of the conceptual framework. The concepts include inventory, IAS 2 the standard overseeing inventory, components of inventory, the motives and reasons for holding inventory, inventory cost and it's types, inventory turnover, inventory management, it's objectives and challenges, the advantages of inventory management, various inventory management methods, issue pricing methods and the concept of profit and profitability. To provide a theoretical explanation, theories such as the Resource Based Theory and the Theory of Constraints were used. Review was conducted on previous literature to constitute the empirical framework of this study.

The third chapter is devoted to the methodology that was used in the study project. It consists of the research design, data sources, sample size, population, and technique of analysis, among other things. With the ex-post facto research design, the sample size was determined by the amount of data available, and the information was derived from publicly available financial records of the companies under investigation. The fourth chapter consists of data analysis and explanation of results. It is aimed at testing the hypothesis states in the first chapter. Pearson's correlation and Regression analysis were employed in testing the three (3) hypotheses using EViews 10. The data used for the analysis were extracted from the published financial statements of two (2) industrial goods firms in Nigeria for a period of 5 years spanning from 2015-2019. The analysis finings aided in determining whether to reject or accept the null hypothesis. Chapter five summarizes the work done, the theoretical and empirical findings of the study, conclusions and the recommendations.

5.1. Summary of Findings

The summary is made up of the theoretical and empirical findings The theoretical findings are based on the findings of prior investigations, as well as different publications from the literature and the authors' own perspectives on the subject. The findings of the evaluated data of the companies under study, as well as the outcomes and conclusions, are referred to as empirical findings.

5.2. Theoretical Findings

The theoretical findings of this study are based on the Resource Based Theory. According to the Resource Based Theory, when resources are employed properly and under the proper control, there is long-term viability of a system. The company usually has a competitive advantage over its competitors.

5.3. Empirical Findings

Based on the results, the findings are abridged as follows;

i. Opening inventory has a significant and negative relationship with PAT. This mea ns that an increase in the opening inventory will lead to a decrease in profitability.

ii. The study has identified that closing inventory has an insignificant although adverse relationship with PAT.

iii. The study shows that a significantly positive relationship exists between the average inventory and Profit After Tax. A slight upsurge in the average inventory will lead to an increase in profitability.

5.4. Conclusion

Inventory management is a subject that has been examined over time utilizing a variety of sample populations drawn from various industries. This study centred on industrial products firms because of their noteworthy contribution to the expansion of the nation's economy, which will be of great assistance to the country's economic growth and development. Inventory management concerns can have a negative impact on a company's profitability. The resolve of this study was to investigate the influence of inventory management on the profitability of industrial goods companies that are listed on the Nigerian Stock Exchange. The model for this study was resultant from the yearly reports of the companies from 2015 through 2019. Following the formulation and testing of three hypotheses, some variables were rejected or accepted depending on their results.

It is concluded as a result of the research that in order for businesses to improve their financial performance, they must maintain efficient inventory systems, which will assist them to increase profits while also lowering the inventory expenses associated with maintaining excess inventory in their warehouses.

5.5. Recommendations

The findings of this study work have led to the formulation of the recommendations that follow in this research work.

i. Companies can put policies in place to ensure inventory in the warehouses move out faster so that inventory that rolls over to the next accounting period doesn't exceed storage capacity.

ii. Businesses that manufacture industrial goods must devote effort to implementing policies or strategies that will improve their inventory management systems.

5.6. Suggestions for Further Research

Studies on inventory management still have some gaps to fill which consist of:

i. Inventory management should be further studied using other variables to measure profitability.

ii. Study should be carried out on other sectors like the conglomerate sectors, service sector, the ICT sector and the oil ang gas sector.

iii. Studies should be carried out using other analytical tools like STATA and SPSS

5.7. Contribution to Knowledge

The following contributions to knowledge have been made:

i. The study has completed findings which reflects that a significant relationship exists between inventory levels and profitability of industrial goods firms

ii. The research work has contributed to the increasing interest in the area of inventory management in the Nigerian manufacturing sector. It is necessary for firms to adopt proper policies that enhance proper inventory management in order to have positive effects on their profitability.

Acknowledgement

I would like to recognize that this paper is an excerpt from my BSc project, which was completed in the 2020/2021 academic session and submitted to the Department of Accounting at Covenant University Nigeria as part of the requirements for the award of a BSc degree in accounting. I am sincerely thankful to my amiable supervisor, DR. CORDELIA ONYINYECHI OMODERO of the Department of Accounting, Covenant University Ota, Ogun State, Nigeria, for her tolerance, passion, sacrifice, professional guidance and beneficial critiques that improved the overall worth of the research study. Words cannot explain how grateful I am to Covenant University Nigeria for providing me with the chance to complete this assignment. All of my gratitude go to my course mates and friends for all of their help.

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