

## **CORRELATE OF INVENTORY MANAGEMENT AND ORGANIZATIONAL PERFORMANCE**

Kowo Solomon Akpoviro<sup>1,a,\*</sup>, Lubica Vareckova<sup>2,b</sup>

<sup>1</sup>Department of Business Administration, Kwara State University Malete, Nigeria,

<sup>2</sup>University of Ss Cyril and Methodius, Institute of Management, Trnava Slovak Republic

<sup>a</sup>kowosolomon@gmail.com, <sup>b</sup>lubica.vareckova@ucm.sk

\*Corresponding author

*Cite as:* Kowo, S.A., Vareckova, L. (2023). *Correlate of Inventory Management and Organizational Performance*, *Ekonomicko-manazerske spektrum*, 17(1), 1-13.

*Available at:* [dx.doi.org/10.26552/ems.2023.1.1-13](https://dx.doi.org/10.26552/ems.2023.1.1-13)

---

*Received:* 16 February 2023; *Received in revised form:* 9 March 2023; *Accepted:* 18 April 2023; *Available online:* 30 June 2023

### **Abstract:**

*Research background:* Inventory management is pivotal in effective and efficient organization. Organizations are faced with the problem of unpredictable performance due to complexities associated with inventory control. This implies that profitability of any organization directly and indirectly is affected by the inventory management system operated. At any level of a firm, inventory is among the largest investment made and therefore logically deserves to be treated as a major policy variable, highly responsive to the plans and style of top management. Therefore, it is essential to study the effect of inventory management on organizational performance.

*Purpose of the article:* The study determined the effect of Economic order quantity performance on operational costs and also examined the effect of production costs on sales turnover.

*Methods:* The paper adopted a survey method. The total population of the study consists of 201 employees of Honeywell Flour Mills Plc Ikeja Lagos Nigeria. 134 copies of questionnaire were given to the respondents to write clearly their views and observations. (SPSS) and (Cronbach's alpha) was employed. Also descriptive, statistical and content analyses techniques were used in the analysis of the data collected. The study made use of statistical tools such as regression analysis in testing hypotheses and ANOVA which helped in the interpretation of results.

*Findings & Value added:* The study found out that Economic order quantity significantly affects the operational cost. This means that for every 100% change in operational cost, EOQ contributed 21.1%. This implies that EOQ can influence the operational cost. Second, Production cost significantly affects sales turnover. This means that for every 100% change in sales turnover, production cost contributed 31.7%. It shows that production cost can influence sales turnover. The research recommends that Management should put into consideration the degree of control and evaluation of sales turnover, Economic order quantity and operational cost so that these assets can provide liquidity to the organization with ease.

**Keywords:** Inventory Management; Organizational Performance; Economic Order Quantity Performance; Operational Costs

**JEL Classification:** M1; M11; M19.

## **1. Introduction**

Inventory is one of the resources that are managed by business organizations, and it was first recorded in 1601 (Ziukov, 2015). The need for inventory control cannot be overemphasized as it is a means for improving the performance of manufacturing industries. Inventory has created a great impact on the profitability of the manufacturing firm which resulted to the deep research of this study. Inventory can be defined as a record of a business current assets including property owned, merchandise on hand and the value of work in progress and work complete but not sold and it is classified as a current asset because it can be turned into liquid cash within a short period of time (Petrov et al, 2022). In 1980s inventories of raw materials, work-in-progress components and finished goods were kept as a buffer against the possibility of running out of needed items (Choi, 2012; Kollias, 2011). However, large buffer inventories consume valuable resources and generate hidden costs (Brent et al, 2008; Faramarzi et al, 2022).

Millusheva (2019) posit that the direction of activity with the purpose of getting the right inventory in the right place at the right time and in the right quantity is inventory control and it is directly linked to production function of any organization. This implies that profitability of any organization directly and indirectly is affected by the inventory management system operated (Chase, 2009). Inventories are vital to the successful functioning of manufacturing and retailing organizations. They may consist of raw materials, work-in-progress, spare parts/consumables, and finished goods. But whatever may be the inventory items, they need efficient management as, generally, a substantial share of its funds is invested in them. Different departments within the same organization adopt different attitude towards inventory. This is mainly because the particular functions performed by a department influence the department's motivation. The production department similarly would ask for stocks of materials so that the production system runs uninterrupted.

