

**INVENTORY CONTROL AND CONSUMER GOODS SECTOR'S PERFORMANCE IN NIGERIA**

**BY**

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**A PROJECT REPORT SUBMITTED TO THE DEPARTMENT OF ACCOUNTING AND  
FINANCE, COLLEGE OF HUMANITIES, MANAGEMENT AND SOCIAL SCIENCES,  
MOUNTAIN TOP UNIVERSITY, OGUN STATE, IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE AWARD OF THE BACHELOR DEGREE (B.Sc.) IN  
ACCOUNTING.**

**2020/2021**

**CERTIFICATION**

**I certify that this work was carried out by LUCAS MOJOLAOLUWA OMOWUMI at the Department of ACCOUNTING, Mountain Top University, Ibafo, Ogun State, Nigeria under my supervisor.**

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## **DEDICATION**

**I dedicate this project to GOD ALMIGHTY, for his mercy upon my life. He has been my strength from the beginning until this very moment of completing my Bachelor of Science degree Programme in Accounting. I give him all the glory because he is worthy to be praised; I also dedicate this project to my loving mum Mrs. Lucas and siblings for their unending support.**

## **ACKNOWLEDGEMENTS**

**All glory and honor be unto God Almighty, may his name be praised forever in Jesus name (Amen). A work of this kind could not have been achieved unassisted. THE ALMIGHTY GOD has used a number of people who stood by me, throughout the journey to trigger my interest in this work.**

**I am grateful to my family, Mrs. Lucas, Pelumi, Emmanuel and oluwasemilanu for their prayers and support. I express my profound gratitude to my supervisor, DR, J.O. OMOKENHIDE, whom God used to inspire me as regards the topic of this research project, and carefully read through, corrected the outlines and offered useful criticisms while writing this project.**

**I am also thankful to the Dean of College of Humanities, and social sciences, Dr O. J Akinyomi and the Head of Accounting and Finance. I also appreciate my distinguished lecturers of the Accounting and Finance Department lecturers, Dr Pius Onichabor, Dr. Taleatu Akinwumi, Mrs. Abimbola Joshua and Mr. Samson Oladipo who have helped me academically. They all made accounting a very interesting course for me. I pray that God will continue to increase your anointing in Jesus name. I will forever be grateful to God for making me meet good people like these. I pray God's grace and mercies upon your lives will never run dry in Jesus Name, Amen.**

**My sincere appreciation to all my colleagues and friends for their friendship and moral support and to everyone who has one way or the other supported me, contributed to this project and successful completion of my programme.**

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## **ABSTRACT**

This study is set to ascertain the inventory control and consumer goods sectors performance in Nigeria of selected consumable goods firms on Nigeria stock exchange for a (5) five years period of 2016-2020, the dependent variable of this study is return on asset(ROA)while the independent are inventory turnover(IT), gross margin product(GM), stocks to sales ratio(SS), average inventory(AI), the most important finding of this study is that .

## CHAPTER ONE

### INTRODUCTION

#### 1.1. Background of the study

Inventory is defined as the stock of the product that a company is creating for sale, as well as the components that make up the product. Inventories are classified into three categories. Raw resources, semi-finished items, and final goods or products are all examples. According to Chitale and Gupta (2014) 'Inventory is defined as sum of the value of raw materials, fuel and lubricants, spare parts, maintenance consumable, semi processed materials and finished goods, stock at a given point of time, So, inventory management is critical to an organization because it aids in the planning of the materials required, such as identifying the gap between the desired and actual amount of goods, resource allocation, purchasing, sales, and employee employment, as well as everything else related to human resource management, all of which reduces the costs incurred by the organization in the production department for imprecision.

Inventory costs include ordering costs, carrying costs, and shortage costs. Inventory control is one of the material management techniques that helps an organization improve capital productivity by lowering material costs, preventing large amounts of capital from being locked up for long periods of time, and improving the capital turnover ratio. Ordering cost, also known as replenishment cost, is a phrase used in buy models to describe the cost of placing an order with a supplier for any material that an organization needs to create. Dinesh (2017) defined carrying cost as a cost associated with temporary storage item until it is sold, so it involves transfer of ordered materials from the seller to the warehouse so insufficient carrying cost cause of shortage cost on performance of adequate inventory in the organization. An inventory control management system is the combination of

hardware and software that is technology, processes and procedures that help to monitor and maintenance of stocked products like company asset, raw materials, finished productive to final consumers, according to Indira (2018) says 'Inventory control systems are technology solutions that integrate all aspects of organizations inventories tasks, including shipping, purchasing, receiving, warehouse storage turnover, tracking and reordering'. One of the basic function of management s to employ capital efficiently so as to yield the maximum returns, an effective and efficient management inventory flow across the value chain is one of the key factors for success of large and small enterprises.

An inventory system provides the operating policies and organizational structure for maintaining and controlling goods to be stocked, this implies that profit ability of any organization directly and indirectly affected by the inventory management system operated, a company must maintain a suitable level of inventory because its excess or shortage could be detrimental to the company. This was buttressed by Schroeder (2000).

## **1.2 Statement of the project**

Stock-outs constitute a significant inventory control problem facing businesses and, by extension, consumers. A stock-out happens when the number of orders for a product exceeds the amount of inventory that is stored. The impact of a stock-out expands beyond lost sales, however. Out-of-stock situation can reduce customer satisfaction and retail store loyalty and when consumer substitute products, true demand pattern are distorted (Ehrenthal and Drizzle 2013), it also have direct sales loss, damaged brand reputation

### **1.3 Objective of the study**

The overall objective of this study is to examine the effectiveness of inventory managements in consumer goods sector in Nigeria

Specific objectives;

- i. to investigate the effect of inventory turnover rate on the performance in consumer goods sector
- ii. to examine the effect of the gross margin product on the performance in consumer goods sector
- iii. to assess the effect of stocks to sales ratio on the performance in consumer goods sector
- iv. to ascertain the effect of average inventory on the performance in consumer goods sector

### **1.4 Research questions**

- i. What is the effect of inventory turnover rate on the performance in consumer goods sector?
- ii. to what extent does the gross margin product affect the performance in consumer goods sector?
- .iii. What is the effect of stocks to sales ratio on the performance in consumer goods sector?
- iv. What is the effect of average inventory on the performance in consumer goods sector?

### **1.5 Research hypothesis**

**HO1:** There is no effect of inventory turnover rate on the performance in consumer goods sector

**HO2:** There is no effect of the gross margin product on the performance in consumer goods sector

**HO3:** There is no effect of stocks to sales ratio on the performance in consumer goods sector

**HO4:** There is no effect of average inventory on the performance in consumer goods sector

## **1.6 Significance of the study**

This project is significant because it will educate the management of the case study of the need for sound inventory management in an attempt to accomplish the organizational objectives. The study is also significant to the researcher is that it will broaden her knowledge of the subject matter

## **1.7 Scope of the study**

The scope covers inventory management in the consumer sector comprises of flourmill Nigeria plc. Nestle Nigeria plc. PZ Cushion Nigeria plc. Cadbury Nigeria plc. Champion Breweries plc. Dangote sugar Refinery plc. Honeywell flour mill plc. Nigeria Breweries and spanning from 2015 to 2020. It also covers the Ratio of asset on the dependent variable of the mentioned companies above.

