European Journal of Accounting, Finance and Investment
Vol.9, No.11; November-2023;
ISSN (3466 –7037);
p –ISSN 4242 –405X
Impact factor: 6.34

NEXUS OF BARRIERS BETWEEN INVENTORY MANAGEMENT PRACTICE AND FINANCIAL PERFORMANCE: AN EMPIRICAL EVALUATION OF PAINT MANUFACTURING COMPANIES IN NIGERIA

Ajala, Olayimika A. PhD[1]., Tajudeen T. Lawal, PhD[2] and Benjamin A. Amola[3].
Ladoke Akintola University of Technology, Faculty of Accounting & Management Sciences,
Federal Polytechnic, School of Applied Sciences, Department of Statistics, Ede-Nigeria.
deenlaw13@gmail.com

Abstract: Aims: This study evaluates the nexus of barriers between inventory management practice and financial performance in Paint manufacturing companies in Nigeria. Relevant theories on inventory management and financial performance were reviewed so as to guide and provide sound theoretical foundation for the research.

Sample: The study population consists of 09 listed Paint Manufacturing Companies in Nigeria registered with LCCI and NSE as at 2021.

Study design: Both descriptive and inferential statistics were used to analyze the panel data through OLS regression method. A descriptive survey was employed to explore inventory management practices for the Panel data collected for the study.

Methodology: Both descriptive and inferential statistical analysis using data collected through cross sectional survey method from both primary and secondary sources were employed. 160 out of the 200 questionnaires constructed on Likert scale points were returned and analyzed.

Location/Study Area & Duration: Lagos state which remain the hub and industrial nerve center for Nigeria was selected for a period of 14 years (2008-2021). Nine were purposively selected out of the Fourteen Listed Paint manufacturing companies, based on geographical spread across Lagos state metropolis as such that one out of paint company in a particular area was selected for the purpose of the study.

Results: The results indicated that there is a positive relationship between inventory management practice and financial performance (ROCE & ROE) but a negative relationship with (ROS) of the listed Paint companies in Nigeria.

Conclusion & Policy Recommendations: It is recommended that management should endeavor to design and monitor procedures for inventory control and budgeting, maintain good suppliers' chain management of the inventory with adequate security. Government needs to stabilize and improve on the present Unified foreign exchange market (forex) for adequate supply of raw materials and enhance sustainable economic growth for the manufacturing companies and Nigeria.

KEY WORDS: Inventory management, financial performance, Simulation, Unified forex

European Journal of Accounting, Finance and Investment
Vol.9, No.11; November-2023;
ISSN (3466 –7037);
p –ISSN 4242 –405X
Impact factor: 6.34

1.0 INTRODUCTION

Research relating to inventory management and corporate performance of manufacturing concerns has been on in the last decade thus attracting attentions of industrialist, professionals, accountants and practitioners in developing countries like Nigeria. Managing inventory effectively and efficiently has been described by Yator and Moronge (2018) to be one of the important operational weapons for products and service firms wishing to survive the competitive market. Shardeo (2015) described inventories as the goods that are stocked and have a resale value in order to gain some profit. Inventory management involves the recording and monitoring of stock level, forecasting future demand and deciding on when and how to order. (Adeyemi & Salami 2010; Stevenson 2010). Koumanakos (2008) concurred that all the existing literatures on optimal inventory management used criteria of cost minimization or profit maximization. According to Adeyemi and Salami (2010), inventory constitutes the most significant part of current assets of majority of Nigerian manufacturing companies. It thus becomes essential to deploy cutting edge techniques to manage inventories efficiently so as to avoid loss of sales, cost of changing production rates, overtime cost, sub-contracting, unnecessary cost of sales and back order penalties during periods of peak demand (Chen, Murray & Owen, 2005).

Adeyemi et.al., (2010), stated that there is limited knowledge and understanding of inventory management practices and practical relevance in the non-financial industry. Thus, there appears to be a huge wall of disparity between theoretical inventory management and the practical approach in the context of non-financial firms in Nigeria. These material and finished products kept on hand were the company inventory required to keep the business working. Inventory management and control required an organization to undertake stocking and using appropriate method to value stock so as not to under or over state profits (Kotabo, 2002).

Firms' financial performance is a measure of how well a firm can use assets from its primary mode of business to generate revenues. This term is also used as a general measure of a firm's overall financial health over a given period of time and can be used to compare similar firms across the same industry or compare industries or sectors in aggregation. There are many different ways to measure financial performance but all measures should be taken in aggregation. Line items such as revenue from operations, operating income or cash flow from operations can be used, as well as total unit sales. Furthermore, the analyst or investors may wish to look deeper into financial statements and seek out margin growth rates or any declining debt. Financial performance in a broader sense refers to the degree to which financial objective has been accomplished and it is an important aspect of finance risk management. It is the process of measuring the results of a firm's policies and operations in monetary terms. Firms' performances were measured by a number of ways in which we have turnover, earnings and profits. Prempeh (2016) stated that the need to understand the cost measures associated with inventory management to maximize profit remains unabated to the manufacturing industry in Ghana.

The economic importance of Paint companies to Nigerian economy cannot be overemphasized. The important contributions of the paint manufacturing sector to the Nigerian economy include employment generation, value creation and increased Gross Domestic Product (GDP). The Info guide Nigeria online report (2019) further described the Nigerian Paint industry as one of the largest producing paint industry in Africa and major player in the employment of labor and economic advancement.