The increase in demand for the company products coupled with modern production technology resulted in vast number of different types of inventories and the control has become a complex functions or process (Kulkami et al, 2021). Uncertainty and planning errors in production do exist (Kolias, 2011). In turn, these have resulted to underutilization of machinery, loss of man hour, high production costs, poor businesses and low return on investment (Gitman, 2009; Johnson, 2008; Milusheva, 2020). The principles of scientific inventory control should be adopted and be simple enough, for even the clerical staff to operate without previous experience in inventory management or control. The assets which organizations store as stock for expectation about require are: raw materials, work in progress, finished goods and supplies Inventory, as a feature of current resources which are relied upon to be changed over to another type of working capital (receivables or cash) within less than multiyear, involve a huge bit of business resources in most business ventures (Cinennamon et al, 2010).

Inventory plays an essential part in an associations business and operational execution to meet customer service levels and seasonal demands. Dolganov et al (2018) stated that Inventory administration assumes a vital part in each organization as any inadequate inventory framework will bring about misfortune customers and sales. An effective inventory administration can produce more sales for the organization which specifically influences the execution of the organization (Coleman, 2000; Lau, 2006; Finco et al, 2022).

In Nigeria, there are numerous troubles for inventory management since inventory is the biggest asset in current asset segment for manufacturing companies. The main trouble of inventory is to utilize more expenses for producing the inventory of the company and it is hard to reduce the great cost of inventory. Additionally, the other issue of stock is misrepresentation from the workers of the organization or different gatherings that can be basis from the neglected or mismanagement of inventory. This research seek to answer the following research questions

(i) How does the level of Economic order quantity performance affect the operational costs of Honeywell flour mills Plc Nigeria? (ii) How does production costs influence sales turnover in Honeywell flour mills Plc Nigeria?

## **2. Literature Review**

### **2.1 Overview of inventory management**

‘Inventory’ and ‘stock’ are often used to relate to the same thing (Kim, 2022); yet when inventory management is mentioned, there is however a slight difference with stock. Stock is usually an amount of goods that is being kept at a specific place (in a warehouse for example), sometimes referred to as inventory. Conversely, inventory management is primarily about specifying the size and placement of stocked goods (Eljaouhari et al, 2022; Ramanathan, 2006). Inventory management is necessary at different locations within an organisation or within multiple locations of a supply chain, to protect (the production) from running out of materials or goods. The scope of inventory management is broader than stock. Basically, inventory management can be defined as the “management of materials in motion and at rest” (Istiningrun et al., 2021).

The following activities all fall within the range of inventory management (Milushera, 2020): control of lead times, carrying costs of inventory, asset management, inventory forecasting, inventory valuation, inventory visibility, future inventory price forecasting, physical inventory, available physical space for inventory, quality management, replenishment, returns and defective goods and demand forecasting. Inventory management basically serves two main goals (Anichebe & Agu, 2013). First of all good inventory management is responsible for the availability of goods. It is important for running operations that the required materials are present in the right quantities, quality and at the right time in order to deliver a specific level of service. The second goal is to achieve this service level against optimal costs. Not all items can be held in stock against every cost for example and therefore choices have to be made.

Successful inventory management involves creating a purchasing plan that will ensure that items are available when they are needed (but that neither too much nor too little is purchased) and keeping track of existing inventory and its use. Two common inventory-management strategies are the just-in-time method, where companies plan to receive items as they are needed rather than maintaining high inventory levels, and materials requirement planning, which schedules materials deliveries based on sales forecasts. Inventories are company assets that are intended for use in production of goods or services made for sale, are currently in the production process, or are finished products held for sale in the ordinary course of business. Inventory also includes goods or services that are on consignment (subject to return by a retailer) or in transit (Boroviec & Liedbers, 2009; Macharia & Mukulu, 2016).

