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Keywords: financial performance, inventory management, inventory procurement, inventory security, inventory usage.

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ABSTRACT

This study examined the impact of inventory management on the financial performance of Nigerian listed manufacturing companies. The study collected data using a combination of primary and secondary methods. The population of the study is made up of listed manufacturing companies in Nigeria throughout a ten-year period from 2011 to 2020. For the administration of the structured questionnaire, the target group consisted of 200 employees from the finance and store divisions, while secondary data were acquired using the enumeration technique. By examining the structures of the questions in the questionnaire, content validity was employed to validate the study instrument. The study instrument passed the Cronbach Alpha reliability test with an overall score of 0.925, which is greater than the 0.70-0.80 requirement. A total of 170 questionnaires were retrieved, accounting for 85 percent of the total disseminated surveys. Secondary data were gathered from audited yearly reports and accounts during a ten-year period. Inferential statistics were used to examine the hypotheses. Inventory control has a considerable favorable effect on the financial performance of listed industrial enterprises in Nigeria. The study revealed that inventory control has a significant impact on the financial performance of quoted industrial companies in Nigeria. According to the report, managers should improve their strategic relationships with suppliers and provide adequate automated security for tracking inventory movements around the company.

Keywords: financial performance, inventory management, inventory procurement, inventory security, inventory usage.

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I. INTRODUCTION

The business world is speedily increasing, and companies from all over the world are competing for a larger share of the market. Globalization allows businesses to target customers from all over the world, regardless of their location, making this possible. Furthermore, technology improvements have raised customer awareness of the availability of certain goods and services in other countries, leading to a more sophisticated demand for goods and services. Customers' exposure to specific goods and services in many countries may render identical products and services offered by local businesses obsolete if those goods and services do not meet global standards for quality, delivery timeliness, and cost (Thanasak & Patricia, 2013). Businesses must apply strong strategies focused on offering value to customers, sustaining profitability, and expanding market share to accomplish this milestone. According to Raymond, Vincent, Mercy, and Bellah (2015), marketing strategy, product design and packaging, lower pricing, timeliness of delivery, good quality, and well-motivated staff members are all effective

techniques for gaining a larger market share (2015). From the foregoing, it can be deduced that product quality, rather than other forms of methods, is what gives clients the amount of happiness they desire. This is due to the fact that when quality is assured, all other methods succeed. Customers will only use their hard-earned cash if they are satisfied that the product or service they are purchasing will deliver the value and satisfaction they require. According to Vipulesh (2015), the materials/inputs used and the technology used to process them determine product quality. This is based on the idea that when low-quality materials are treated with high-technology equipment or high-quality materials are processed with low-technology equipment, the finished product may not be of the required quality. As a result, materials/inventory used in the manufacturing process are an important part of achieving organizational goals in terms of quality delivery, and they are part of business current assets, which, due to the nature of their operations, also represent the largest cost for manufacturing and trading companies (Vipulesh, 2015). As a result, companies should implement fundamental controls to ensure that the right amount and quality of supplies are delivered to the right place at the right time for the best price (Gbadamosi, 2016).

Consequently, the company's operating environment typically influences the adoption of good inventory control procedures to achieve high and long-term financial success. Most firms in developed economies throughout the world, such as the United Kingdom, the United States of America, Germany, and Japan, operate in a more competitive, organized, and accommodating business climate than enterprises in Africa, according to Timothy, Patrick, Nebat, and Virginia (2013). The organized business environment, combined with the competitive nature of firms in the industrialized world, allows them to properly manage their inventories since the environment supports inventory planning and control within businesses. However, in Africa, particularly in Nigeria, the use of inventory control techniques to achieve high financial performance is still lacking, as inventory planning and control are frequently hampered by poor competition among companies, a lack of trust between inventory suppliers and companies, and within an organization's ordering and inventory handling units (Gbadamosi, 2016). Manufacturing enterprises had been witnessing falling profitability due to rising production costs. Every company's major goal is to maximize profits, and one of the most successful methods to do so is to employ cost-cutting techniques. A diminishing profit can be addressed by reducing waste, boosting productivity, and enhancing profitability when the proper inventory is used in production. Buying the right amount of inventory at the right time reduces the risk and cost of stock-outs and obsolescence, decreasing costs and increasing profits. This will also help the company to take advantage of quality discounts, allowing it to buy at a reduced price and so increase profit. Similarly, cash that would have gone into inventories could have yielded a better return. Inventory control is viewed as a vital approach for correcting the declining profitability circumstances that have plagued most businesses in recent years, particularly manufacturing industries (Akpakip, 2017). The purpose and hypotheses of the study, literature review, methodology, data analysis and interpretations, as well as conclusions and recommendations, are all included in the following sections of the paper.

1.2 Purpose of the Study

The purpose of the study is to examine the impact of inventory management on the financial performance of manufacturing firms in Nigeria. The specific objectives are to:

i. Examine the impact of inventory control on the financial performance of Nigerian listed manufacturing firms.
ii. Examine the impact of inventory turnover period on the financial performance of Nigerian listed manufacturing firms.

1.3 Research Hypotheses

The following hypotheses are formulated for the study

Ho1: Inventory control has no significant effect on the financial performance of listed manufacturing firms in Nigeria.

Ho2: Inventory turnover period has no significant effect on the financial performance of listed manufacturing firms in Nigeria.

II. LITERATURE REVIEW

2.1 Conceptual Review

Financial Performance is a comprehensive measure of a company's overall financial strength over time that can be used to compare and evaluate similar businesses in the same industry. Financial performance is a metric that measures a company's financial stability and profitability. The goal of assessing an organization's financial health is to offer information to various stakeholders inside the company. Stakeholders in an organization might range from trade creditors to bond holders, lenders, investors, employees, and management, and each has unique information demands that push them to keep track of the company's financial success. Different metrics can be employed to examine or compute financial performance, but each one depicts or illustrates a different part of it. The entire financial health of a business over time is referred to as financial performance. Financial performance analysis is a method of assessing a company's operating and financial features from financial statements, and it is quantified as return on assets using accounting figures in this study (Olusakin, 2015; Caroline et al., 2017).