European Journal of Accounting, Finance and Investment
Vol.9, No.11; November-2023;
ISSN (3466 –7037);
p –ISSN 4242 –405X
Impact factor: 6.34

1.1 Statement of the Problem

Most extant inventory management studies are concentrated in developed economies with few that exist in developing economies like Nigeria not focusing on paint manufacturing companies per se they have been of great contributions to the economic growth of Nigeria as evident from the literature. This sub sector of the economy has experienced declining contribution to GDP as evidenced from recent findings that its contribution to total Gross Domestic Products, GDP remained low at 0.03 percent according to the Nigerian Stock Exchange Report (2017). Thus the need to explore the nexus of barriers affecting the relationship between inventory management variables and firm's financial performance should be stepped up most especially in the developing world is germane.

Empirical evidence in the inventory management and financial performance relationship produced mixed results as regards the plethora of barriers on them especially in terms of its contextual and environments. Specifically, Deloof (2003) documented a significant negative relation between inventory management and gross operating income of non-financial Belgian firms. Also, Prempeh (2016) reported that there is a significant positive relationship between inventory management and profitability while Blazenko and Vandezande (2003), found out the significant positive coefficient on gross margin regressed as a determinant of finished goods inventories. Similarly, Demeter (2003) showed that inventory turnover did not affect return on sales and level of sales respectively. It was submitted that there is direct relationship between inventory management and profitability (Fosu, 2016). However, in the contrary, Mensah (2015), indicated a negative relationship.

Myriads of determinants have been identified in the extant literature with confounding results as the effects on inventory management practice for improved financial performance. For example, Yator and Moronge (2018) sought to find the determinants of inventory control systems implementation and found Staff Training, Funding, Top Management Support and IT Infrastructure influencing inventory management practice in the Manufacturing firms. In another study, Shiau (2017) found out that documentation or store records, planning, knowledge of employees or staff skill have shown to significantly influence the effectiveness of inventory management while the funds showed slightly significant influence on the inventory management in manufacturing industry. This serves as a pointer to factors or barriers influencing effective inventory management practice from the perspective of paint manufacturing companies in Nigeria.

Most studies used either qualitative research or quantitative research at different instances. Some used descriptive while others inferential statistics to explain relationship between inventory management practice (Mwangi & Nyambura, 2016); Bawa, Asamoah and Kissi (2018); Prempeh (2016); Fosu (2016). For instance, Prempeh (2016) used profitability to determine firms' performance whilst Mwangi and Nyambura (2016) used the variables: management efficiency profitability, cash flow, firm size and growth levels respectively arrived at a similar finding of a significant positive relationship to firms' performance. Others used customers' relation as performance indicator in their respective studies. Further, quantitative research was adopted using Panel Regression analysis to explain the relationship between determinant factors or barriers of inventory management and influence on financial performance of listed paint manufacturing companies in Nigeria. The role of accounting standard and policies on effective inventory management for better performance cannot be over-emphasized, hence not well researched in Nigeria.

European Journal of Accounting, Finance and Investment
Vol.9, No.11; November-2023;
ISSN (3466 –7037);
p –ISSN 4242 –405X
Impact factor: 6.34

Accounting standards relating to inventory management and control have exerted some influence on ways by which inventory are recorded and reported in the books. An empirical evaluation of the influence of accounting standard and policies on inventory management practice with the solemn aim of unraveling the barriers or factors militating against its optimal financial performance is the focus of the present study.

1.2 Related Research Question

i. To identify the factors/barriers and the effects of inventory management practice and financial performance of Paint manufacturing companies in Nigeria?

1.3 Research Objective

The main objective of this paper is to evaluate the nexus of barriers to inventory management practice and financial performance in listed Paint manufacturing companies in Nigeria.

1.3.1 Research Hypothesis

The study hypothesis was stated in null forms as: there are no significant barriers to inventory management practice in listed Paint manufacturing companies in Nigeria.

2.0 LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Inventory

Stevenson (2010), submitted that inventories are the current assets that are expected to be converted within a year in form of cash or accounts receivables. For instance, according to Godana and Ngugi (2014), inventory problem has proliferated as a result of the ever-increasing technological progress, hence it has increased the organization's ability to produce goods in greater quantities, faster and with multiple designs. Sharma (2003), defined inventory as the quantity of goods, raw materials, or other resources that are idle at any given point of time. Inventory playing an essential part in associations, business and operational execution to meet customer service levels and seasonal demands, an association's capacity to oversee inventory to meet requests while thinking about different drivers including exchange rates, sea and inland cargo, government tax incentives, and natural components will eventually influence the inventory costs.

2.1.2 Overview of Inventory Management Practice

Inventory management has been described as an important aspect of cost control and reduction schemes and as such needs be approached with great attention. Inventory can be defined as a stock of goods that is maintained by a business in anticipation of some future demand. Extant literature from (Ogbo, Onekanma, & Ukpere 2014; Adeyemi & Salami 2010), empirically emphasized, that inventory constitute one of the largest and most tangible investment of any retailer or manufacturing organization. Zipkin (2000) believed that holding inventories at the lowest possible cost and giving the objectives to ensure uninterrupted supplies for on-going operations is the aim of inventory management. When making decisions on inventory, management has to find a compromise between the different cost component, such as the cost of supplying inventory, holding cost and cost of holding sufficient inventories. Adeyemi and Salami, (2010), stated that inventory management involves the recording and monitoring of stock level, forecasting future demand and deciding on when and how to order.