There are three types of inventory: raw materials, work-in-progress, and finished goods. Given the significant costs and benefits associated with inventory, companies spend considerable amounts of time calculating what the optimal level of inventory should be at any given time. Because maximizing profits means minimizing inventory expenses, several inventory-control models, such as the ABC inventory classification method, the economic order quantity (EOQ) model, and just-in-time management are intended to answer the question of how much to order or produce (Mwangi, 2016; Cassivi, 2006; Kwados, 2016). There is a unanimous agreement that inventories play a vital role in the life of any organization by most scholars. Some see inventory as what an organization cannot do without. Because of their indispensable functions, inventories have been considered as important to an organization as

blood is to the human body (Johnson, 2008; Ramanathan, 2006; Cooper, 2006). The sizable investment in inventories, most apparent in manufacturing activities warrants particular care in their planning and control (Cassivi, 2006; Kwados, 2016). Brealey (2006) supported this fact when they assert that inventory is the lifeblood of production and sales activities; if it were improperly managed, production processes would collapse. Inventory also influences the working capital needs of the firm from the financial standpoint. Funds tied up in inventory are one step further removed from cash in the working capital cycle (Adams, 2016).

Since inventory is farther removed from cash than receivables are, it needs financial attention if the firm's liquidity is to be maintained (Okanda et al, 2016). Cachou and Olivares (2010) noted that there are two main functions of stock. Firstly, to enable production (or ordering as the case may be) to take place in economic quantities, and secondly, to enable orders to be filled promptly from stock. In both cases, production is shielded from the day-to-day vagaries of demand and supply, and can take place at a rate and to a total level which if not optimum is at least practical.

## **2.2 Specification of an Inventory System**

Krzyzaniak et al (2022) noted that regardless of the items held in stock, an inventory system requires the following specification:

1. The demand pattern for items held in stock (i.e. the system output). The demand side is the most critical yet uncontrollable components, for without demand, there would be no need for maintaining inventory.

2. The replenishment pattern (the system input). The replenishment side represents the controllable component of the physical flow through an inventory system.

3. The operating constraints: Generally, the range of options for making the decisions to operate an inventory system is limited by a number of restrictions relating to limited warehouse, limited budget available for inventory etc. Occasionally, replenishment may be limited by the supplier's policy to certain number of quantities. Unless such constraints are taken into account explicitly it is difficult to arrive at an optimum feasible inventory policy.

4. The decision-making mechanism concerning inventory replenishment. We have seen that demand for the item is necessary in inventory and are usually uncontrollable, being generated externally. Decisions relating to the management of the inventory system must therefore be made with reference to the replenishment side. The decision-making mechanism is designed to respond to (a) when inventory must be replenished ( $t$ ) and (b) how much must be ordered (or produced internally) for each replenishment  $Q$ . These two questions are answered in one of two ways: a. Replenishment may take place at a fixed time interval ( $t = \text{constant}$ ), by placing orders of variable sizes ( $Q = \text{variable}$ ) to bring inventory to a desired level. b. Management may order a fixed amount ( $Q = \text{variable}$ ) when inventory drops to a certain re-order level, an event which may happen at variable cycle times ( $t = \text{variable}$ ). Our discussion assumes that for an operating system, the decision of what to hold on stock has already been made.

## **2.3 Inventory Management Problem**

Petrov et al, (2022) posit that inventory problem involves the formulation of decision rules that answer two important questions; (a) When is it necessary to place an order (or set up for production) to replenish inventory? (b) How much is to be ordered (or produced) for each replenishment? According to him, the decision rules must aim at satisfying anticipated demand at minimum cost or maximum profit. Cooper and Schneider (2001) supported the same line. To them, "the two fundamental questions that must be answered in controlling the inventory of any physical good are when to replenish the inventory and how much to order for replenishment.

Essentially every decision which is made in controlling inventories in any organization regardless of how complicated the inventory supply may be is in one way or another associated with the question of when to order and how much to order (Chinnamon et al,2010). Borowiec & Liedberg (2009) classified inventory problem into two: deterministic and probabilistic. Suppose that the demand for an item during a specified period is known in advance and the lead time is either zero or a known constant, then we have what is called a deterministic inventory management problem. It is true that those assumed conditions do not quite obtain in most actual inventory management situations.