Inventory, according to Kilonzo et al. (2016), refers to under-utilized physical goods/stock with a high economic value that organizations keep for packaging, processing, or sale. The nature of inventory held by businesses, as well as its monetary value, varies from one to the next. That is, an organization's finished goods inventory can be used as input by other organizations. Otuya and Eginwin (2017) define stocks of raw materials, semi-finished items, and finished goods held by businesses to aid in the production process. Inventory, according to Ashok (2013), is "the entirety of all tangible property retained by enterprises for sale in the ordinary course of their business, for further production for such sale, and processed to be made accessible for sale."

Organizations can cut expenses and, as a result, enhance profits by employing a number of inventory control approaches. The study has carefully chosen a variety of inventory controls that have been categorized and will be compared to other inventory control systems. Inventory Security Control (Regular Stock Taking and Use of Technology), Procurement Control (Strategic Supplier Partnership and Material Requirement Planning), and Inventory Usage Control (Just-In-Time and Safety Stock Level). The principal inventory control classifications, as well as their sub-classifications, are Inventory Usage Control (Just-In- Time and Safety Stock Level).

2.1.1 Inventory Procurement Control

Businesses either buy or manufacture their own inventories to make a variety of products. When materials must be produced in-house for quality reasons, organizations may still need to buy component parts from outside sources, necessitating procurement controls aimed at forecasting and determining future inventory needs, determining the strength and reliability of suppliers, and developing formidable negotiation skills, among other things (Denisa, 2014). This study looks at two procurement controls: strategic supplier partnerships and material need planning. According to Timothy et al., (2013), a supplier partnership is an agreement between parties such as customers/firms and suppliers/vendors to build a strategic relationship based on mutually agreed-upon win-win conditions. The strategic vendor alliance, according to this notion, focuses on beneficial working relationships between consumers and suppliers rather than disputes. Companies' shift to a "Just-in-Time" production style aimed at reducing waste, shortening delivery gestation periods (lead time), improving flexibility, and simplifying the supply of major component parts by suppliers sparked the desire for and development of the concept of a "Strategic Suppliers Partnership" in the 1980s (Davood et al., 2013). Working backwards from a master production flow plan's schedule of quantities and

specification of the need dates for finished products to establish the inventory component requirements needed to meet the company's master production plan is known as material requirement planning (Raymond, et al., 2015). According to Caroline et al., (2017), procurement/material requirement planning encompasses the entire process of getting inventory, and it starts when the company recognizes or specifies inventory needs and decides on procurement requirements ahead of time.

2.1.2 Inventory Security Control

Organizations that deal with inventory, whether for manufacturing or resale as finished items, should try to have some type of inventory security system in place to avoid inventory loss. Because of the large financial investment in inventory and the repercussions that inventory loss due to poor security measures can have on the manufacturing process as well as the organization's financial resources, inventory security is necessary in every firm. Acquired inventory, used inventory, and unused inventory will all be balanced at all times thanks to the security measures or controls. Various industrial and mercantile enterprises must build a well-organized and official procedure for internally ensuring inventory security (Benjamin & Daniel, 2016). If inventory handlers and storage specialists succeed in preserving internal inventory security, firms will be able to develop a written protocol for dealing with inventory security challenges (Troxell, 2015). Management usually establishes internal inventory security strategies, which are referred to as internal inventory loss prevention practices. According to Jolla (2014), businesses use internal practices such as documented record keeping, procedural and sequential stock marking, stock taking, documented procedural stock audit and surveillance, and stock checking procedures to maintain inventory security (2014).

2.1.3 Inventory Usage Control

Inventory is purchased and stored by businesses for use in the manufacturing or production process. The utilization of inventories, on the other hand, is influenced by the type of demand experienced by the company as well as its industry size. While some businesses may just store the inventory required to produce predetermined goods, the majority strive to have buffer or safety stock on hand to ensure that production continues until ordered supplies arrive. The inventory usage controls used in this research are Just-in-Time and Safety/Buffer Stocks. Just-in-Time Inventory and Production, also known as Zero-Stock Inventory and Production, is a term used to describe organizational approaches for avoiding inventory waste, with an emphasis on the procurement of inventories required to generate specified commodities (Cynthia & Amuhaya 2015). This means that the just-in-time strategy is an inventory management technique for producing a predefined number of products by storing just enough resources in just the right place at just the right time. Safety stock, according to Anichebe (2013), is the amount of inventory held by businesses to avoid stock outs caused by factors such as extended lead times, inaccurate inventory forecasts, quantity delivery variances (the difference between requisitioned and delivered material), and inventory price fluctuations. According to this definition, a company's safety inventory must take into account the company's inventory consumption pattern, which is typically assessed by looking at previous consumption records or forecasting future consumption. According to Anichebe (2013), the problem with inventory control is calculating the optimal stock safety level due to the unpredictability of demand.