Tungo (2014), submitted empirically, firms that efficiently apply inventory management practices have reported excellent financial performance. To increase profitability and operating cash flow leading to firm performance, Peterson and Mdellan (2007), worked on the direct contribution of inventory management practice as to be less dependent on importation; establishing inventory control systems as well as proper implementation of control procedures and planning on the utilization of inventory and fixed assets turnover ratio.

European Journal of Accounting, Finance and Investment
Vol.9, No.11; November-2023;
ISSN (3466 –7037);
p –ISSN 4242 –405X
Impact factor: 6.34

Modern inventory management processes utilize new and more refined techniques that provide for dynamic optimization of inventories to maximize customer service with decreased inventory and lower costs. These improved approaches to inventory management are of major consequence to overall competitiveness where the highest level of customer service and delivered value can favorably impact market share and profits (Bowersox, Closs & Cooper, 2010). The overall process of effective inventory management interpolates a number of functions.

The inventory management process can be divided into the following general categories and as summarized below: (i) Demand management; (ii) Inventory planning and ordering which is often accomplished with material requirements planning, often referred to by its acronym MRP (Koumanakos, 2008); (iii) Inventory optimization systems being advocated; (iv) Physical inventory control involving receiving, stocking, movement and overall physical control of inventories, (Laugero, 2002). Therefore, inventory management is a vital function to help insure the success of manufacturing and distribution companies. The effectiveness of inventory management is directly measurable by how successful a company is in providing high level customer service, low inventory investment, maximum throughput and low costs.

2.2.1 Reasons for Maintaining Inventory

Inventories maintenance act as an insurance against fluctuations in the level of demand and in lead time. It could therefore be rare for two different firms to apply similar inventory control techniques without variations to ensure that sufficient goods are available to meet anticipated demand in line with Piaseck (2009)'s submission and as stated hereunder as reasons: (i) to absorb variations in demand and production; (ii) to provide a buffer between production processes as applicable to work-in-progress stocks which effectively de-couple operations; (iii) to take advantage of bulk purchasing discounts; (iv) to meet possible shortages in the future, to absorb seasonal fluctuations in usage or demand; (v) to enable production processes to flow smoothly and efficiently, to deliberate investment policy particularly in times of inflation or possible shortage.

2.3 Inventory Management and Control Techniques

Stevenson (2010) and Shardeo (2015) opined that firms should endeavour to determine the optimum level of inventory in order to achieve the objectives of inventory management. This cannot be possible without the application of sound techniques. Some of the techniques were discussed below.

2.3.1 ABC Analysis Technique

This inventory control approach is based on the doctrine that a small portion of the items might characteristically represent the bulk of the value of money of the total inventory utilized in the process of production, whilst a comparative number of items can be from a small fraction of the financial value of stores (Monks, 1996). ABC analysis is a sound recognized categorization technique as far as the Pareto principle is concerned, whose main purpose is for establishing the items that should be prioritized in the management of an inventory Ramanathan (2006). Under ABC analytical technique the inventories are classified into "A" items and "C" items the high value items are classified as "A" item and would be under the highest control and attract maximum attention "C" items represent relatively least value and would be under simple control, as it would attract the least attention "B" items fall in between these two categories and require reasonable attention management. Since ABC analysis concentrates on important items. Pandey, (1979) suggested some steps that are involved in implementing the ABC analysis so as to make it a robust inventory technique.

2.3.2 Just in Time Technique

European Journal of Accounting, Finance and Investment
Vol.9, No.11; November-2023;
ISSN (3466 –7037);
p –ISSN 4242 –405X
Impact factor: 6.34

This concept was established by manufacturing businesses in Japan in which inventories are acquired only when demanded in a business for the purpose of production and this focused on enhancing the return on investment of a firm through the reduction of process inventory and its associated costs Schonsleben, (2000). The goal of JIT techniques is zero inventories with 100 percent quality. It does not mean that the firm shifts inventory tasks to the supplier, rather is its calls for synchronization between supplier and customer production schedules so that it becomes unnecessary to keep buffer stock.

2.3.3 Vendor Managed Inventory (VMI)

Management of inventory supply determines the way an organization will propel itself to high performance effectiveness and competence. Many firms have resulted to VMI systems which assist the provider to monitors clientele inventory usage. Through the VMI system customers can avoid stock outs since the supplier will already have replenished the stocks and also there will be no costs related to handling of inventory since the supplier will know the quantity that is needed and which product will be put on the shelves.

2.3.4 Bar-coding

Bar-coding is the most popular used method of tracking a product for purposes of understanding the level of inventory, reorder and deliveries or sales; this enables to avoid issues of stock outages or overstocking. Bar-coding helps to track a particular item at any specific time. The staffs in the stores along with overseers can use bar-coding systems to ensure that work orders are linked, and that the purchase orders are thoroughly linked to the level of stock which is replenished, and that all auxiliary parts in addition to equipment are tracked. Once items leave the store, they are instantly recorded in the system thus making it possible to understand which stock is running low and the items to be placed.

2.3.5 Simulation

The uses of simulation in inventory management usually occur for purpose of responding to the wish for a proper decision making process that would take into consideration the complexities and variances within the environment of a system. Majority of simulation researches regarding inventory systems endeavored to establish the most appropriate arrangement for the inventory system in order to attain the predetermined goals. A small number of simulation models were established to address the inventory system optimization.

2.4 Theoretical Review

The following theories considered relevant for the study to provide foundation for achieving the research objectives.