## CHAPTER 2

### LITERTURE REVIEW

#### 2.1. Conceptual Review

##### 2.1.1. Inventory

Inventory can be defined as a stock of material that used to facilitate in manufacturing of goods or to satisfy customer needs, Inventory is the collection of finished materials used in production that hold by organization. According to Reph and Milner (2015) says “inventory is the stock of any item held in an organization”

##### 2.1.2. Type of inventory

Ile (2002), opines that inventory is classified into three types which include;

i. Raw material inventory

This includes all items purchased by an organization for processing

ii Work-in-progress inventory

This is also called goods-in-progress inventory

iii Finished goods inventory

This is the stock of finished goods

##### 2.1.3. Purpose of holding inventories:

The purpose of holding inventories according to Chase and Aquilano is to:

i maintain independence of operations

- ii meet variation in product demand
- iii allow flexibility in production scheduling
- iv provide a safeguard for variation in raw material delivery time
- v take advantage of economic purchase order size

#### **2.1.4. Inventory control**

Inventory control is one of the techniques of the material management which helps the organization to improve the productivity of capital by reducing the material costs, preventing the large amount of capital being locked up for long period and improving the capital turnover ratio.

#### **2.1.5. Inventory control management**

An inventory control management system is the combination of hardware and software that is technology, processes and procedures that help to monitor and maintenance of stocked products like company asset, raw materials, finished productive to final consumers.

#### **2.1.6. Inventory control methods**

There are several methods of controlling stock designed to provide in efficient to deciding what, when and how much to order which are inventory review, minimum inventory level, maximum inventory level, re-order level, re-order quantity, re-order lead time, holding cost, ordering cost, economic order quantity, just in time, batch control, first in first out and last in first out

#### **2.1.7. Inventory review**

This review system evaluate inventory at specific time like counting inventory at the end of each month.

#### 2.1.7.1. **Minimum inventory level**

Minimum level of inventory is precautionary level that indicate delivery of raw materials takes more than the normal lead time.

#### 2.1.7. 2. **Maximum inventory level**

Maximum inventory level refers to the maximum capacity of business to stock inventory in the store. It is the quantity material beyond which a firm should not exceed its stocks. If the quantity exceeds maximum level limit then it will be termed as overstocking

#### 2.1.7.3. **Re-order level**

It is the inventory level that a company would place a new order. The order needed to be recouped and re- order when inventory reaches that level. The re-order level formula is that is the inventory level at which an entity should issue a purchase order to replenish the amount at hand. When calculated correctly, the re-order level should result in replenishment inventory arriving just as inventory quantity has the existing declined to zero.

#### 2.1.7.4. **Re-order quantity**

Re-order quantity of the order placed on a new purchase order for the particular item. Here the quantity for re- order is initiated. It is the total number of product units you request from a manufacturer of supplies or an inventory replenishment purchase order.

#### 2.1.7.5. **Re-order lead-time**

It is the time gap between raising an indent and receiving it, it involves delay time applicable for inventory control purpose. Lead time measures how long it takes to complete a process from beginning to end. 6



#### **2.1.7.6. Holding cost**

Holding cost often comes with its costs. This costs can be in the form of direct costs incurred by financing the storage of said inventory or the opportunity cost of holding inventory instead of investing the money elsewhere

#### **2.1.7.7. Ordering cost**

The term replenishment cost is used in purchase models. Whenever any material is to be produced by an organization, it has to place an order with the supplier, the number of orders that occur annually can be found by dividing the annual demand by the volume per order

Formula:  $D/Q$

#### **2.1.7.8. Just in time**

The JIT technique is a Japanese philosophy, rationality associated with assembling which comprises having the right things in the right quality and amount in the correct place and at the opportune time

#### **2.1.7.9. Batch control**

Batch control is the way of managing the production of inventory in batches by make sure that the right quantity of components cover needs until the next batch

#### **2.1.7.10. First in first out [FIFO]**

Method is based on assumption that ensure efficiently so that stock don't deteriorate should be computed out in the order which incurred

#### **2.1.7.11. Last in first out [LIFO]**

Method that ensure certain inventory would be more valuable and more effective in terms of its quality improvement and end use effect.

#### **2.1.7.12. Carrying cost**

Carrying cost can be defined as a cost associated with temporary storage item until it is sold, so it involves transfer of ordered materials from the seller to the warehouse so insufficient carrying cost cause of shortage cost on performance of adequate inventory in the organization

#### **2.1.8. Inventory control techniques**

These are the various techniques that can be employed by organization to minimize cost and by implication maximize profit. Although there are several control techniques for maintaining proper inventory management, here three different control techniques are applied which are discussed below

##### **2.1.8.1. Economic order quantity**

According to Bowersox (2002), the inventory management needs to be organized in a logical way so that the organization can be able to know when to order and how much to order. This must be attained through calculating the Economic Order Quantity (EOQ). Monetary request amount engages correlation to arrange their stock re-establishment on an ideal premise. For instance, the arrangement can be scheduled to happen from month to month, quarterly, half yearly, or yearly.

The economic order quantity is based on following four assumptions:

- A firm has a steady and known demand of  $D$  units each period for a particular input
- The firm consumes the input a uniform rate

- The cost of carrying stocks are a constant C per unit per period
- The cost of ordering more inputs are a fixed amount O per order. Order are delivered instantly

A useful formula for calculating the optimum order quantity is:

$$EOQ = \text{SQUARE ROOT } 2DO/C$$

### **2.1.8.2. Vendor managed inventory**

Vendor Managed Inventory is a streamlined way to deal with inventory management and request satisfaction whereby the merchant is completely in charge of the recharging of stock in light of opportune point of all data to the purchasers (retailer). This idea builds the client responsiveness by lessening the free market activity hole consequently giving the fulfilment to end client by benefiting the coveted item when required. Store network accomplices must share their vision of interest, necessity, and requirement to set the regular destinations. Kazim (2008) identifies that upstream information exchanged to suppliers such as the current stock level and precise deals conjecture is the most vital element for the effective usage of Vendor Management

### **2.1.9. Inventory control metrics**

#### **2.1.9.1. Inventory turnover**

This is the number of times inventory I sold within a period, typically a year.

Why do we need to know this?

A low turnover may suggest that you are overstocking dealing with obsolete goods, or that you have issues with the product or your marketing efforts. Basically, your goods are not selling as expected, on the other hand, a high turnover rate may mean inadequate stock and a potential loss in sales as the

inventory level is too low. You may be experiencing stock shortages because you underestimated demand, or product has gone viral and sales has gone off the charts

Inventory turnover = Cost of goods sold/ average inventory

### **2.1.9.2. Gross Margin Percent**

Gross Margin Percent = (Sales – The Cost of Sales) / Sales

This is the percentage of the selling price or sales revenue that is gross profit

Why is gross margin per cent so important?

Gross margin per cent works hand in hand with inventory turnover. If you have weak gross margins, you might want to focus on increasing your inventory turnover. Assuming the same gross margin for each sale, more sales means a higher level of profits.

Also, your gross margins may reflect your relationship with your suppliers and their pricing. The more power and control your suppliers have, the higher the prices! If you can negotiate the prices and costs for your purchases, a lower cost of inventory means a higher gross margin.