2.2.1 Inventory Security Control and Financial Performance

Kariuki (2013) used safety stocks as a proxy for inventory control and net profit as a measure of performance to evaluate the relationship between inventory management and the profitability of a few chosen Nairobi businesses. The regression results revealed a robust correlation between stock purchases on a regular basis and financial performance. Cynthia and Amuhaya (2015) examined the impact of inventory control on sugar manufacturing firms' procurement performance in Kenya's western sugar belt. The

main purpose of the study was to see how lean inventory systems, just-in-time (JIT), technology, and strategic supplier alliances affected the performance of sugar producers in Kenya's western sugar belt. A survey descriptive research approach was used to conduct the study. Because of the study's methodology, data were collected using a self-administered questionnaire. The data were analyzed using SPSS, and the variables were described using tables and figures. The association between the variables was evaluated using ANOVA, which demonstrated a non-significant link between the use of technology in inventory control and the return on equity of western sugar enterprises. Kwadwo (2016) considered the impact of effective inventory control on the profitability of Ghanaian manufacturing using a cross-sectional study technique. To span a sixteen-year period (2004–2014), primary and secondary data from the annual reports of four manufacturing enterprises listed on the Ghana Stock Exchange, as well as a questionnaire, were used. The dependent variables were ROA and NPBT, while the independent variables were strategic supplier partnerships and regular stock taking. Ordinary Least Squares (OLS) analysis revealed a positive and significant relationship between regular stock taking, strategic supplier partnerships, and return on assets. Salawati et al. (2012) studied the relationship between inventory control practice and company performance and capital intensity on eighty-two (82) construction businesses in Malaysia over a five-year period (2006–2010). As proxies for independent variables, material requirement planning and computerized inventory systems, as well as the use of technology, were used, while financial performance was measured using Return on Assets (ROA). The findings of the correlation and regression analyses demonstrated a significant positive relationship between the use of technology and the financial performance (ROA) of the organizations under investigation.

Kilonzo et al. (2016) investigated the inventory management and financial performance of a few Kenyan manufacturing companies. The study relies on original data collected via a questionnaire. The questionnaires were tested for both reliability and validity in a pilot study. Strategic supplier relationships, the use of technology in stock record keeping, and material need planning were independent variables in the study, while Return on Asset (ROA), Tobin's Q, and Return on Equity were dependent variables (ROE). The variables were subjected to pre-estimation tests such as multicolinearity and homoscedasticity tests. Descriptive and inferential statistics were used to assess the linear relationship between the dependent and independent variables. The study discovered a positive and significant correlation between the use of technology and the firms' return on investment (ROI).

JIT, Computerized Inventory System, Strategic Supplier Relationship, and Material Requirement Planning were utilized as proxies for inventory control procedures in the financial performance of Mombasa County enterprises by Raymond et al., (2015). (Textile, rolling mills, and food and beverage manufacturing firms in Mombasa County). ROE and NPBT were also used to assess the financial performance of the organizations under study. To test the reliability of research tools, the Split Half Reliability Test was utilized. Similarly, Egberi and Egberi (2011) employed a well-structured questionnaire to gather data from 216 randomly selected employees in order to study the link between efficient inventory control and the profitability of an industrial organization. Regular stock taking and safety stock were independent variables, while ROE was the dependent variable. The findings of the study revealed that there is a correlation between frequent stock taking and the financial performance of the business under study, among other factors.

2.2.2 Inventory Usage Control and Financial Performance

Fariza, Rohaizah, Mohd, and Rushami (2015), on the other hand, evaluated the inventory control methods used by a few Malaysian businesses. One of the independent variables in the study was the JIT inventory control system, and performance was determined using ROA. In the study, JIT was

found to have a negative and insignificant relationship with financial performance. Agu et al., (2016) considered the relationship between Just in Time (JIT) and the performance of a set of businesses. A primary data collection technique used in the study were questionnaire and interview. The regression analysis performed to test the hypothesis found that there is no significant relationship between JIT and the performance of the companies studied (ROCE). Furthermore, Thanasak and Patricia (2013) considered the influence of inventory control in the Pennsylvania food manufacturing business. A questionnaire was used to collect data for the study. Furthermore, the return on investment (ROI) was employed as the dependent variable, while the safety stock was used as a surrogate for the independent variable. The conclusions of the study found no substantial link between safety stock and financial performance, which is in accordance with the findings of another study (Damitrios, 2008; Anichebe, 2013; Olusakin, 2014; and Caroline et al., 2017). Furthermore, in their study on inventory control and SMEs profitability, Atuya and Eginiwin (2017) found no significant relationship between demand management and SMEs profitability in Delta state, using both ROA and net profit. Kennedy et al., (2009), on the other hand, examined the role of inventory control procedures in the financial performance of Mombasa County enterprises using JIT, Computerized Inventory System, Strategic Suppliers Relationship, and Material Requirement Planning as proxies (textile, rolling mills, and food and beverage manufacturing firms in Mombasa County). ROA, ROE, and NPBT were used to assess the financial performance of the enterprises under investigation. To test the reliability of research tools, the Split Half Reliability Test was utilized. According to the conclusions of the study, there is no link between strategic supplier partnerships and the ROE of the companies studied. EOQ and safety stocks were used as independent variables, while ROCE and NP were used to analyze financial performance. According to the Chi-square analysis, there is a significant correlation between safety stocks and financial performance (ROCE). This finding is similar to those of Enock, Georgery, Elizabeth, and John (2017), who looked at inventory control, service level, and safety stock in the financial performance of fifteen (15) textile manufacturing firms in Nairobi County, Kenya, as well as Alin (2016), who looked at inventory control, service level, and safety stock in a company's financial performance. The findings of Ashok (2013), who looked at the relationship between safety stockpiles, inventory conversion times, and firm profitability as measured by net operating profit in top Indian cement companies, contradict the conclusions above. Using both main and secondary data sources, the regression findings revealed a negative and inconsequential connection between safety stocks and business profitability.

Most inventory control studies in Nigeria and other countries (Kilonzo et al., 2016; Cynthia and Amuhaya, 2015; Enock, et al., 2017; Caroline et al., 2017) used a variety of inventory management strategies such as just in time, material need planning, and safety stock. Kilonzo et al., 2016; Cynthia and Amuhaya, 2015; Enock, et al., 2017; Caroline et al., 2017), had used several measures of inventory control such as just in time, material requirement planning, and safety stock, but none had been able to combine all of these variables as used in this study (Kilonzo et al., 2016; Cynthia and Amuhaya, 2015; Enock, et al., 2017; Caroline

In contrast to previous research, this study's inventory management methods included inventory procurement control (IPC), inventory usage control (IUC), and inventory safety control (ISC). These measures appear to be more effective based on the underlying assumptions. Furthermore, no study concentrating on a specific business sector in the Nigerian environment was located within the scope of the studies examined.