2.4.1 Knowledge-Based Theory

As stated by Grant, (1996) the knowledge-based (KBV) theory of the firm is an up-to-date enlargement of the RBV theory. Being that human resources is an intangible resource, knowledge was also seen to fall in the same category. Kontus (2014) showed that firms heterogeneous entities that constitute of knowledge and thus agree with point made earlier by Grant (1996) that the KBV theory of the firm is an extension of the RBV theory of the firm. With this human resources and knowledge resource, a firm has a competitive advantage, for this resource is next to impossible to imitate thus the firm has got sustainable differentiation (Wiklund & Shepherd, 2003).

2.4.2 Contingency Theory

The contingency theory, developed by Joan Woodward in the 1950s, is a class of behavioural theory which claims that there is no best way to organize an organization, to lead a company or to make decisions. Instead, the optimal course of action is contingent upon the internal and external situations. Several contingency approaches were developed concurrently in the late 1960s. The authors of these theories argued that Marx Weber's bureaucracy and Fredrick Taylor's scientific management theories had

European Journal of Accounting, Finance and Investment
Vol.9, No.11; November-2023;
ISSN (3466 –7037);
p –ISSN 4242 –405X
Impact factor: 6.34

failed as they neglected environmental influences and that there is not one best way to manage enterprises. The contingency approach to management finds its foundation in the contingency theory of leadership effectiveness developed by management psychologist Fred Fielder. It is based on the theory that management effectiveness is contingent, or dependent, upon the interplay between the applications of administration behavior. In other words, the way you manage should change, depending on the conditions and that one size does not fit all. As argued by Dervitsiotis (2015), the contingency theory is about the need to achieve a fit between what the organization is and what it wants to become. It is all about the organization's strategy, culture, goals, technology, staff and external environment, and what it does; how it is structured and the processes, procedures and practices it puts into effect most especially as it affects the inventory management control and techniques in line with the organizational goals and objectives.

2.5 Relevant Empirical Review

Shardeo (2015) investigated the impact of inventory management on the financial performance of three major steel manufacturing companies of India; including SAIL, TATA Steel and JSW Steel. After collecting data from the source, the inventory turnover was correlated with profitability of the firm using correlation concept. They found that inventory turnover ratio is correlated with the net profit of the companies, impact of inventory management on the financial condition of the firm.

Ogbo, Onekanma and Ukpere (2014) examined the impact of effective inventory control system on organizational performance as it relates to the bottling company. A total of eighty-three respondent constitute the sample for the study. Four research questions and Four hypotheses were generated and tested at 10% (that is 0.10) significant level using descriptive statistics and non-parametric test (chi-square). The result of the analysis showed that flexibility in inventory control management is an important approach to achieving organizational performance. The study also found that there is a relationship between operational feasibility, utility of inventory control management in the customer related issues of the organization and cost effectiveness technique are implemented to enhance the return on investment in the organization. Effective inventory control management is recognized as one of the areas management of any organization should acquire capability. The study found out that there is a relationship between operational feasibility, utility of inventory control management in the customer related issues of the organization and cost effectiveness technique are implemented to enhance the return on investment in the organization.

2.6 Financial Performance

According to Tungo, (2014), financial Performance could be described as an objective measure of how well a firm can use assets from its primary mode of business and generates revenue. This term is also used as a general measure of a firms over all financial health over a given period of time, and can be used to compare industries or sectors in aggregation. There are many different ways to measure financial performance but all measures should be taken in aggregation. Line items such as revenue from operations, operating income or cash flow from operations can be used, as well as total unit sales. Furthermore, the analyst or investor may wish to look deeper into financial statements and seeks out margin growth. The firm's operational performance is calculated in opposition to standard or prescribed indicators of effectiveness, efficiency and environmental responsibility, such as cycle time, productivity, waste reduction, and regulatory compliance as indicated (Salami & Adeyemi, 2010). In order to improve operational efficiency for an organization, it has to measure both the input and the

European Journal of Accounting, Finance and Investment
Vol.9, No.11; November-2023;
ISSN (3466 –7037);
p –ISSN 4242 –405X
Impact factor: 6.34

output side of the inventory management (Abdel-Maksoud, Asada & Nakagawa, 2008). The most popular among other measures of financial performance are discussed below:

2.6.1 Return on Equity (ROE).

The ROE measures accounting earnings for a period per dollar of shareholder's equity invested. ROE is so popular because it is in a real sense a summary of information on the income statement and both sides of the balance sheet.

2.6.2 Return on Sales (ROS)

A ratio widely used to evaluate a company's operational efficiency; ROS is also known as a firm's "operating profit margin". Return on sales (ROS) is a ratio widely used to evaluate an entity's operating performance. It is also known as "operating profit margin" or "operating margin". ROS indicates how much profit an entity makes after paying for variable costs of production such as wages, raw materials, etc. (but before interest and tax). Inventory management is necessary because sufficient amount of inventory is needed to minimize the rate of stock outs in a firm. In setting inventory level, firms should consider the costs such as ordering costs, holding cost and stock-out costs (Drurry, 2004).

2.7 Barriers to Inventory Management Practice

Undoubtedly, a badly implemented inventory management is not expected to give desired results. As a result, firms must understand barriers to effective inventory management. According to Lynch (2005), the main objective of inventory management is to minimize total cost of the relevant costs to ensure profitable operations and implement good cost control measures.

(a) Without a proper inventory planning and control, assortment of less sales and customer dissatisfaction may occur (Bowersox et. al., 2002). Inventory encourages prudential productivity, the series of value activities concerned with optimum planning and controlling of raw materials, components, and finished products from supplier to the final consumer (Giunipero, 2008).