### **2.1.9.3. Customer Order Fill Rate**

Customer Order Fill Rate = Orders that are Shipped in Full / Total Number of Orders

This shows how you are servicing your customers. It shows what percentage of orders your customers are getting on time. It is important because it affects your customer satisfaction and retention rate. Ideally, you should be aiming for 100%. If you're below 100%, your customers might start to doubt your ability to deliver what they want on time, and they may order from your competitors.

How can you improve the customer experience?

You may need to invest in a software solution that shows you real-time inventory levels. Or find a way to keep your sales reps well informed of inventory data to help them ship accurate and complete orders.

#### **2.1.9.4. Cost Of Carrying**

Cost of Carrying = Carrying Costs / Overall Cost

The cost of carrying is the percentage that represents the cents per dollar that is spent on inventory overhead per year. Carrying costs include fixed and variable costs such as storage, handling, obsolescence, damage, theft and general administration.

Why is the cost of carrying important?

A low cost of carrying suggests that inventory is cheap. Not having an accurate value for carrying costs means that you may decide to purchase more stock than you really need, or increase your investment in more warehouse space and forklifts that you don't need right now. How can you reduce your cost of carrying? Start by reducing your inventory. Analyse your sales reports for slow-moving, obsolete or dead stock inventory. Also, take note of fixed versus variable costs and reduce them. Warehouse rent and forklifts are fixed costs as they don't change with your inventory level. Insurance and taxes are variable costs as they are typically a percentage of your inventory's value.

#### **2.1.9.5. Average Days to Sell Inventory**

Average Days to Sell Inventory = (Your Average Inventory/The Cost of Goods Sold) x 365

This is how long it takes a company to turn its inventory into sales, that is, the average length of time that your cash is tied up in inventory. It is a measure of your inventory management efficiency, hence a lower number is preferred. However, the average days to sell inventory varies between industries because of differences in the products and business models. Hence, it is important to compare the number to other similar companies. For example, businesses that sell perishable or fast-moving products such as food will have a lower number than those who sell non-perishable or slow-moving products such as cars or furniture. Why is this indicator important? Because it represents the start of your cash conversion cycle: the process of turning your raw materials into cash. This indicator is typically read together with the inventory turnover ratio. As you have seen, a low inventory turnover suggests overstocking, marketing/product issues, or poorly managed inventory.

#### **2.1.9.6. Return on Investment**

Return on Investment = (Sales / Average Cost of Inventory) x Gross Margin

This is also known as Gross Margin Return on Investment (GMROI). It shows how much you are earning for every dollar invested in your inventory. A number more than 1 means that you are selling the goods for more than what you paid for them. Likewise, a number less than 1 means you are selling them for less than their cost price. GMROI can be used to measure the performance of the entire business, but it is more effective if used for a particular category of goods. If a stock isn't selling, it may be priced too high; but marking it down too much will lead to a smaller gross margin.

#### **2.1.9.7. Item Fill Rate**

Item Fill Rate = Received Quantity / Ordered Quantity

This can be used to measure the order fulfillment performance of a single delivery or for all deliveries during a time period. The term “line” refers to a line on the order since a typical delivery order or shipment will display the name of each ordered product and quantity in its own line. For example, a customer placed a 10-line order with 10 items on each line. If the customer receives the shipment with 100 items, with all of them matching the products on each line, the line fill rate is 100%. However, if one line is missing one item, the line fill rate for that order falls to 90%. If that same line is delivered with only two of the 10 items on the line, the line fill rate will still be 90%, as only one line on the shipment failed to match the order. On the other hand, if three lines on the shipment are each missing just one item, the line fill rate will drop to 70%. There is no magic number for the item fill rate but it is suggested that 95% and above is a figure that you should be aiming for.

#### **2.1.9.8. Cycle time**

Cycle Time = Actual Ship Date – Customer Order Date

The customer order cycle time is the average time it takes from order placement by the customer to final delivery to the customer. It is the time taken to complete all stages in the fulfillment process, for example, picking and packing in the warehouse and shipping time. So it goes to say that if your processes are efficient, your cycle time will be shorter. If they are inefficient, it will be longer.

Benchmarking your customer order cycle time is important. A longer order cycle time means that you may have trouble attracting and retaining customers who are kept waiting for their orders.

So, how can you reduce your customer order cycle time?

For a start, you can reduce the physical travel time for the stock. You can organize the warehouse space for optimum travel and activity. Also, you can try to understand your customer profiles better

so that you can quickly serve and fulfill them. Finally, consider using inventory management software to prevent stock-outs and prioritize reorder quantities.

#### **2.1.9.9. Average Inventory Level**

Average Inventory Level = (Current Inventory + Previous Inventory) / 2

This is the mean value of inventory throughout a certain time period, Inventory levels often fluctuate throughout the year, depending on supply and demand. The average inventory level shows the amount of inventory a business typically holds over the year. This removes the influence of seasonal changes and factors. The average inventory level is used to compare against overall sales volume. This allows you to track inventory losses that may have occurred due to theft, shrinkage, and damage or product expiry.

#### **2.1.9.10. Inventory Accuracy**

Inventory Accuracy = Regular Stock Takes

This refers to how closely your inventory records match your physical inventory. You can't manage inventory if you don't know what you have in stock. Good inventory management requires at least 95 per cent accuracy. This means you should have regular inventory counts. Do this by taking a random sampling of stock and check if anything is missing. Ideally, you should count the items that generate most of your sales several times a year. Slow-moving products need only an annual count. A stock take can be measured by value or count. Both methods give different results for different purposes. Accountants prefer dollar-based measurement. They want to make sure that the inventory value in the books is accurate on the whole. Little discrepancies for individual items do not concern them so long that the in-going and out-going discrepancies are roughly equal and the total value is



the same. On the other hand, operations staff prefer something count-based. They are preoccupied with the accuracy of individual SKUs (stock keeping unit). If there is a discrepancy in one SKU (stock keeping unit), it is sometimes not possible to simply substitute it with another product. They are not interchangeable.

Why is inventory accuracy important?

Stock-outs increase cost and time for everyone involved. Warehouse staff waste time looking for misplaced or missing items, and there are delivery delays. Most importantly, sophisticated inventory management systems require high accuracies of at least 95% to function well and generate the ROI on your software investment. Inaccurate inventory can only hold back your inventory management solution

#### **2.1.9.11. Stocks to sales ratio**

Is the measure of the inventory amount in storage versus the number of sales. This broad calculation can be used to adjust the stock to maintain high margins

Stock to sales ratio = inventory value/sales value

## **2.2. Theoretical Review**

According to Deveshwar and Dhawal [2013] proposed that inventory management is a method that companies use to organize, store, and replace inventory to keep an adequate supply of goods at the same time minimizing cost. On the other hand, Stevenson [2010], inventory management is defined as a framework employed in firms in controlling its interest in inventory. It includes the recording and observing of stock level, estimating future request, and settling on when and how to arrange (Adeyemi and Salami 2010)

### **2.2.1. Just in time theory**

The just in time theory of inventory promote making product only when necessary to fill orders, rather than making inventory in advance and storing it. This help reduce carrying cost, which can include the interest on credit needed to build inventory

### **2.2.2. Lean theory**

Lean theory is an augmentation of thoughts of JIT. The theory disposes of buffer stock and minimizes waste in production procedure. Inventory leanness decidedly influences the productivity of a business firm and is the best inventory control tool.