Nevertheless, there is a class of inventory management problem for which these assumptions are quite adequate for example when the item in question is used as raw material for a stable production process (Gittman, 2009; Cooper, 2006). Furthermore, it has been found in practice that deterministic inventory models are quite helpful in controlling the stock of many regularly used low-value items. In many situations our assumptions of known quantity, and zero or constant lead time do not hold. Often the demand and lead time are variable quantities, so that we know at best only their probability distribution (Lau, 2006; Choi, 2012; Kolis, 2011; Chase, 2009; Mentzer & Zacharia, 2000).

If we assume that both demand and lead time are random variables, the analysis of inventory management problem will become very complex. It has been found however, that reasonably good situations can be obtained for many practical inventory management problems by assuming that the lead time is a known constant (Okanda et al, 2016; Namagembe & Mukulu, 2016).

#### **2.4 Theory of Economic Order Quantity (Wilson's EOQ Model)**

F. W. Haris is among authors within operation management who have developed models to determine optimal inventory levels that should be kept by organization. Blackburn (2010), is among authors who agree that EOQ is one of the models widely used to manage inventory in many industries. EOQ model was developed by F. W. Haris in 1913 and is also known as Wilson EOQ model, who critically analysed the model in detailed, that is according to Arsham (2006).

The use of the model has shown increase in some costs as other costs decline, an example of ordering costs declines with the inventory holdings, while holding costs rise and the total inventory associated costs curve have a minimum point. It is also known as the point where total inventory costs are minimized. EOQ is the level of inventory that minimizes the total of inventory holding costs and ordering costs. Chase (2009) and Cooper (2006) define the model as one that order quantities which minimize the balance of cost between inventories holding costs and re-order costs.

Chaes (2009) describes the basic EOQ, assumptions that are necessary to calculate EOQ as follows: That stock holding costs are known, and constant; there is a known, constant ordering costs; the rate of demand are known and constant; lead time cycle is known and constant; the price per unit constant; the replenishment is made instantaneously, the whole batch is delivered at once and no stock-outs are allowed. One disadvantage of EOQ is that it ignores the need to have buffer stocks, which are maintained to cater for variations in lead-time and demand making it difficult to be observed in practice. The EOQ model requires that for every item stocked in the stores, there is need to determine the point of order and that of the most cost effective quantity to order. The model assumes that all other variables are constant even though uncertainties are common and regular all business. For example, uncertainty includes change in demand, damage during transportation and delay in delivery.

Uncertainty in demand, will therefore force EOQ to be adjusted to buffer against uncertain business atmosphere. Due to uncertainties experienced in business environment adjusted economic order quantity is an EOQ model that can be used where fluctuation in demand is a common occurrence. Especially in healthcare industry where demand cannot be accurately forecasted since it depends on several external factors.

Regarding hospital pharmacy, there are several key factors, both internal and external, that affect inventory level in the pharmacy store. These factors can influence fluctuation in drug consumption rate in hospital pharmacy, some internal factor, for instance, prescribers "Preference can be controlled, but it is impossible to control some external factors such as war. As previously noted regarding the restrictive assumptions of simple EOQ model, the situation that would meet all the assumptions is an ideal. The fact that uncertainty in demand seems to be encountered in most situations, EOQ model should be fixed to cope with this uncertainty.

### **3. Methodology**

The research method that was used focuses on obtaining subjective opinions of respondents. Thus, the opinions of the study population concerning the research topic were gathered by administering questionnaires that ask questions concerning the impact of inventory management on organizational performance. The ex-post facto method which involved the use of secondary data from the internet was also used.

The research designs are concerned with turning the research question into a testing project. The total population size of the study consists of 201 members of staff of Honeywell Flour Mills Plc Ikeja factory of Lagos branch. The population consisted of staffs working in Honeywell Flour Mills Plc. For this study the sample size is determined using Yamane formula.

Sample size determination for Honeywell Flour Mills plc.

Using Yard's formula, where  $n=201$ :

$$\frac{201}{1} + 201 \cdot (0.05)^2 = 133.5 = 134 \text{ respondents} \quad (1)$$

The simple random sampling technique was used to ensure that every member of the population has an equal chance of being selected into the sample. The questionnaire was divided into two broad categories. The first category was made up of personal data of respondents, their sex, age group, educational qualification, position occupied in firm and years of work experience. The second category is the body of the questionnaire that includes all questions relevant to this research. It comprised of both negative and positive questions structured on the basis of the constructs of this research study, i.e. inventory management and organizational performance respectively.