(b) Management expertise and other players in inventory management are faced with how to cope with challenges inhibiting effective management of inventory for better performance. Inventory management system in public organization was found to be mostly affected by how effective the organization handle its inventory records, the use of electronic system of documentation. Skill required to handle inventory also was found to be lacking.

(c) Research have indicated that stock administration is affected by factors associated with; lack of adequate financial resources/budgeting, proper record keeping of stock, knowledge and expertise possessed by store staff and a lot of red tape procurement procedures.

(d) Other challenges confronting the schools/institutions as highlighted are: budget constraints, insufficient or competent human resources, identifying and maintaining the right amount of inventory/over stocking and staff demands.

3.0 RESEARCH METHODS

3.1 Research Design: This study adopted a descriptive survey research design that's non-experimental which studies the relationship between non- manipulated variables in a natural setting was adopted. A descriptive research design is used when data is collected to describe persons, organizations, settings or phenomena (Mugenda and Mugenda 2003: Maxwell, 2012) Survey design also has enough provision for protection of bias and maximized reliability (Creswell, 2012). In this regard, the study objective would have been achieved through the use of descriptive design employed by the present study.

3.2 Area of Study: The study area was Lagos state as the location of the sampled Paints companies and as an industrial hub where imported and local raw materials can be easily accessed for Paint industry.

European Journal of Accounting, Finance and Investment
Vol.9, No.11; November-2023;
ISSN (3466 –7037);
p –ISSN 4242 –405X
Impact factor: 6.34

Lagos is primarily the seat or location of major manufacturing companies in Nigeria including Paints.

3.3 Study Population: The population of the study was the fourteen (14) registered Paint manufacturing companies registered with Lagos Chamber of Commerce and Industry as obtained from the Nigerian Stock Exchange, Lagos record (2021).

3.4 Sample Size and Sampling Technique: Samples for the study were nine (9) out of the fourteen (14) selected Paint manufacturing companies in Lagos State metropolis. The study adapted purposive sampling technique. In purposive sampling the person who is selecting the sample tries to make the sample representative, depending on his opinion or purpose of the study.

Table 3.1 List of expected sampled paint manufacturing companies in Nigeria with LCCI in Lagos state as at 2021

Paint company	**Product**	**Location**
Portland Paint	Paint	Ikeja Lagos
D. Meyer Paint	Paint	Alausa, Lagos
Premier Paint	Paint	Ifo ibogun road, Ogun state
CAP Paint	Paint	Ikorodun road, Lagos.
Perfect Paint	Paint	Ikotun Lagos
Berger Paint	Paint	Ikeja Lagos
Empire Paint	Paint	Ayobo, Lagos
Doyin Paint	Paint	Victoria Island, Lagos
President Paint	Paint	Lekki, Lagos

Source: Nigeria Galleria, 2021

3.5 Data Collection Method: Both primary and secondary data were employed in the course of this research. The secondary data were the financial record and books of account of the selected companies used to obtain information about the performance of the company between 2008 and 2021 making 14 years of coverage.

3.6 Instrument of Data Collection: Primary data were collected through structured questionnaire, 200 questionnaires were distributed to nine (9) sampled firms and 160 was returned constructed on a Likert scale points on the view of professional accountants working in the sampled firms on their perceptions of barriers to inventory management in their various companies. Secondary data obtained from the Nigerian Stock Exchange financial records and books of account of the sampled companies and therefore used for data analysis for the study.

3.7 Diagnostic Tests: Various diagnostic tests were conducted including multicollinearity and normality. Variance of Inflation Factor (VIF) was used to test for Multicollinearity. The F Statistic was used to determine the validity of the regression model adopted. Estimation of Panel Data Model was equally done on the static panel data models and can be estimated using Pooled Data Regression (PDR), Fixed

European Journal of Accounting, Finance and Investment
Vol.9, No.11; November-2023;
ISSN (3466 –7037);
p –ISSN 4242 –405X
Impact factor: 6.34

Effects (FE) and Random Effects (RE). The study employed Cronbanch alpha at levels between 0.7-0.8 (the rule of thumb) to measure the reliability of the instrument (Cronbach, 1951) so as to attest to its reliability and validity of the instruments used.

3.8 Method of Data Analysis: Data collected were sorted, collated and analyzed based on the research objective with the corresponding hypothesis using OLS to assess the nexus or the interconnectivity of inventory management practice and financial performance of the listed sampled Paint companies. This study identified the independent variables of inventory management practice: over-stocking/inadequate inventory control; cost control; government regulations on foreign exchange; poor inventory management system/technology; centralized storage system & human resources (skill, experience & training), price fluctuations, pilferage & damages and limited data visibility loading. While financial performance was proxy as ROE, ROA and ROS of sampled listed manufacturing firms. The model is specified below.

3.9 Model Specification: A multiple regression model is, in fact, a theoretical statement about the casual relationship between one or more independent variables and a dependent variable. As observed in the literature Adeyemi et. al., (2010) and Akinlabi (2017) models were adopted by this paper. A typical OLS regression model can be expressed as:

$Y_{it} = \beta 0 + \beta_1 \chi_{1it} + \beta_2 \chi_{2it} + \beta_3 \chi_{3it} \beta_4 \chi_{4it} + \beta_5 \chi_{5it} + \beta_6 \chi_{6it} + \varepsilon i$

The subscripts refer to cross-sectional dimension and time series dimension respectively.