The theory expounds on how manufacturers' adaptability in their requesting choices diminish the supplies of stock aimed at eliminating costs associated with the transportation of inventory. Feedback presented against the theory insinuates that materials must be available when dealing in long haul cooperation constituting data and information sharing and the exchange of accomplices between firms.

### **2.2.3. Inventory depletion**

Some large retailers and manufacturing buy or create inventory as units are depleted. A grocery store chain, for example, might track each store sale, with the cash register or checkout lane tied to a central inventory computer. As store begin to deplete stock, the central warehouse or ordering office is notified to order replacement items, based on pre-determined mathematical models. A manufacturer might make new product based on reports generated by its sales team or warehouse, which tracks items shipped from the warehouse. These systems take into account the total amount of time it takes to make and ship an item. From the time suppliers are ordered to the time arrives at a customer's business.

#### **2.2.4. Levelized production**

Another theory of inventory control aims to help optimize labor costs by making inventory at a steady rate to avoid peaks and valleys. If you wait until you have sales order to make product, a rush might cause you to add a third shift or overtime worker, or hire another producer to help you fill orders. During slow times, you might have to pay workers who are idle. If you can accurately forecast demand by month, quarter or year, you can speed out your production to keep an even flow.

#### **2.2.5. Theory of constraints**

The Theory of Constraints is an administration reasoning that looks to expand manufacturing throughput proficiency evaluated on the bases of recognizable proof of those procedures that are obliging the industrial system. There are various challenges experienced in the application of the Theory of Constraints. For instance, there is a long lead time, significant number of unsatisfied requests, irregular state of meaningless inventories or nonexistence of appropriate inventories, wrong materials request, expansive number of crises request and endeavor levels, absence of clients engagement, nonattendance of control identified with need orders which suggests on timetable clashes of the assets

### **2.3. Empirical Review**

Excess inventory, according to Gill, Biger, and Mathur (2010), is an operational risk since it consumes valuable storage space and raises inventory expenses. The frequency with which raw materials are ordered has been established as a significant impact in inventory cost. Frequent small-quantity ordering is seen as a crucial tactic.

Inventory technique approaches were utilized by Wild and Axsater (2005) to solve real inventory challenges for businesses in a number of industries, ranging from aerospace to retail consumables,

and from automotive to process chemicals. They stated that a suitable database was required for the strategies to be applied. As a result, manufacturing companies must have a database that is easily identified.

Egberi and Egberi (2011) also stated that having an adequate set of policies for the products to hold inventory, the level of inventory control, and stock management is not optional because stocks make up a substantial part of a manufacturing company's current assets.

Kim, Kwon, and Kaki (2010) investigated a multi-stage inventory control under a customer service-level restriction with no stationary consumer demand. For dispersed inventory control systems, the paper presented a multi-agent based approach.

The best inventory model with multiple orders and allowable shortage was researched by You-jun, Liang, and Yi-qian (2011). The stationary ordering policy was used in the study, and the Lagrange Multiplier Method was used to prove that it is the best ordering policy.

Farzaneh (2012) proposes a mathematical model to aid businesses in their decision to convert from an EOQ to a JIT purchasing policy. The author emphasizes that the economic order quantity model focuses on inventory cost minimization rather than inventory minimization. Farzaneh (2012) indicates that JIT can remove storage, capital, insurance, ordering, and transportation costs based on the mathematical model presented. However, it is contingent on a number of factors.

The role of the Economic Order Quantity model in lowering the cost of raw material inventory at a dairy farm was investigated by isaka (2006). He compared total raw material inventory expenses spent through the project-employed technique to total raw material inventory costs that could have been incurred through the EOQ application. Using the EOQ model, Kisaka discovered that there was a cost savings.

Cycle counting is frequently used in conjunction with ABC analysis to establish inventory cycle by taking a physical count of inventory items and recording the counts on a regular basis (Heyl, 2011).

By reporting on the outcomes of a large-scale field test that assesses the short- and long-run opportunity cost of a stock out, Anderson, Fitzsimons, and Simester (2006) evaluated the effectiveness of several remedies that enterprises might make to minimize the cost of stock outs.

Cannon (2008) conducted a study that yielded inconsistent results. That research looked at the link between inventory performance and entire firm performance, and it was concluded that inventory performance should not be utilized as a reliable indicator of overall performance. It did so to see if the firm's annual percentage change in inventory turnover might be used as a measurement for inventory management rather than return on assets (ROA) as a performance metric.

Firms that are slimmer than the industry average, according to Eroglu and Hofer (2011), perceive favorable benefits to leanness. They discovered that inventory leanness had a primarily favorable and non-linear impact on business performance. Their research also suggests that inventory leanness has a concave effect, which is consistent with inventory control theory, which states that there is an optimal level of inventory leanness beyond which the marginal effect of leanness on financial performance turns negative.

Fullerton et al. (2003) found that firms that implement higher levels of JIT manufacturing practices outperform competitors who do not; they also discovered that there is a positive relationship between firm profitability and the degree to which waste-reducing production practices, such as reduced set-up times, preventive maintenance programs, and uniform workloads, are implemented. These data show that businesses who use just-in-time production procedures are consistently more lucrative than their competitors.

According to Kenneth and Brian (2006), inventory management has four goals: provide both internal and external customers with the required services levels in terms of quantity and order rate fill; determine current and future requirements for all types of inventory to avoid overstocking while avoiding "bottlenecks" in production; and keep costs to a minimum by varying the types of inventory used.

According to Kreg, Cristine, (2007), the appropriate strategy to inventory management can result in remarkable improvements in customer service while lowering inventory levels. It's all too usual to have too much inventory and not enough customer service, but it's not required. There are tried-and-true methods for properly forecasting industrial client demand and calculating the inventory required to provide a set level of customer service.

### 2.3.1. Appendix of empirical review

S/N	Author and year	Title	Objectives	Sample Size and period	Technique/methodology	Findings
1	Gill, Biger and Mathur (2010)	The relationship between working capital management and profitability evidence	The aim of this study is to find statistical significant relationship between the cash conversion cycle and profitability	American firms on New York stock exchange for a period of 3 years from 2005-2007	Regression analysis	This finding revealed that excess inventory is an operational liability,. Because it uses valuable storage space and increase inventory costs.
2	Egberi and Egberi (2011)	Inventory Control and management as effective and efficient tools in achieving organizational	To determine the effectiveness of inventory control and management in achieving organizational	The sample period is from 2005 to 2015	Observational research analysis	This study reveal that it's unnecessary to have an appropriate set of policies concerning the items to carry

		growth in Nigeria	growth			inventory
3	Farzaneh (2012)	The effect of Inventory management on time performance	To determine the effect of inventory management on time management	The sample period extended from 2000 to 2002	Pseudo-likelihood ratio	This study revealed that just in time eliminate the storage, capital, insurance, ordering and transportation costs
4	Eroglu and Hofer (2011)	Lean, leaner, too lean?  The Inventory-performance link revisited	To determine the nature the inventory performance relationship	Two-thirds of the 54 industries studies	Post-hoc analysis	To reexamine the relationship in an attempt to overcome some shortcomings of previous research
5	Kreg, Cristine (2007)	Effects of effective inventory management on performance of business outlets	To determine the effect of information on effective inventory management in retail outlets	A sample of 36 workers was selected to participate in the study	Research simple probability sampling technique	The study was set to investigate the effect of effective inventory management on performance of business outlet

## CHAPTER 3

### METHODOLOGY

#### 3.1. Research design

The research design is cross sectional in a panel pool data form. It requires extraction of cross sectional data from the audited financial statement of the companies listed and grouped under the consumer goods sector. Descriptive statistics from the first to the fourth moments covering mean, variance, skewness and kurtosis were designed for interpreting Inventory behaviour of the consumer goods sector. Beside, multiple linear representing statistical technique was employed to determine the relationships between the dependent and independent variables and the results reported and recommended at the end of the study.