2.3 Review of Empirical Studies

Several studies on the impact of inventory management on financial performance of businesses in various countries have been undertaken. In terms of procurement control and return on asset, Benjamin and Daniel (2016) investigated the impact of inventory control on the financial performance of agrochemical

distributors and dealers in Nakuru Central Sub-County. The primary data was collected via a drop-and-pick questionnaire that was sent to 100 people. The use of technology in stock record keeping and strategic supplier partnerships (independent variables), as well as the return on investment (ROI), are all variables in the study (dependent variable). According to SPSS, the regression revealed a significant relationship between the strategic suppliers' relationship and the return on asset of the studied firms.

Kwadwo (2016) examined the impact of effective inventory control on the profitability of Ghanaian manufacturing using a cross-sectional study technique. To span a sixteen-year period (2004–2014), primary and secondary data from the annual reports of four manufacturing enterprises listed on the Ghana Stock Exchange, as well as a questionnaire were used. The dependent variables were ROA and NPM, while the independent variables were strategic supplier partnerships and regular stock taking. The data were evaluated using Ordinary Least Squares (OLS), which revealed that strategic supplier relationships and profitability had a positive and significant link (NPBT). In a similar vein, Timothy et al., (2013) explored the impact of inventory control practices on the financial performance of eight sugar manufacturing companies in Kenya over a six-year period (2002-2007), using the lean inventory method, strategic supplier partnerships, material requirement planning, and technology, and measuring performance using Net Profit Before Tax (NPBT) and Return on Assets (ROA). The study employed both a survey and an ex-post facto research design, allowing it to obtain both primary and secondary data from the firms' annual financial statements published in their year books. Descriptive statistics and correlation were used to describe the inventory control approaches. Correlation analysis was used to identify the type and magnitude of the link between the dependent and independent variables. The study's findings reveal a statistically significant positive relationship between strategic supplier connections and NPBT.

Cynthia and Amuhaya (2015) also looked at the impact of inventory control on the procurement functions of sugar producing enterprises in Kenya's western sugar belt. The study's main purpose was to see how lean inventory systems, JIT, technology, and strategic supplier alliances affected the performance of sugar production firms in Kenya's western sugar belt (NPBT, ROE, and ROCE). The researchers utilized a survey descriptive research design to conduct the study. Because of the study's methodology, data were collected using a self-administered questionnaire. The data were analyzed using SPSS, and the variables were described using tables and figures. The findings of an ANOVA analysis of the relationship between the variables demonstrated a strong link between strategic supplier relationships and NPBT of western sugar businesses. The study employed strategic supplier management and safety stock as inventory control proxies, while ROA and Net Profit were used as performance proxies, and the regression revealed a positive and significant link between strategic supplier management and net profit. Using a case study of new Kenya Cooperative Creameries, Kiplagat and George (2014) explored the impact of inventory control on the performance of manufacturing enterprises in Kenya.

Raymond et al., (2015) used JIT, Computerized Inventory System, Strategic Suppliers Relationship, and Material Requirement Planning as proxies for inventory control practices in the financial performance of firms in Mombasa County (textile, rolling mills, and food and beverage manufacturing firms in Mombasa County). ROA, ROE, and NPBT were used to assess the financial performance of the enterprises under study. To test the reliability of research tools, the Split Half Reliability Test was utilized. The outcomes of the study revealed that strategic supplier agreements have no impact on the NPBT of the organizations studied. This finding is similar to that of Ogbo, Onekanma, and Wilfred (2014), as well as Pawan and Bahl (2014), who discovered a significant correlation between demand management and the financial performance of the 7up bottling company, the Enugu plant and numerous Iranian companies.

The impact of material requirement planning, vendor controlled inventory/strategic supplier

partnerships, and safety stock maintenance on Gianchore Tea Factory's ROA and operational performance was further studied by Kennedy, Magret, and Walter (2009). A total of 119 persons took part in the survey. To evaluate the link between the variables studied, the study's data was analyzed using descriptive and regression analysis. According to the findings of the study, there is no correlation between vendor-controlled inventory and strategic supplier agreements and financial performance (ROA).

In support of Kennedy et al., (2009) submission, Raymond et al., (2015) looked at the impact of inventory control on the financial performance of Mombasa County firms (textile, rolling mills, and food and beverage manufacturing firms), using JIT, Computerized Inventory System, Strategic Suppliers Relationship, and Material Requirement Planning as proxies for inventory control practice. To test the reliability of research tools, the Split Half Reliability Test was utilized. The results of the study revealed that there is no significant link between strategic supplier agreements, material need planning, and the companies' ROA.

Over a five-year period (2006–2010), Salawati, Michael, and Norlina (2012) empirically examined the relationship between inventory control practice and company performance and capital intensity on eighty-two (82) Malaysian construction businesses. As proxies for independent variables, material requirement planning and computerized inventory systems, as well as the use of technology, were used, while financial performance was measured using Return on Assets (ROA). The correlation and regression findings revealed a considerable negative relationship between material requirement planning and the return on assets of the companies studied.