The regression model shall take the form:

$Y_{it} = \beta 0 + \beta_1 \chi_{1it} + \beta_2 \chi_{2it} + \beta_3 \chi_{3it} \beta_4 \chi_{4it} + \beta_5 \chi_{5it} + \beta_6 \chi_{6it} + \varepsilon i$; Where:

Y_{it} = inventory practice adoption in time t

$\chi_{1its:}$ are explanatory variables (Inventory management variables), cost of raw materials (CRM), foreign exchange (FREXH), staff cost and human resources (STFC), repair, maintenance and supplies (RPM), storage cost (STRGC) and technology deployment cost (TECH).

$\beta 0$ = the intercept (value of EY when X = 0);

β_1 - n = the regression coefficient or change included in Y by each χ_{its}

εi = error term

4.0 RESULTS AND DISCSSION

In line with the identified independent variables and the dependent variable of this study, the following discussions made:

Table 4.1: Communalities Table of the factors constituting barriers

Components	Initial Eigen values
Price fluctuations has no influence on IMP	0.987
Over stocking has no effect on IMP	0.992
Pilferage, damages and wastages are not among	0.955
Cost control will result from good IMP	0.951
Complicated workflows have no effect on good IMP	0.947
Limited data visibility loading has effect on IMP	0.949
Government regulations has no impact on IMP	0.950
Poor inventory management system is not vulnerable to risk and damage of goods	0.977
Centralized storage system has no impact on good inventory control	0.979

Source: Researcher's Computation 2021

European Journal of Accounting, Finance and Investment
Vol.9, No.11; November-2023;
ISSN (3466 –7037);
p –ISSN 4242 –405X
Impact factor: 6.34

Table 4.3 Rotated Correlation Matrix (Total Variance Explained)

Components	**Rotation Sums of Squared Loadings**		
	Total	% Of Variance	Cumulative %
Price fluctuations has no influence on IMP	7.204	80.046	80.046
Over stocking has no effect on IMP	1.456	16.180	96.226
Pilferage, damages and wastages are not among	.147	1.633	97.860
Cost control will result from good IMP	.082	.911	98.770
Complicated workflows have no effect on good IMP	.040	.441	99.211
Limited data visibility leading has effect on IMP	.026	.283	99.495
Government regulations has no impact on IMP	.025	.279	99.774
Poor inventory management system is not vulnerable to risk and damage of goods	.016	.173	99.946
Centralized storage system has no impact on good inventory control	.005	.054	100.000

Source: Researcher's Computation 2021

Discussion

Table 4.1 showed that these 9 factors or barriers explained 100% of the variability on financial performance of paint manufacturing firms in Nigeria. As could be seen in Table 4.2 (Rotated Correlation Matrix) the first factor or barrier explained 80.04%, the second factor explained 16.18%, the third factor or barrier explained 1.6%, the forth factor or barrier explained 0.9%, the fifth factor or barrier explained 0.44%, the sixth factor or barrier explained 0.28%, the seventh factor or barrier explained 0.28, the eighth factor or barrier explained 0.17% and the ninth factor or barrier explained 0.05%.

European Journal of Accounting, Finance and Investment
Vol.9, No.11; November-2023;
ISSN (3466 –7037);
p –ISSN 4242 –405X
Impact factor: 6.34