#### 3.2. Population of study

The population of this study is all quoted consumer goods sector in Nigeria consisting of twenty (20) quoted companies

1. Honeywell Flourmill plc.
2. Northern Nigeria Flourmill plc.
3. Union Dicon plc.
4. PZ cushion plc.
5. 7up bottling company plc.
6. Champion Breweries plc.
7. Nigeria Breweries
8. Nestle Nigeria plc.
9. Dangote Sugar Refinery plc.



10. Flourmill Nigeria plc.
11. Cadbury Nigeria plc.
12. Guinness Nigeria Plc.
13. Unilever Nigeria plc.
14. Vita form Nigeria
15. DN tyre and rubber plc.
16. Multi-Trex integrated food plc.
17. International Breweries plc.
18. Livestock feeds plc.
19. Okomu oil plant
20. Presco plc.

### **3.3. Sampling and sampling technique**

The sampling of this study consists of eight listed consumer companies drawn from the population of the 20 listed companies. The sampling technique adopted for the study was based on the companies with available financial statement covering the period under review.. The selected consumer sector include:

1. Flourmill plc
2. Nestle Nigeria plc
3. Nigeria Breweries
4. Dangote sugar Refinery plc
5. Cadbury Nigeria plc
6. PZ cushion Nigeria plc
7. Honey flour plc

8. Champion Breweries

### **3.4. Sample size determination**

The sample size was determined based on the capitalization of the sampled companies to the total capitalization of the consumer goods sector.

### **3.5. Method of data collection**

The method of data collection is the secondary method of data collection, and the data will be collected from the financial audited statement of the sampled firms report from 2016-2020

### **3.6. Reliability of data for the study**

The data for the study were obtained from the financial statements of the sampled companies, and audited by qualified chartered accounting firms before it became public information.

### **3.7. Model specification:**

ROA = F (IT, GM, SS, AI)

$$ROA = \alpha_1 + \beta_1 IT_t + \beta_2 GM_t + \beta_3 SS_t + \beta_4 AI_t + E_t$$

ROA= Return on investment

$\alpha_i$  = Constant or intercept

$B_1, B_2, \dots, B_4$  = Coefficients of the inventory variables

IT= Inventory turnover

GM= Gross margin product

SS= Socks to sales ratio

AI= Average inventory

$E_t$ = Error term

### 3.8. Definition of variable

Table 3.1

S/N	VARIABLE		Formula	Definition
1	Dependent	ROA	$N_{pat}/\text{total asset}$	Net profit after tax over total asset
2	Independent	IT	$\text{Cost of sales}/ \text{average Inventory}$	Cost of sales over average Inventory
3	Independent	GM	$(\text{Sales} - \text{The cost of sales})/\text{sales}$	Sales minus the cost of sales over sales
4	Independent	SS	$\text{Inventory value}/ \text{sales value}$	Inventory value over sales value
5	Independent	AI	$(\text{Beginning inventory} + \text{ending inventory}) / 2$	Beginning inventory plus ending inventory over two

Source: Author's computation

## CHAPTER FOUR

### DATA PRESENTATION, ANALYSIS AND INTERPRETATION

#### 4.0. Introduction

This chapter presents analyses and findings of the research as laid down in the research methodology. The study findings were presented to look into the link between inventory management and financial performance (profitability) of selected consumer goods firms in Nigeria. During this study, the annual reports of seven (7) selected consumer goods companies were used for the purpose of acquiring secondary data. Other sections of the data analysis were done in congruence with the research objectives.

The statistical analysis was done using both descriptive and inferential analysis. The descriptive analysis involves the use of mean, standard deviation, minimum and maximum which were presented in a descriptive table. This inferential statistics was presented with the aids of correlation matrix table and regression table using model summary table, ANOVA table, multiple regression and coefficient table. **4.1. Data Presentation, Analysis and Interpretation**

#### 4.1.1 Descriptive Analysis

**Table 4.1: Descriptive Statistics**

	N	RETURN ON ASSETS	INVENTORY TURNOVER	GROSS MARGIN	STOCK TO SALE	AVERAGE INVENTORY
Mean	50	24.11251	5.06094	.28063	.24489	18886270.63
Std. Deviation	50	40.960902	1.709762	.099632	.116524	14408953.059
Minimum	50	-95.840	1.770	.085	.111	440272
Maximum	50	144.200	8.938	.451	.569	45214229

**Source: Researcher's Analysis, 2021.**

Table 4.1 above shows the mean (average), standard deviation, the maximum values, minimum values of dependent and independent variables. The results expressed helps to provide some insight into the inventory management and performance of the selected consumer goods companies in Nigerian used in this study. First, it can be observed that on the mean, in a 5-year period (2016-2020), the sampled consumer goods used for this study were characterized by positive return on assets (ROA) with the mean value of 24.11%. This is an indication that most quoted consumer goods companies in Nigeria have a positive Return on Assets (ROA) over the study period (2016 to 2020). In addition, results from the descriptive statistics showed that the maximum ROA was 144.2% ( $\pm 40.96$ ) and minimum ROA value of -95.84%. The mean inventory turnover for the study period is 5.06 ( $\pm 1.71$ ), with the minimum of 1.77 and maximum inventory turnover of 8.038. Average gross margin was found to be approximately 0.281 ( $\pm 0.100$ ), with the minimum gross margin of 0.085, and 0.451 maximum gross margin. Furthermore, the average stock to sale ratio (STS) was found to be 0.245 ( $\pm 0.117$ ), with minimum STS value of 0.111, and maximum STC value of 0.569. Finally, the average Inventory (AI) was discovered to be 188.9 ( $\pm 144.1$ ) million, with minimum AI of 4.455 million, and maximum AI of 452.142.

#### 4.1.2 Test of Multicollinearity

Test of Multicollinearity

Table 4.2:

		Correlations				
		RETURN ON ASSETS	INVENTORY TURNOVER	GROSS MARGIN	STOCK TO SALE	AVERAGE INVENTORY
RETURN ON ASSETS	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	35				
INVENTORY TURNOVER	Pearson Correlation	-.168	1			
	Sig. (2-tailed)	.336				

	N	35	35			
GROSS MARGIN	Pearson Correlation	-.080	.115	1		
	Sig. (2-tailed)	.649	.512			
	N	35	35	35		
STOCK TO SALE	Pearson Correlation	.172	-.864**	-.078	1	
	Sig. (2-tailed)	.322	.000	.655		
	N	35	35	35	35	
AVERAGE INVENTORY	Pearson Correlation	-.087	-.403*	.489**	.264	1
	Sig. (2-tailed)	.618	.016	.003	.125	
	N	35	35	35	35	35

The table 4.2 above reports possible multiple collinear relationship among all the variables. The table shows strong negative correlations ( $r=-0.864$ ) between Stock to Sale ratio (STC) and Inventory Turnover (IT), fairly strong positive correlation ( $r= .489$ ) between gross margin and average inventory (AI). Also, IT also moderately negatively correlated with IT.