Kilonzo et al., (2016) investigated the inventory control and financial performance of a few Kenyan manufacturing enterprises in a similar vein. The study relies on original data collected via a questionnaire. The questionnaire's reliability and validity were tested in a pilot study. Strategic supplier relationships, the use of technology in stock record keeping, and material need planning were independent variables in the study, whereas Return on Asset (ROA), Tobin's Q, and Return on Equity were dependent variables (ROE). Pre-estimation tests, such as multicollinearity and homoscedasticity tests, were performed on the variables. Descriptive and inferential statistics were used to assess the linear correlations between the dependent and independent variables. The study discovered a positive and significant association between strategic partnerships with suppliers and the return on assets of businesses. Over a six-year period, Timothy et al. considered the impact of inventory control procedures on the financial performance of eight sugar production firms in Kenya (2002-2007). The study included NPBT and ROA as performance measures, as well as the lean inventory system, strategic supplier alliances, material need planning, and technology. The study employed both a survey and an ex-post facto research design, allowing it to obtain both primary and secondary data from the firms' annual financial statements published in their year books. Descriptive statistics and correlation were used to describe the inventory control approaches. Correlation analysis was used to identify the type and magnitude of the link between the dependent and independent variables. The study's findings reveal that strategic alliances with suppliers have a statistically significant positive relationship with ROA.

The impact of inventory control on manufacturing firm performance in Kenya was studied by Kiplagat and George (2014). The study included inventory control proxies such as strategic supplier management and safety stock, as well as ROA and Net Profit as performance proxies. The regression demonstrated a strong and favorable relationship between strategic supplier management and return on asset.

2.4 Theoretical Framework

Because of its argument for utilizing a reduced or lean inventory system to improve a company's profitability by cutting inventory carrying expenses, this study determined lean theory to be

the most applicable inventory theory to this study. Henry Ford invented the Lean Inventory Theory in the 1450s in Arsenal in Venice as a result of his thinking on the integrated manufacturing process. Lean inventory theory, which is an extension of Just-in-Time inventory management, is an inventory control concept that emphasizes the importance of having minimal inventory in line with production process needs (Eroglu & Hofer, 2011). Womack (1990) was the first to propose the lean inventory theory, which is based on the idea of keeping stocks minimal in a company. The goal of lean inventory theory is to reduce costs in an organization's inventory system by making decisions that focus on manufacturing, warehousing, and the broader supply chain (Troxell, 2015). The theory (Lean) is founded on the Economic Order Quantity (EOQ) postulate, which tries to maximize inventory quantity by finding the right quantities of inventory to order per time, according to Jolla (2014). As a result of the aforementioned, the idea raises the possibility of becoming dynamic in manufacturing and operating systems used to monitor inventory levels, as well as distinct types of inventory that may require different treatment. In a highly competitive economy, keeping extra inventories has a detrimental influence on a company's net cash flow. Lean inventory theory helps businesses gain a competitive advantage, increase market share, and increase profits (Nyabwanga, 2013). The lean inventory theory was employed to provide theoretical explanations for this study's subject matter. This decision is predicated on the need to explore how inventory control influences organizational performance, demanding a cautious inventory management approach. It also helps firms increase their return on investment by lowering the amount of inventory they have and the costs associated with it.

III. METHODOLOGY

3.1 Research Design

The research design of the study includes both primary and secondary data collected from ten (10) listed manufacturing firms in Nigerian Stock Exchange over a ten-year period from 2011 to 2020. A field survey study design was adopted due to the nature of the data needed to measure the independent variables. Secondary sources (annual reports) were unable to extract information on the firm's suppliers, material handling technologies, or stock taking method, necessitating the use of primary data via the administration of 200 structured questions in a Likert scale style. A total of 170 questionnaires were found, accounting for 85 percent of the total disseminated surveys. The responders were picked at random from a set of twelve (12) personnel with direct responsibilities in inventory control. To confirm the results derived from the source data, inventory control was quantified as inventory turnover period using an empirical survey (expost facto) design.

The questionnaire was divided into five sections, with section A focusing on the respondent's demographic characteristics, sections B to D focusing on inventory control (section B examining the effect of inventory procurement control, sections C and D examining the effect of inventory security control and inventory usage control, and section E focusing on financial performance), and section E focusing on financial performance. At least 15 copies of the questionnaire were filled out by employees whose employment are directly related to inventory control in each of the ten (10) organizations. The Cronbach Alpha Reliability Test was used to assess the questionnaire's content and predictive validity, as well as its reliability, yielding a value of 0.925, which was greater than the anticipated range of 0.70-0.80 threshold. For secondary data, the yearly reports and accounts are considered reliable because they have been thoroughly audited and confirmed by expert auditors, as well as a signed and recognized opinion on the reports' quality. In accordance with the Company and Allied Matters Act (CAMA) sections 352 -354 for independent audit of annual reports, the auditors' reports are recognized as dependable and reliable. If the yearly reports are audited in line with the regulations, users of financial statements can have confidence that the financial information contained in the financial statement is reliable and can be used to make informed economic decisions.

The data from the administered questionnaire was coded and analyzed using percentages and multiple regression analysis utilizing Excel and E-views 11.0 software. A simple linear regression model was used to examine the effect of inventory turnover period on financial performance in order to validate the reports provided from the study using primary data. As post-estimation checks, the heteroscedasticity test and the serial correlation test were employed to ensure that the model was adequately defined for the estimation and to avoid biased results. The secondary data sources were analyzed using Stata 16.