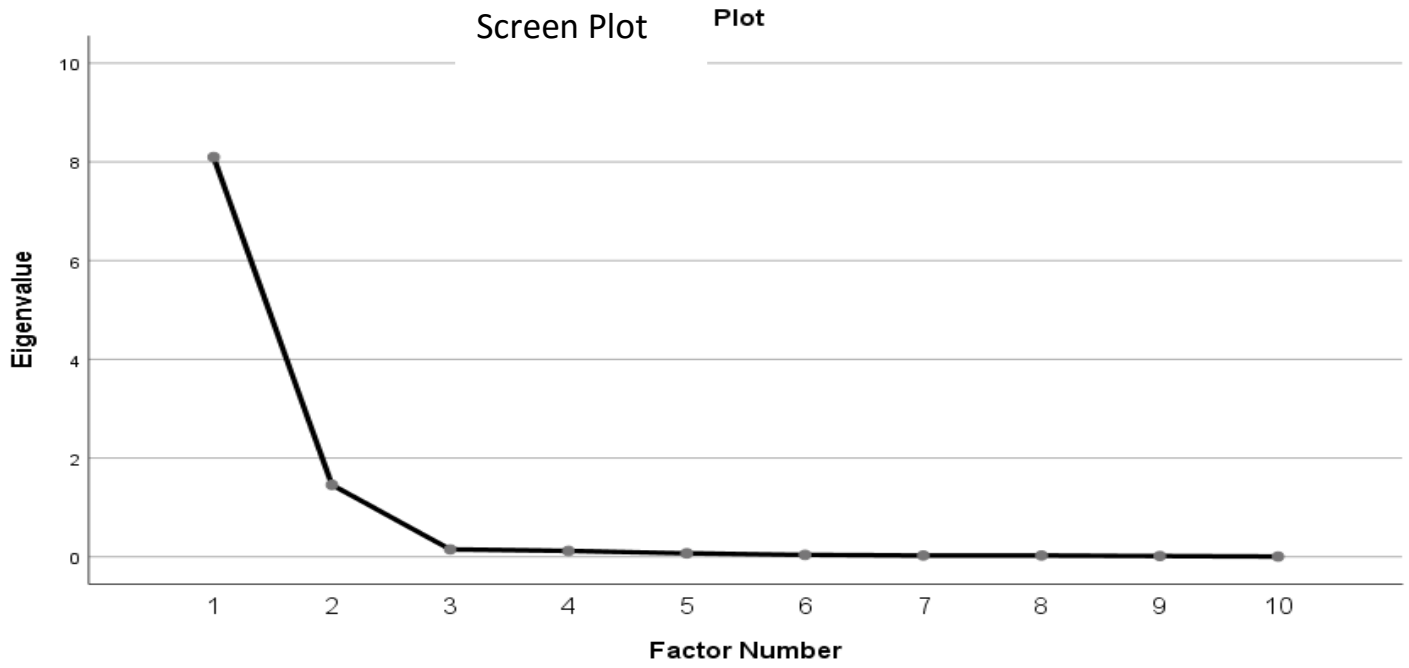

Figure 4.1: Screen plot of the factors or barriers

However, the screen plot in figure 4.1 showed that all the nine factors or barriers could have the most impact on the financial performance of Paint Manufacturing Firms in Nigeria and therefore they should be extracted.

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

This study examines the nexus of inventory management practice on financial performance of listed Paint manufacturing companies in Nigeria. The study employed descriptive econometric analytical tools in studying Nine (9) Nigerian quoted Companies with 108 observations for the period 2008 to 2021. The analyses were performed using panel data. The result of factors analysis revealed that 9 factors or barriers explained 100% of the variability in financial performance of Paint Manufacturing Firms in Nigeria, with the first factor or barrier (Price fluctuations) explained 80.04%, the second factor or barrier (Over stocking) explained 6.18%, the third factor or barrier (Pilferage, damages and wastages) explained 1.6%, the forth factor or barrier (Cost control) explained 0.9%, the fifth factor or barrier (Complicated workflows) explained 0.44%, the sixth factor or barrier (Limited data visibility) explained 0.28%, the seventh factor or barrier (Government regulations) explained 0.28, the eighth factor or barrier (Poor inventory management system) explaining0.17% and the ninth factor or barrier (Centralized storage system) explained 0.05%.

5.2 Conclusion

This study concluded that Cost of Raw Materials, Fluctuation in Foreign Exchange & Price, Staffing, Cost, Repair and Maintenance Technology Employed and Storage Cost were the factors or barriers for inventory management practice of listed Paint manufacturing firms in Nigeria. Further, all the inventory management variables have significant effect on the financial performance of Paint

Manufacturing Firms in Nigeria. However, Price fluctuations, foreign exchange rate, pilferage, damages, wastages and unstable government economic policies as regards foreign exchange management were the major barriers to effective inventory management practice as observed by this study, which automatically impedes sustainable economic growth of Nigeria.

5.3 Recommendations

Based on the findings and conclusions of this study, it was recommended that management of Paint firms and policy makers or government should:

- Design and monitor procedures for inventory control and management right from purchase requisition, better communication and procurement procedures for better performance.
- Ensure sound financial resource mostly on cost control and improve inventory planning system and budgetary controls.
- Strive to maintain good suppliers' chain management and security of inventory to avoid pilferages, damage and wastages.
- Government should help stabilize foreign exchange fluctuation, provide sound economic policies and control inflation among other policy measures.

REFERENCES

Abdel-Maksoud, A., Asada, T., & Nakagawa, M. (2008). Performance measures, managerial practices and manufacturing technologies in Japanese manufacturing firms: State of the Art. *International Journal of Business Performance Managemen*t, *10(1), 1-16.*

Adeyemi, S. L. & Salami, L.O. (2010). Inventory management: A tool of optimizing resources in a manufacturing industry. *Journal of Social Science, 23(2), 135-142.*

Akinlabi, B.H. (2017). *Inventory management practices and operational performance of selected flour mills companies in Nigeria.* A dissertation submitted to the Department of Business Administration and Marketing for the award of the degree of Doctor of Philosophy Babcock University, Ilishan Remo, Ogun State, Nigeria.

Anderson. J, Skoogh, A. & Johansson, B. (2011). *Environmental activity based cost using discrete event simulation. In proceedings of the Winter Simulation Conference. pp. 891-902.*

Bawa, 1. S., Asamoah, G. E., & E. Kissi (2018). Impact of Inventory Management on Firm Performance: A Case Study of Listed Manufacturing Firms in Ghana. *International Journal of Finance and Accounting, 7(4), 83-96.*

Blazenko, G. & Vandezande, K. (2003). *"*Corporate holding of finished goods inventories". *Journal of Economics and Business, 55, 255-66.*

Bowersox, D.J., D.J. Closs & M.B. Cooper, (2010). *"Supply chain Management,"* New York: McGraw-Hill, 235-245.

Chen, H., Murray, F. & Owen, W. (2005). *"*What actually happened to the inventories of American companies between 1981 and 2000?". *Management Science, 51 (7), 1015-31.*

Creswell, J. W. (2012). "*Qualitative inquiry and research design: Choosing among five approaches".* Sage

Cronbanch (1951). "To test reliability of questionnaire i.e. Measure Internal consistency of the independent variables*"*.

Deloof, M. (2003). *"*Does working capital management affect profitability of Belgian firms?", *Journal of Business Finance and Accounting, 30 (3 & 4), 573-87.*

Demeter, K. (2003). *"Manufacturing strategy and competitiveness". International Journal of Production Economics, 81(82), 205-13.*

Dervitsiotis K. N. (2015). *Operation Management.* USA: McGraw-Hill series in Industrial Engineering and Management Science.