### Hypotheses Testing

The following hypotheses stated in null form and tested will serve as the basis of this research based on the research objectives;

#### 4.3.1 Hypothesis 1

**H<sub>01</sub>:** There is no effect of inventory turnover rate on the performance of the selected consumer goods companies

Table 4.3a: Model Summary b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.168 <sup>a</sup>	.028	-.001	40.988787
a. Predictors: (Constant), INVENTORY TURNOVER				
b. Dependent Variable: RETURN ON ASSETS				

Table 4.3b: ANOVA <sup>a</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1602.383	1	1602.383	.954	.336 <sup>b</sup>
	Residual	55442.663	33	1680.081		

	Total	57045.046	34			
a. Dependent Variable: RETURN ON ASSETS						
b. Predictors: (Constant), INVENTORY TURNOVER						

<b>Table 4.3c: Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	44.433	21.931		2.026	.051
	INVENTORY TURNOVER	-4.015	4.111	-.168	-.977	.336
a. Dependent Variable: RETURN ON ASSETS						

From the regression tables above (Tables 4.3a-4.3c), the model summary result indicated that there is a negative but weak nonsignificant relationship between Inventory Turnover and performance (proxy by ROA) of the consumer goods companies in Nigeria. This is reflected on the value of the co-efficient of the correlation (R) which is -0.168. This value indicates that the strength of the relationship between the two variables under study is about 16.8% while holding other independent variables constant. The co-efficient of determination ( $R^2$ ) showed a value of 0.028 which indicates about 2.80%. This result implies that on the average about 2.8% variations in ROA within the period under review is systematically explained by changes in inventory turnover. Thus, not more than 97.20% variations in the Return on Assets (ROA) remain unexplained by this explanatory variable. The coefficient value is -4.015 (depicts a negative correlation) with a corresponding small F-value of 0.954, and p-value of 0.336, which is greater than the 0.05 (5%) significance level (at 95% Confidence interval). This depicts a statistically nonsignificant relationship between inventory turnover and ROA of the consumer goods companies in Nigeria. We therefore do not reject the null hypothesis of no significant relationship between the inventory turnover and the profitability of selected consumer goods firms in Nigeria..

### 4.3.2 Hypothesis 2

**Ho2:** There is no effect of the gross margin product on the performance of the consumer goods companies in Nigeria.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.080 <sup>a</sup>	.006	-.024	41.444683

a. Predictors: (Constant), GROSS MARGIN

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	362.208	1	362.208	.211	.649 <sup>b</sup>
	Residual	56682.838	33	1717.662		
	Total	57045.046	34			

a. Dependent Variable: RETURN ON ASSETS  
b. Predictors: (Constant), GROSS MARGIN

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	33.306	21.210		1.570	.126
	GROSS MARGIN	-32.760	71.339	-.080	-.459	.649

a. Dependent Variable: RETURN ON ASSETS

From the regression tables above (Tables 4.4a-4.4c), results indicated that there is a negative, very weak nonsignificant relationship between gross margin and performance (proxy by ROA) of the selected consumer goods companies in Nigeria during the study period. This is reflected on the value of the co-efficient of the correlation (R) which is 0.08. This value indicates that the strength of the relationship between the two variables under study is about 8% while holding other independent variables constant. The co-efficient of determination ( $R^2$ ) showed a value of 0.006 which indicates



about 0.60%. This result implies that on the average about 0.6% variations in ROA within the period under review is systematically explained by changes in gross margin. Thus, not more than 99.40% variations in the Return on Assets (ROA) remain unexplained by this explanatory variable. The coefficient value is -32.76 (depicts a negative correlation) with a corresponding small F-value of 0.211, and p-value of 0.649, which is greater than the 0.05 (5%) significance level (at 95% Confidence interval). This depicts a statistically nonsignificant relationship between gross margin and ROA of the consumer goods companies in Nigeria. We therefore do not reject the null hypothesis of no significant relationship between gross margin and the profitability of selected consumer goods firms in Nigeria.

### 4.3.3 Hypothesis 3

**H<sub>03</sub>:** There is no effect of stocks to sales ratio on the performance of the consumer goods companies in Nigeria

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.172 <sup>a</sup>	.030	.000	40.954674

a. Predictors: (Constant), STOCK TO SALE

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1694.629	1	1694.629	1.010	.322 <sup>b</sup>
	Residual	55350.417	33	1677.285		
	Total	57045.046	34			

a. Dependent Variable: RETURN ON ASSETS  
b. Predictors: (Constant), STOCK TO SALE

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

1	(Constant)	9.275	16.304		.569	.573
	STOCK TO SALE	60.587	60.276	.172	1.005	.322
a. Dependent Variable: RETURN ON ASSETS						

From the regression tables above (Tables 4.5a-4.5c), results indicated that there is a positive, weak non significant relationship between stock to sale (STS) ratio and performance (proxy by ROA) of the selected consumer goods companies in Nigeria during the study period. This is reflected on the value of the co-efficient of the correlation (R) which is 0.172. This value indicates that the strength of the relationship between the two variables under study is about 17.2% while holding other independent variables constant. The co-efficient of determination ( $R^2$ ) showed a value of 0.030 which indicates about 3%. This result implies that on the average about 3% variations in ROA within the period under review is systematically explained by changes in STS ratio. Thus, not more than 97% variations in the Return on Assets (ROA) remain unexplained by this explanatory variable. The coefficient value is 60.587 (depicts a positive correlation) with a corresponding small F-value of 1.010, and p-value of 0.322, which is greater than the 0.05 (5%) significance level (at 95% Confidence Interval). This depicts a statistically non significant relationship between STS ratio and ROA of the consumer goods companies in Nigeria. We therefore do not reject the null hypothesis of no significant relationship between STS ratio and the profitability of the consumer goods firms in Nigeria.

#### 4.3.4 Hypothesis 4

**H<sub>0</sub>4:** There is no effect of average inventory on the performance of the consumer goods companies in Nigeria

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.087 <sup>a</sup>	.008	-.022	41.418506

a. Predictors: (Constant), AVERAGE INVENTORY

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	433.789	1	433.789	.253	.618 <sup>b</sup>
	Residual	56611.257	33	1715.493		
	Total	57045.046	34			

a. Dependent Variable: RETURN ON ASSETS  
b. Predictors: (Constant), AVERAGE INVENTORY

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	28.794	11.649		2.472	.019
	AVERAGE INVENTORY	-2.479E-7	.000	-.087	-.503	.618

a. Dependent Variable: RETURN ON ASSETS

From the regression tables above (Tables 4.6a-4.6c), results indicated that there is a negative, weak nonsignificant relationship between Average Inventory (AI) and performance (proxy by ROA) of the consumer goods companies in Nigeria during the study period. This is reflected on the value of the co-efficient of the correlation (R) which is 0.087. This value indicates that the strength of the relationship between the two variables under study is about 8.7% while holding other independent variables constant. The co-efficient of determination ( $R^2$ ) showed a value of 0.008 which indicates about 0.8%. This result implies that on the average about 0.8% variations in ROA within the period under review is systematically explained by changes in average inventory. Thus, not more than 99.2% variations in the Return on Assets (ROA) remain unexplained by this explanatory variable.