3.2 Model Specification

The impact of inventory control on the financial performance of Nigerian listed manufacturing enterprises was explored in this study. The econometric model developed by Enock et al., (2017) was adopted with modifications as follows:

$$ROAit = a0 + \beta1EOQit + eit \quad (1)$$

Where:
ROAit = Dependent Variable at time t (financial performance)
a0 is the constant term
β1 EOQit represents independent variable (inventory control) and its change (β1) at time t, and eit is the error term

However, this study's dependent variable is represented by financial performance FP while the independent variable is represented by inventory control (IC). Thus, the model of Enock (2017) was modified to formulate the model of this study as:

$$FPit = a0 + \beta1Inventory\ Controlit + eit \quad (2)$$

The regression equation for this study as stated thus:

$$FPi = a0 + \beta1IPCi + \beta2ISCi + \beta3IUCi + ei \text{ (using primary data)} \quad (3)$$

$$ROAit = \beta0 + \beta1ITPit + \mu it \text{ (using secondary data)} \quad (4)$$

Where:
IPC = Inventory Procurement Control
ISC = Inventory Security Control
IUC = Inventory Usage Control
ITP = Inventory Turnover Period
FP = Financial Performance
ROA = Return on Assets

IV. RESULTS AND DISCUSSION OF FINDINGS

The results of the regression analysis on the effect of inventory control on financial performance of listed manufacturing firms in Nigeria is as shown in Tables 1 and 2 respectively.

Table 1: Primary Data Regression Analysis

Variable	Coefficient	Std Error	t-Stat.	Prob.
IPC	1.743	0.676	2.697	0.031**
ISC	0.899	0.166	4.731	0.047**
IUC	1.542	0.392	2.702	0.062**
Constant	2.733	1.244	2.197	0.772
R-squared	0.654			
F-Statistics (Prob)	8.33 (0.01**)			

Source: Researcher's computations, (2021)

*FP ** = significant at 5%*

As a result of the regression analysis examining the effect of inventory control on financial performance, Table 1 shows that Inventory Procurement Management (IPC) has a significant positive effect on financial performance at a 5% significant level (= 0.031). According to the finding with the coefficient of 1.743, a unit increase in inventory control will result in 1.743 increases in the firm's financial performance. The financial performance of listed manufacturing enterprises in Nigeria increases by 1.743 units as inventory control increases by one unit; consequently, this study contradicts the null hypothesis that inventory procurement control

has no substantial impact on financial performance. Inventory Security Control (ISC) was also determined to have a favorable and significant impact on the financial performance of Nigerian listed manufacturing enterprises, with a p-value of 0.047 being less than the 5% significant level. A unit increase in inventory security control would result in 0.899 gains in financial performance, according to the analytical coefficient of 0.899. This suggests that for every unit of inventory security management improved, the financial performance of listed manufacturing enterprises in Nigeria improves by 0.899. As a result, this study refutes the hypothesis that inventory security control has no significant impact on the financial performance of listed manufacturing enterprises in Nigeria. Finally, inventory security management solutions in manufacturing organizations have a significant positive impact on their financial performance.

In the outcome of the multiple regression model provided in Table 1, it was observed that Inventory Usage Control (IUC) had a substantial positive effect on financial performance, with a p-value of 0.062 being less than the 5% specified threshold of significance. According to the 1.542 coefficient, a unit increase in inventory usage control leads to a 1.542 unit increase in financial performance; when inventory usage control increases by a unit, financial performance improves by 1.542 units. As a result, the null hypothesis is rejected in this study, which claims that inventory utilization control has no significant impact on the financial performance of listed manufacturing enterprises in Nigeria. As a result, inventory usage control has a positive and significant impact on the financial performance of publicly traded industrial companies. The probability of F-statistics of 0.01 (less than 5% accepted significance level) indicates that inventory control (inventory procurement control, inventory security control, and inventory usage control) has a significant impact on the financial performance of Nigerian listed manufacturing firms when the combined effect of inventory control (inventory procurement control, inventory security control, and inventory usage control) is considered. Because the coefficient of multiple determination is 0.654, changes in inventory control (inventory procurement control, inventory security control, and inventory usage control) can explain 65.4 percent of the variation in financial performance, while the remaining 34.6 percent is due to changes in other factors not captured in this model. Finally, this study refutes the null hypothesis that inventory control (inventory procurement, inventory security, and inventory usage control) has no significant impact on the financial performance of Nigerian quoted manufacturing enterprises.

Table 2. Secondary Data Regression Analysis (Pooled OLS)

Variable	Coefficient	Std.Error	t-tes	Prob
Constant	3.64	1.04	2.75	0.002**
ITP	4.64	4.33	0.54	0.611**
R2; F-Stat (Prob)	0.0062; F(1, 110) = 0.69			0.41
Hausman Test	chi2(1) = 8.22			0.46
Testparm	F(21, 84) = 1.31			0.65
Heteroskedasticity Test	chi2(1) = 0.74			0.43
Serial Auto-Correlation Test	F(1, 5) = 0.088			0.74

Source: Researcher's Computation (2021)

*FP **significant at 5%*

The results of the Hausman test to choose the best regression estimator between fixed and random, as shown in Table 2, revealed that fixed effect is the most appropriate estimator, but the results of the confirmatory tests carried out using testparm test nullifies the result of the Hausman with an insignificant probability value (p-value of 0.46) making the chosen fixed effect inappropriate for the estimation, thus Pooled OLS is adjudged to be the m The Breusch-Pagan/Cook-Weisberg Test is used to determine if there is a problem with heteroscedasticity, or if the variations in the

residuals of the model during the period "t" in both models are trending with time. The variation in the model's residuals is constant across time with a p-value of 0.65, showing that there is no heteroscedasticity in the model. Similarly, the Wooldridge test was used to see if the associations between the model's coefficients and residuals were unhealthy, as this would result in the error terms being smaller than normal and the co-efficient of determination being higher than expected; with a p-value of 0.74, the test confirms the null hypothesis that there is no first order autocorrelation. Based on the results of the diagnostic tests, the model is created using Pooled Ordinary Least Square. Table 2 shows the findings of the regression analysis, which reveal that Inventory Turnover Period (ITP) has a negligible positive effect on financial performance (Return on Asset), with a p-value of 0.611, which is higher than the 5% level of significance used in this study. In contrast to the conclusions of the original data analysis, which showed that the combined inventory control approach had a considerable impact on financial performance. Inventory value, which is just a valuation of an entity's closing inventory at the end of reporting periods, may be found to be insufficient to represent all of the inventory control methods implemented by the entity's management. As a result, the delivery of a structured questionnaire was selected as the primary data collection method. The questionnaire was created to capture three key aspects of inventory planning and control: inventory acquisition, inventory security, and inventory usage. Inventory procurement control, inventory security control, and inventory usage control are the three categories of inventory planning and control.