The likert-scale would be used to measure opinions, where for positive questions (Strongly Agree = 5, Agree = 4, Undecided = 3, Disagree = 2, Strongly Disagree = 1), and for negative questions (Strongly Agree = 1, Agree = 2, Undecided = 3, Disagree = 4, Strongly Disagree = 5). Finally, Section 4 in the second category of the research instrument is to be made up of two related open-ended questions. For the purpose of this research project, the face validity approach was adopted whereby my the researcher examined the questionnaire, made relevant corrections which were implemented and was subsequently approved based on the belief that the instrument was appropriate.

The data was analysed using manual and electronic based methods through the data preparation grid and statistical package for the social sciences, (SPSS). The utilization of

structured grids allows specific responses to be located with relative ease and facilitate the identification of emerging patterns (Munn and Drever, 1990).

Also descriptive, statistical and content analyses techniques was used in the analysis of the data collected. The study used the descriptive analysis to achieve the mean, frequency distribution and percentage results of the research work.

The study made use of statistical tools which include: analysis of variance (ANOVA), correlation efficient and multiple regression analysis in testing hypothesis where applicable. The study made use of multiple regression and correlation analysis test for hypotheses 1 to 2 since they are measuring significance, effects and relationship between variables. (Cooper & Schindler, 2011).

### 3.1 Data Presentation and Analysis

Table 1: Distribution of respondents and response rate

<b>Respondents Occupation</b>	<b>Questionnaire administered (sampled)</b>	<b>Percentage of total response (%)</b>
Top Level	75	23.6
Middle Level	19	15.4
Lower Level	29	61.0
Total	123	100.0
<b>Gender/Category</b>	<b>Questionnaire administered (sampled)</b>	<b>Percentage of total response (%)</b>
Male	63	51,2
Female	60	48.8
No of Returned	123	91
No of Not Returned	21	9
Total no of Questionnaires	134	100

Source: Field Survey 2020

Table 2: The Descriptive statistics of Inventory Management and organizational performance.

<b>Responses</b>	<b>Total (N)</b>	<b>Mean</b>
<b>The level of Economic order quantity performance And operational costs</b>		
EOQ does not discount bulk buying in Honeywell Flour Mills Plc.	123	3.86
EOQ suggest buying in large quantity in fewer order in Honeywell Flour Mills Plc	123	3.78
EOQ minimizes ordering cost of Honeywell Flour Mills Plc	123	3.79
EOQ determines correct valuation of closing inventories	123	3.86
Advertising and marketing as operational cost increases awareness of Honeywell Flour Mills Plc	123	3.88
<b>Production costs and Sales Turnover</b>		
Production costs enhances economic ways of purchasing materials in Honeywell Flour Mills Plc.	123	3.89
Ensuring flow of materials in production process involves high cost in Honeywell Flour Mills Plc	123	3.89
Production cost determines correct valuation of closing inventories	123	3.86
Production cost analyzes the future cash flows from the production activities in Honeywell Flour Mills plc	123	3.98

Regular monitoring of the organization sales turnover contribute to the success Of Honeywell Flour Mills Plc	123	3.87
High sales turnover significantly affects the organization revenue	123	3.96

Source: Field Survey 2020

## 4. Result and Discussion

### 4.1 Test of Hypotheses One

H<sub>01</sub>: The level of Economic order quantity performance has no significant effect on the operational costs of Honeywell flour mills plc.

Table 3: Model summary

<b>Model Summary</b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.348a	0.121	0.114	0.660

a. Predictors: (Constant), EOQ

Source: Field Survey 2020

Table 4: ANOVA

<b>ANOVA<sup>b</sup></b>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7.257	1	7.257	16.645	0.000 <sup>a</sup>
	Residual	52.759	121	0.436		
	Total	60.016	122			

a. Predictors: (Constant), EOQ  
b. Dependent Variable: OPERATIONALCOST

Source: Field Survey 2020

The results from the model summary table above revealed that the extent to which the variance in EOQ can be explained by operational cost 12.1 % i.e (R square = 0. 121). The ANOVA table shows the Fcal 16.645 at 0.005 significance level. Economic order quantity significantly affects the operational cost.