Dick, M., Green, M. A. & Aydogan, G. (2008). Six Sigma Systems, Inc., System and Method for Collecting Revenue. *U.S. Patent Application.12or059,883.*

Koumanakos, P. (2008). *"*Impact of inventory management on financial performance". *International Journal of Productivity and performance management,* 57, (5), 355-369.

Drurry, C. (2004). *Management and Cost accounting.* London: Prentice Hall.

Fosu, B.A. (2016). *The Relationship between Inventory Management and Productivity in Ghanaian Manufacturing Industries.* International Journal of Innovative Research and Development. ISSN. 2278–0211. 5(7).

Giunipero, L.C., R. Hooker, S. Joseph-Matthews, T.E. Yoon, & S. Brudvig, (2008). "A Decade of SCM Literature: Past, Present and Future Implications," *Journal of Supply Chain Management, 44, (4),66-86.*

Godana B.E. & Ngugi K. (2014) Determinants of Effective Inventory Management at Kenol Kobil Limited. *European Journal of Business Management. 1 (11), 2307-6305.*

Grant, R.M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal,17 (Winter Special Issue):109-122.*

Mdellan, J.D. (2007). *"Production Decision and Controls"* Alexander Hamilton Institute New York, page 65

Kontus E. (2014). Management of Inventory in a company. Ekonomski Vjesinkor Econviews: Review of contemporary Business. *Entrepreneurship and economic issues, 27(2), 245-256*

Kotabo, K. (2002). *Management of Finance Company*. (6th Ed.) International Thomson Business Press, London.

Koumanakos, D. P. (2008). "The effect of inventory management on firm performance", *International Journal of Productivity and Performance Management, 57, (5), 355-369.*

Laugero, J. (2002). *Financial Management and Policy*. (11th Ed.) Prentice Hall L in A Simeon and Schuster Company, U.S.A.

Lucey T. (1988). *Management Accounting*, "Inventory of stock." (2nd Ed.). D.P. Publication London.

Lynch, K. (2005), *Frontiers of Development Economics.* IBRD Washington D.C

Maxwell, J. A. (2012). *Qualitative research design: An interactive approach.* Sage.

Mensah, J.M.K. 2015. *Working Capital Management and Profitability of Firms: A Study of Listed*

Manufacturing Firms in Ghana. Browser Download This Paper.

Monks, J.G. (1996). *Schaums Outline Theory and problems of Operation Management, 2nd Edition. New York: McGraw Hill Inc.*

Mugenda, O., & Mugenda, A. (2003). *Research Methods: Quantitative and Qualitative methods. Nairobi, ACTs.*

Mwangi, W. & Nyambura, M.T. (2016). The role of inventory management on performance offood processing companies: A case study of Crown foods Limited Kenya. *European Journal of Business and Social Sciences, 4(04),64-78.*

Mwikwabe, (2020). *Factors influencing inventory control system in public organizations: A case of tanesco, Head office.* A research report submitted to Mzumbe University for the award of the degree of Masters of Science in Procurement and Supply Chain Management (MSc. PSCM) of Mzumbe University, December, 2020.

Ogbo, I, Onekanma, I. V & W. I. Ukpere, (2014). The Impact of Effective Inventory Control Management on Organisational Performance: A Study of 7up Bottling Company Nile Mile Enugu, Nigeria. *Mediterranean Journal of Social Sciences, 5(10),109.*

Pandey I.M. 1979. *Financial Management,7th Edition.New Delhi: Vikas Publishing.*

Peterson, J. & Mdellan, (2007). *Decision Systems for Inventory Management and Production.* New York: John Wiley and Sons.

Phebe, S. & Peter-Paul, C. N. (2018) *Inventory management and organizational performance (Study of Dansa Food Limited);*

Piasecki, D.J. 2009. *Inventory Management Explained: A focus on Forecasting, Lot Sizing, Safety Stock, and Ordering System.* Ops Publishing.

Prempeh, K.B. (2016). The impact of efficient inventory management on profitability: evidence from selected manufacturing firms in Ghana. *International Journal of Finance and Accounting, 5(1),22-26.*

Ramanathan, R. (2006). ABC inventory classification with multiple-criteria using weighted linear optimization. *Computers and Operations Research, (33), 695-700.*

Schonsleben, P. (2000). *Integral logistics Management, planning and control of comprehensive Business processes,* The St-Lucie Pressor AIPCS Series.

Shardeo, V. (2015). Impact of Inventory Management on the Financial Performance of the firm *IOSR Journal of Business and Management (IOSR-JBM, 17(4.Ver. VI), 01-12.*

Shiau, (2017). Factors Influencing the Effectiveness of Inventory Management in Manufacturing SMEs; *Operations Research International Research and Innovation Summit (IRIS2017) IOP Publishing; IOP Conf. Series: Materials Science and Engineering 226 (2017) 012024.*

Stevenson, B. U. (2010). *Operations management.* (10th Ed.), New York. McGraw-Hill Publishing Inc.

Tungo, E.M. (2014). *The influence of inventory management practices on organizational*

financial performance: case study: National microfinance bank, Headquarters Dares salaam.

Yator, V. & Moronge, M. (2018). Determinants of Inventory Control Systems implementation in the Manufacturing industries in Kenya: A case study of East Africa Packaging industries limited; *Strategic Journal of Business and Change Management Vol. 5, (4),316- 337.*

Zipkin, P. (2000). *Foundations of Inventory Management.* New York: Irwinor McGraw-Hill.