This study concluded that data obtained through the administration of a structured questionnaire is more comprehensive and robust than simply analyzing the effect of closing inventory value on returns of the ten (10) sampled manufacturing firms based on the findings of both primary and secondary data.

4.1 Discussion of Findings

According to the regression study, inventory procurement control has a positive and significant impact on financial performance. The outcome corresponds to the a priori expectations. Timothy et al., (2013) and Kilonzo et al., (2016) discovered that strategic supplier alliances and material requirements planning as inventory procurement control measures had a significant favorable impact on firm financial performance. The findings, on the other hand, contradict those of Raymond et al., (2015), who looked at the impact of inventory control procedures on the financial performance of Mombasa Country businesses (textile, rolling mills, and food and beverage manufacturing firms). They reported that there is no significant link between JIT, Computerized Inventory System, Strategic Supplier Relationship, and Material Requirement Planning as proxies for inventory control practice. The findings also support the study's theoretical foundation, resource dependency theory, and Kitaeva's (2014) claim that long-term customer-supplier relationships enable organizations to protect themselves from both internal and external organizational as well as environmental changes and achieve optimal inventory control. According to the conclusions of this study, inventory security control has a significant positive impact on financial performance. This conclusion backs up Kariuki's (2013) findings of a strong link between frequent stock taking and financial success, as well as Raymond et al's (2015) findings of a positive and significant link between computerized inventory systems and the return on equity of the companies studied. Kilonzo et al., (2016) and Salawati et al., (2012) both discovered a significant positive relationship between the use of technology and the financial performance (ROA) of the businesses they studied. On the other hand, Cynthia and Amuhaya (2015) discovered no link between the use of technology in inventory control and the return on equity of western sugar enterprises. The findings are also in line with the study's theoretical foundation, lean inventory production theory, which is based on the idea of keeping stocks low in a business. It was founded on the premise that inventory cost optimization may be

achieved by making decisions that span manufacturing, warehousing, and the entire supply chain (Troxell, 2015).

Inventory utilization control has a positive and considerable impact on the financial performance of Nigerian listed manufacturing enterprises, according to the findings of this study. According to Fariza et al., (2015), there is a minor negative correlation between JIT and financial performance. However, according to Agu et al., (2017), there is no significant link between JIT and the performance (ROCE) of the studied firms. Thanasak et al. (2013) discovered that the relationship between safety stock and financial performance is minimal. The findings corroborated those of Adeyemi and Salami (2010), who investigated the impact of inventory control on the performance of a Nigerian bottling company's Ilorin plant and discovered a strong link between safety stocks and financial performance (ROCE); and Enock, et al. (2017) and Akin (2016), who investigated inventory control, service level, and safety stock in a company's financial performance. The outcomes of this study also support the underlying theory, which argues that by reducing inventory stock and carrying costs, lean inventory theory minimizes excess buffer stocks and inventory wastage, allowing for better flexibility in the production process.

4.2 Implications of Findings

According to the findings of this study, the enterprises' managements have established stringent controls to guarantee that inventory costs are maintained to a bare minimum, resulting in higher reported profit. Looking beyond typical financial checks in relation to inventory control has exposed management to a number of new approaches for establishing tight inventory planning and controls, resulting in lower inventory costs and overall production costs. In order to provide useful advise to the management of the companies in question, practitioners such as auditors and consultants should look beyond financial records when performing their tasks in terms of inventory audit, planning, and control.

V. CONCLUSION AND RECOMMENDATIONS

This research looked into the impact of inventory control (inventory procurement, inventory security, and inventory usage control) on the financial performance of Nigerian listed manufacturing enterprises. A numerical description of all variables under study was obtained to depict the movement of values and determine the variations of each of the independent variables with the dependent variables. Based on the results of the multiple regression analysis undertaken, inventory control (inventory procurement control, inventory security control, and inventory usage control) had a significant impact on the financial performance of listed conglomerate firms in Nigeria. The study therefore, recommends that management should strengthen their connection with suppliers; have regular meetings with suppliers to discuss significant issues connected to inventory procurement; and endeavor to keep effective inventory chain management from suppliers to avoid pilferage. Management should also make sure that adequate security measures are in place to prevent unauthorized access to inventory.

REFERENCES

1. Adeyemi, S. L., & Salami, A. O. (2010). Inventory control: A tool of optimizing resources in manufacturing industry: a case study of Coca-cola bottling company, Ilorin plant. *Journal of Social Sciences, 23*(2), 135-142.
2. Agu, O. A., Anike, H. O., & Eke, C. N. (2016). Effect of inventory control on the organizational performance of the selected manufacturing firms. *Singaporean Journal of Business, Economics and Management Studies*, *5*(4), 17-32.
3. Akpakip, C. E. (2017). Effect of work force diversity of employee performance in Nigerian banking industry. A study of First Bank of Nigeria Ltd. Ota branch. *Research work at Covenant University Ota Nigeria*.
4. Alin, C. (2016). Inventory control, service level and safety stock. *Journal of Public Administration, Finance and Law*, *6*(1), 145-152.