The coefficient value is  $-2.479E-7$  (depicts a negative correlation) with a corresponding small F-value of 0.253, and p-value of 0.618, which is greater than the 0.05 (5%) significance level (at 95% Confidence Interval). This depicts a statistically nonsignificant inverse relationship between AI ratio and ROA of the consumer goods companies in Nigeria. We therefore fail to reject the null hypothesis of no significant relationship between AI and the profitability of the consumer goods firms in Nigeria.

#### 4.3.4 Regression Matrix

<b>Table 4.7a: Model Summary<sup>b</sup></b>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.243 <sup>a</sup>	.059	-.066	42.295668	2.131
a. Predictors: (Constant), AVERAGE INVENTORY , STOCK TO SALE , GROSS MARGIN , INVENTORY TURNOVER					
b. Dependent Variable: RETURN ON ASSETS					

<b>Table 4.7b: ANOVA<sup>a</sup></b>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3377.340	4	844.335	.472	.756 <sup>b</sup>
	Residual	53667.706	30	1788.924		
	Total	57045.046	34			
a. Dependent Variable: RETURN ON ASSETS						
b. Predictors: (Constant), AVERAGE INVENTORY , STOCK TO SALE , GROSS MARGIN , INVENTORY TURNOVER						

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Toleranc e	VIF
(Constant)	54.784	78.028		.702	.488		
INVENTORY TURNOVER	-5.586	9.658	-.233	-.578	.567	.193	2.182
GROSS MARGIN	22.943	92.292	.056	.249	.805	.622	1.607
STOCK TO SALE	11.504	127.758	.033	.090	.929	.237	3.212
AVERAGE INVENTORY	-6.171E-7	.000	-.217	-.877	.387	.512	1.954

a. Dependent Variable: RETURN ON ASSETS

From the overall regression matrix tables above (Tables 4.7a-4.6c), the model summary result with the R-value of 0.243 indicates that there is a positive correlation between independent variables (inventory turnover, gross margin, stock to sale ratio and average inventory) and dependent variable (Profitability of manufacturing companies). This value indicates that the strength of the relationship between the profitability of the selected consumer goods firms in Nigeria and the independent variables under study is about 24.3%. The coefficient of determination (R<sup>2</sup>) showed a value of 0.059 which indicates about 5.9%. This result implies that on average about 5.9% of profitability can be systematically explained by changes in all the independent variables. Thus, not more than 94.1% of variations in profitability of the consumer goods companies can be attributed to other extraneous variables. Since the calculated F-value (0.472) with its corresponding p-value (p=0.756) is greater than the p-value (5%  $\alpha$ -level), we know there is a nonsignificant statistical relationship between the dependent and independent variables. Durbin Watson statistic of 2.131 is close to 2, pointing to the absence of auto-correlation. The average tolerance value is 0.391 (not less than 0.10) and the average Variance Inflation Factor (VIF) is 2.239 (less than 2.5), indicating absence of collinearity.

Thus, the general model would be represented as:

$$ROA = \beta_0 + \beta_1IT + \beta_2GM + \beta_3STS + \beta_4AI + \epsilon_i.$$

$$ROA = 54.784 - 5.586(IT) + 22.943(GM) + 11.504(STS) - 6.171E-7(AI) + 78.028$$

#### **4.4. Discussion of Findings**

Excessively stocking can result in funds being tied down, increase in holding cost, decline of materials, obsolescence and theft. On the other hand, deficiency of materials can lead to interruption of products for sales, poor customer relations and underutilize machines and equipment. Therefore, Inventory management is an important part of supply chain management. The overall objective of this study is to examine the effectiveness of inventory managements in the selected consumer goods firms. The study extracted data from the annual reports of seven (7) selected consumer goods companies and subjected it to both descriptive and inferential statistical analysis. Performance was measured by return on assets (ROA). Inventory Turnover (IT), Gross Margin (GM), Stock to Sales ratio (STS), and Average Inventory (AI) were the independent or explanatory variables which were considered as proxy for measuring inventory management.

Descriptive analysis showed that in a 5-year period (2016-2020), the sampled consumer goods used for this study were characterized by positive return on assets (ROA) with the mean value of 24.11%. This is an indication that most quoted consumer goods companies in Nigeria have a positive Return on Assets (ROA) over the study period and made good profit on assets. This is similar to the finding published by Ajayi, Olufemi and Araoye (2021) who also reported positive ROA among Nigeria consumer goods companies within similar study period. This was also corroborated by position average gross margin (GM) of 0.281. This positive ROA and GM can also be linked to not too bad inventory turnover (IT) and good stock to sale (STS) rat for the study period which was found to

5.06 ( $\pm 1.71$ ). The average Inventory (AI) was discovered to be 188.9 ( $\pm 144.1$ ) million. This is positive when it is considered in form of STS ratio.

**Objective 1: To investigate the effect of inventory turnover rate on the performance of the company**

The first test of hypothesis showed a negative nonsignificant effect of inventory turnover (IT) on return on equity (ROA). This finding suggest that as inventory turnover is increasing ROA is decreasing which is against a priori's expectation as inventory turnover ratio represents the number of times a firm's entire inventory has been sold during a given accounting period. IT ratio is a critical aspect in the performance of any organisation that deals with inventory, it reveals how successfully a company controls its inventory levels and how often it refreshes its stock. Because inventories are the least liquid form of asset, a higher inventory turnover is generally desirable. This finding also contradicts **Just in Time Theory (JIT)** which states that that companies should maintain a minimum level of inventory or just the material which fulfills the current need of production because excess material creates opportunity cost and holding cost. Kirachi (2009) and Okoye, Amahalu ,Nweze and Obi (2016) found out that Inventory turnover has a positive relationship with return on asset and also has a positive relationship with net profitability margin ratio. The finding can be justified in that, a low turnover rate could indicate overstocking; yet, a high turnover rate may indicate insufficient stock and a potential loss in sales due to a low inventory level. However, this finding is similar to the findings of Edwin and Florence (2015) who found a negative relationship between inventory turnover and the profitability. Also, Panigrahi (2013) found that there is a negative relationship between inventory turnover and a firm's ability to earn profit by its operations.

**Objective 2: To examine the effect of the gross margin product on the performance of consumer goods firms**

Similarly, while examining the effect of gross margin (GM) on performance of consumer goods firms in Nigeria. The study found nonsignificant weak negative correlation between GM and ROA. This result implies that as GM is increasing ROA is decreasing which is against a priori's expectation as GM ratio represents the profit made by the company in ratio. The ratio determines how profitable a company's inventory may be sold. It is preferable to have a larger ratio, so a positive correlation was expected. The purpose of margins is "to determine the value of incremental sales, and to guide pricing and promotion decision (Ashley, 2017). A high gross margin indicates that a company is making profit from its sales. The above results show that if there is an increase in by 1 unit then performance will decrease by 0.172 unit. Addae et al. (2013), Alawwad (2013), Al-Taani (2013), Nguyen and Nguyen (2015), all revealed a positive relationship between performance and GM in previous studies.