Table 5: Coefficients

<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.385	0.142		16.812	0.000
	EOQ	0.211	0.052	0.348	4.080	0.000

a. Dependent Variable: OPERATIONALCOST

Source: Field Survey 2020

The coefficient table above shows the simple model that expresses how EOQ could affect operational cost. The model is shown mathematically as follows;  $Y = a+bx$  where y is EOQ and

x is sales operational cost, a is a constant factor and b is the value of coefficient. From this table therefore, OPERATIONAL COST = 2.385 +0.211 EOQ.

This means that for every 100% change in operational cost, EOQ contributed 21.1%. The significance level below 0.05 implies a statistical confidence of above 95%. This implies that EOQ can influence the operational cost. Thus, the decision would be to reject the null hypothesis ( $H_{01}$ ), and accept the alternative hypothesis ( $H_{a1}$ ).

#### 4.2 Test of Hypotheses Two

$H_{02}$ : Production costs have no significant effect on the sales turnover in Honeywell flour mills Plc in Nigeria.

Table 6: Model summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.365 <sup>a</sup>	0.133	0.126	0.61112

a. Predictors: (Constant), PRODUCTIONCOSTS

Source: Field Survey 2020

Table 7: Model summary

ANOVA <sup>b</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.945	1	6.945	18.596	0.000 <sup>a</sup>
	Residual	45.189	121	0.373		
	Total	52.134	122			

a. Predictors: (Constant), PRODUCTIONCOSTS  
b. Dependent Variable: SALESTURNOVER

Source: Field Survey 2020

The results from the model summary table above revealed that the extent to which the variance in sales turnover can be explained by production cost 13.3 % i.e (R square = 0. 133). The ANOVA table shows the Fcal 18.596 at 0.005 significance level. Production cost significantly affects sales turnover.

Table 8: Coefficients

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.430	0.183		7.811	0.000
	PRODUCTIONCOSTS	0.317	0.074	0.365	4.312	0.000

a. Dependent Variable: SALESTURNOVER

Source: Field Survey 2020

The coefficient table above shows the simple model that expresses how production cost could affect sales turnover. The model is shown mathematically as follows;  $Y = a+bx$  where  $y$  is production cost and  $x$  is sales turnover,  $a$  is a constant factor and  $b$  is the value of coefficient.

From this table therefore,  $\text{SALES TURNOVER} = 1.430 + 0.317 \text{ PRODUCTION COSTS}$ . This means that for every 100% change in sales turnover, production cost contributed 31.7%.

The significance level below 0.05 implies a statistical confidence of above 95%. This implies that production cost can influence the sales turnover. Thus, the decision would be to reject the null hypothesis ( $H_{01}$ ), and accept the alternative hypothesis ( $H_{a1}$ ).

### **4.3 Discussion**

This study has shown that Economic order quantity significantly affects the operational cost. This implies that EOQ can influence the operational cost. Inventory management has a huge financial implication on both the customer satisfaction and financial performance of an enterprise. High levels of inventory increases the probability that the customers are likely to get what they want, increases sales and service levels.

It ensures that the materials needed in an organization are available in the right quality, quantity thus avoiding issues of overstocking and under stocking and ultimately guaranteeing customer satisfaction and increased profits which align with the findings of (Kulkami, et al, 2021; Petrov et al, 2022; Kwados, 2016; Finco et al, 2022; Choi, 2012). Moreso, results of this study revealed that inventory costs can be reduced by implementation of reordering points as well as appropriate Economic Order Quantities (EOQ).

Today's customer focused business environments are facing the challenge of creating processes that are responsive to the demands of the customers. The increase in the distance from the suppliers premises and the complexity in the logistical aspects often results in longer lead times and higher levels of inventory. The study has proved that production cost can influence the sales turnover. However, it is often a challenge for companies that strive to achieve cost reduction through lower lead-times and reduced inventory levels since it is difficult for logistics to achieve both goals.

Customer loyalty requires that manufacturing companies delivers on their customer's expectations fully in a predictable and an on-going relationship. This finding of this study is tangible with the findings of several researchers (Kim, 2022; Koliass, 2011; Brent et al, 2008; Mwangi, 2016).