5. Anichebe, N. A. (2013). Effect of inventory control on organizational effectiveness and performance. *Journal of Information and Knowledge Management*, *2*(8), 171-187.
6. Ashok, K. P. (2013). Relationship between inventory control and profitability: an empirical analysis of indian cement companies. *Asia Pacific Journal of Marketing and Management Review*, *2*(7), 129-136.
7. Atuya, S., & Eginiwin, E. J. (2017). Inventory control and SMEs profitability: a study of furniture manufacturing and wholesale industry, Delta state. *Journal of Finance and Accounting*, *5*(3), 75-79.
8. Benjamin, N. O., & Daniel, M. O. (2016). Influence of inventory control practice on procurement and performance of agro-chemicals distributors in Nakiru central sub-county, Kenya. *International Journal of Economics, Finance and Management Sciences*, *4*(3), 117-126.
9. Caroline, A. O., Willy, M., & Wallace, A. (2017). Effect of inventory control methods on the performance of procurement function in sugar manufacturing firm in western Kenya. *International Journal of Social Sciences and Information Technology*, *3*(2), 13-27.
10. Cynthia, M. M., & Amuhaya, M. I. (2015). An analysis of of the effect of inventory control on the performance of procurement function of sugar manufacturing companies in the western Kenya sugar belt. *International Journal of Scientific and Research Publication*, *5*(5), 87-94.
11. Damitrios, P. K. (2008). The effect of inventory control on firm performance. *International Journal of Productivity and Performance Management*, *57*(5), 355-369.
12. Egberi, K. A., & Egberi, E. O. (2011). Inventory control and management as effective and efficient tools in achieving organizational growth in Nigeria: a case study of eternit limited, sapele, Delta. *International Journal of Economic Development Research and Investment*, *2*(2), 67-98.
13. Enock, G. M., Gregory, N., & Elizabeth, N. M. (2017). The effect of inventory control on organizational performance among textile manufacturing firms in Kenya. *International Journal of Academic Research in Business and Social Sciences*, *7*(11), 1-21.
14. Eroglu, C., & Hofer, C. (2011). Lean, leaner, too lean? The inventory performance. *Journal of Operations Management*, *1*(1), 356-369.
15. Fariza, A. M., Rohaizah, S., Mohammed, M. M., & Rushami, Z. Y. (2015). The influence of inventory control practices towards inventory control performance in malaysian public hospitals. *International Academic Research Journal of Business and Technology, 1*(2), 142-148.
16. Fariza, A., Rushami, Z. Y., & Roheiza, S. (2015). Inventory control practice: a key success towards supply chain performance among industries in Malaysia. *4th International conference on technology and operations management*.
17. Gbadamosi R. A. (2016). Effectiveness of inventory control in a manufacturing company. (A case study of AMA Greenfielg breweries plc Enugu). *M.Sc Dessertation, Enugu State University*. Retrieved June 17, 2019, from https://www.academia.edu/5611380/EFFECTIVENESS_OF_INVENTORY_MANAGEMENT_IN_A_MANUFACTURING_COMPANY
18. Jolla, G. (2014). *Internal Control Practice: Purchasing*. Retrieved November 2018, from http://blinkuasd.edu/finance/accountability/control/practice/purchasing
19. Kennedy, M. M., Margeret, O., & Walter, O. (2009). Effect of inventory control system on operational performance of tea processing firms: A case study of crianchore tea factory, nyamira County, Kenya. *The International Journal of Business and Management*, *1*(5), 1-7.
20. Kilonzo, J. M., Memba, F. S., & Njeru, A. (2016). Effect of inventory control on financial performance of firms funded by government venture capital in Kenya. *European Journal of Business Management*, 8(5), 181-197.
21. Kiplagat, K. K., & George, O. (2014). Role of inventory control on performance of manufacturing firms in Kenya: a case of new kenya cooperative creameries. *European Journal of Business Management*, 2(1), 66-87.

22. Kitaeva, A. S. (2014). *Diffusion Approximation in Inventory control with Examoles of Application: Tomsk*. National Research Tomsk Polytechnic University.
23. Kwadwo, B. P. (2016). The impact of efficient inventory control on profitability: evidence from selected manufacturing firms in Ghana. *International Journal of Finance and Accounting*, 5(1), 22-26.
24. Nyabwanga, R. N. (2013). Inventory control practice and business performance for small-scale enterprises in Kenya. *Journal of Business for Small Scale Enterprises*, *4*(1), 11-28.
25. Ogbo, A. I., Onekanma, I. V., & Wilfred, I. U. (2014). The impact of effective inventory control management on organizational performance: a case study of 7up bottling company Enugu Nigeria. *Mediteranean Journal of Social Sciences*, 5(10), 27-41.
26. Olusakin, S. A. (2014). The role of raw material management in production operation. *International Journal of Managing Value and Supply Chain*, *5*(3), 71-86.
27. Pawan, K., & Bahl, R. N. (2014). Effect of inventory control on organizational performance. *International Journal of Innovative Science, Engineering and Technology*, 1(4), 109-121.
28. Raymond, M. M., Vincent, O. O., Mercy, W. M., & Bellah, C. (2015). Role of inventory control practices on the performance of production department: a case of manufacturing firms. *International Journal of Economics, Commerce and Management*, 3(5), 111-127.
29. Salawati, S., Michael, T., & Norlina, K. (2012). Inventory control in malaysian construction firms: Impact of performance. *SIU Journal of Management*, 2(1), 81-93.
30. Thanasak, R., & Patricia, W. (2013). Impact of inventory inaccuracy on the food manufacturing industry. *Journal of Business Management Dynamics*, 2(10), 28-34.
31. Timothy, L., Patrick, B. O., Nebat, G. M., & Virginia, K. W. (2013). The impact of inventory control practices on financial performance of sugar manufacturing firms in Kenya. *International Journal of Business, Humanities and Technology*, 3(5), 33-48.
32. Troxell, L. (2015). *UCSC Practices for HIPPA Security Rules Compliance*. Calofonia: University of Calofonia.
33. Vipulesh, S. (2015). Impact of inventory control on the financial performance of the firms. *Journal of Business Management*, 17(4), 1-12.