**Objective 3: To assess the effect of stocks to sales ratio on the performance of selected consumer companies in Nigeria.**

According to the findings of the test of third hypothesis, stock to sales (STS) ratio is not statistically significant but having a direct positive relationship ( $p=0.322$ ,  $r= 0.172$ ) with profitability (return on assets) of the selected consumer goods companies. This positive correlation specifies that as the STS ratio increases, the profitability of the firms also rises which means that greater the STS ratio, higher will be the profitability which contradicts **just in time Theory** which states that companies should maintain a minimum level of inventory or just the material which fulfills the current need of production. Excess material creates opportunity cost and holding cost. This theory focuses on inventory control and provides an assumption to maintain a STC ratio within certain range. High



STC ratio when scarcity is not anticipated will increase operational cost and might give room for spoilage, wasting or thieving of raw materials. So there is need to adjust the stock/sales ratio and the stock turnover in order to maintain stock levels that are conducive to profitable retail operations.

**Objective 4: To ascertain the effect of average inventory on the performance of the consumer goods companies.**

The results presented above indicate that average inventory ( $p=0.253$ ,  $r=0.087$ ) is not statistically significant and is having an inverse (negative) relationship with profitability (proxy by ROA) of the selected consumer goods firms. This finding is similar to the findings of Malik and Bukhari (2014). This shows that as AI decreases profitability increases, while increasing the average inventory will negatively affect the ROA which implies that the sampled firms will have to maintain average inventory within range to enhance their profitability. Furthermore, organisations with very high average inventory will make lesser profit because of additional holding cost, while organisations with very low inventory will find it difficult to meet customers' demand. Inventories are held because of the benefits the firm derives from them, but there are also some costs associated with holding them. For this reason, they should be held at optimal levels. This findings and line of discussion were also shared by Malik and Bukhari (2014), Napompech (2012) and Bagchi, Chakrabarti & Roy (2012).

Finally, regression matrix showed that the combined effect of all the studied inventory control parameters (IT, GM ratio, STS ratio and AI) are positively though, insignificantly correlated with profitability (ROA). The findings showed that a unit increase in inventory control will increase ROA by 24.3% percent. This is in line the findings of Chen at al., (2005) who reported that badly managed inventory predicts future low return. Also, Okoye, Amahalu ,Nweze and Obi (2016) studied the relationship between inventory and financial performance in manufacturing companies

and reported a positive correlation between a company's inventory management and its financial performance. Conversely, Thogon and Jane (2014) investigated the association between inventory management policies and the financial performance of a firm found no evidence that inventory control impact financial performance as measured by return on asset

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.0. Introduction**

This chapter discusses the summary of the research findings, conclusion gotten from the survey and the necessary recommendations.

#### **5.1. Summary**

The major goal of this study was to examine the effectiveness of inventory managements in enhancing the performance of selected Nigeria's consumer goods firms. The following are the components of inventory control that were used as independent variables: Inventory Turnover (IT), Gross Margin (GM) ratio, Stock to Sale (STS) ratio, and Average Inventory (AI). Profitability of the consumer goods firms in Nigeria was measured by Return on Assets (ROA). Related literatures related to the major concepts of the study was reviewed in line with the study's objectives and previous related study which served as sources of empirical. The theoretical frameworks on which the study was anchored are: Just in Time Theory, Lean Theory, Inventory Depletion Theory, Levenized Production Theory, and Theory of constraint which are the key inventory control theories recognized in the literature.

The study employed correlation research design and relied solely on secondary data from the financial statements of consumer goods companies listed on the Nigerian Stock Exchange (NSE) between 2016 and 2020. The population of the study was made up of the 20 consumer goods companies listed on the Nigerian Stock Exchange as at December 31,2019, out of which 8 firms were randomly selected out of those that met inclusion criteria. Data generated was subjected to both descriptive and inferential analysis with the aid of Statistical package for social sciences (SPSS) Version 23. The results of the analysis are summarized as below;

Collectively, all the selected companies operated on a positive profitability over the study period with mean ROA of 0.2411

The average inventory turnover was found to be 5.06.

The average GM ratio over the study period for selected consumer goods firms in Nigeria is about 0.28.

An average STS ratio of 0.245.

A nonsignificant negative correlations between Inventory turnover and ROA ( $p=0.336$ ,  $r=0.168$ ).

Gross Margin ratio had nonsignificant weak negative effect on ROA ( $p=0.649$ ,  $r=0.080$ ).

Stock to Sale ratio had nonsignificant very weak positive effect on ROA ( $p=0.322$ ,  $r=0.172$ ).

Furthermore, cash Average Inventory also had nonsignificant very weak inverse effect on ROA ( $p=0.618$ ,  $r=0.087$ ).

Finally, all the independent variables had combined non-significant positive effect on ROA ( $p=0.843$ ,  $r=0.133$ ).

## **5.2. Conclusion**

In developing countries like Nigeria, putting in place a proper inventory control system in any firm is a must. With an effective inventory management system in place, the firm's performance may readily be improved. Profit-making as a result of cost-cutting and revenue-maximization will improve firms' performance. This can be accomplished with the help of a good inventory management system. Effective inventory management will boost a company's performance,

especially now that most businesses operate in increasingly competitive industries and sectors around the world.

Firms, on the other hand, have overlooked the potential savings from efficient inventory management, regarding inventory as a necessary evil rather than an asset that has to be managed. As a result, effective inventory management systems are built on rules that are arbitrary. The cumulative positive effects of inventory control parameters on the performance (notwithstanding it was insignificant) of the elected consumer goods companies highlights the importance of effective inventory control on profitability.

Profitability can be raised not just by increasing sales volume, lowering production costs, or adopting another operational strategy, but also by managing and focusing on specific ratios. A company or a manager who concentrates on such ratios can get a competitive advantage in the market. It is commonly assumed that inventory management plays a significant role in determining a company's success. However, according to the findings of this study, there is no significant link between performance and inventory control.

### **5.3. Recommendations**

The study recommends that:

1. Consumer goods firms in Nigeria should embrace inventory control as an effective tool to enhance financial performance, profitability..
2. Consumer goods companies must guarantee that their stock levels are enough to meet client needs at all times.
3. Consumer goods companies should keep stock at a margin not too high to avoid holding cost and not too low to meet customers' demand.

4. Firms should constantly monitors both the stock/sales ratio and the stock turnover in order to maintain stock levels that are conducive to profitable operations.
5. Stock/sales ratios should be adjusted regularly.
6. Strategic measures to strengthening partnership with debtors for easier collection of receivables, putting measures to avoid bad debts such as analysis the customer risk on payment, and most importantly instituting effective cash management system in place.

#### **5.4. Further Study Areas**

1. Future research may include adding more ratios as dependent variables on the same or other significant independent variables, such as gross profit to cost earnings ratio.
2. Future studies may consider the industrial characteristics as well as the impact of the underlying link.

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