The research found that Economic order quantity significantly affects the operational cost. This means that for every 100% change in operational cost, EOQ contributed 21.1%. This implies that EOQ can influence the operational cost. This finding is in-lign with the findings of (Kulkami, et al, 2021; Petrov et al, 2022; Kwados, 2016; Finco et al, 2022; Choi, 2012). Moreover, Production cost significantly affects sales turnover. This means that for every 100% change in sales turnover, production cost contributed 31.7% from the result of findings. This implies that production cost can influence the sales turnover.

The company actually deserves some praise though there is still room for improvement, hence they should keep working on their inventory system for further improvement as well as to adapt to any future changes in the operation of the organization. This finding is tangible with the findings of several researchers (Kim, 2022; Koliass, 2011; Brent et al, 2008; Mwangi, 2016)

## **5. Conclusion and Recommendations**

It is worthy of note that inventory management in practice is different from what exists in most textbooks as theories. This is because theories are ideal states or situations, while practice relates to what is obtainable in real life situations. Majority of what is known about inventory management as found in most theories are found by many companies to be either impracticable or too complex to be applied in their peculiar circumstances and as such, very expensive to

maintain by them. Every organization hence evolves an inventory management system that would suit its peculiar situation..

Honeywell Flour Mills Plc Ikeja Nigeria has not been able to produce enough to satisfy their ever increasing customers; In fact, customers get their orders filled by the company at a minimum of one year after the order is placed. Hence this goes to prove that their problem is not that of carrying inadequate inventory, rather other managerial and financial problems. The regression analysis and correlation coefficient reveal a strong relationship between the level of Production cost and sales turnover in the Honeywell Flour Mills Plc Ikeja Nigeria. The idea is that there is a maximum quantity of inventory that the company can effectively use. This then is a function of many things like their capacity utilization and the skill of their managerial team.

The study recommend that management should put into consideration the degree of control and evaluation of sales turnover, Economic order quantity and operational cost so that these assets can provide liquidity to the organization with ease. As to any research, the study also has some limitations. The study was done in an organized area which involves a lot of stress while administering the questionnaires. More so, some information was not adequately obtained from the case company as the management term some information as confidential and classified for "official use only".

This study has filled the gap by proving that an inventory control practice has become one of the important agenda for organizational sustainability and competitiveness. The right approach of inventory control practices can be used for enhancing customer service level and cost reduction in the manufacturing company.

**Authors contribution:** All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

**Funding:** This research received no external funding

**Data Availability Statement:** The data presented in this study are available on request from the corresponding author.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

- Adamu, D.A. (2016). Effect of inventory management on financial performance: Evidence from Nigerian conglomerate companies. *International Journal of Social, Behavioural, Educational, Economic, Business and Industrial Engineering*, 10 (9), 3021-3025.
- Anichebe, B., & Agu, K. (2013). Lessons learned from the world's best retailers, *International Journal of Retail & Distribution Management*, 30 (1), 562-70.
- Becerra, P., Mula, J., & Sanchis, R. (2021). Green supply chain quantitative models for sustainable inventory management: A review. *Journal of Cleaner Production*, 328, 129544.
- Borowiec, P., & Liedberg, C. (2009). Benefits and challenges with coordinated inventory control at Volvo parts. Germany: Lund University.
- Williams, B. D., & Tokar, T. (2008). A review of inventory management research in major logistics journals: Themes and future directions. *The International Journal of Logistics Management*, 19(2), 212-232.
- Brealey, R. A. (2006). Corporate finance. New York, McGraw-Hill/Irwin.
- Choi, T. M. (Ed.). (2013). *Handbook of EOQ inventory problems: Stochastic and deterministic models and applications* (Vol. 197). Springer Science & Business Media.
- Cinnamon, B., Helweg-Larsen, B. (2010). *How to understand business finance* (Vol. 55). Kogan Page Publishers.
- Cooper, D. (2006). Business research methods (9th ed.). New Delhi, India: Published by Tata McGraw Hill Education Private Limited.

- Chase, M. (2009). Relationships between inventory, sales and service in a retail chain store operation, *Management*, 31 (2), 96-108.
- Coleman, B. J. (2000). Determining the correct service level target. *Production and Inventory Management Journal*, 41(1), 19.
- Cachon, G.P., & Olivares, M. (2010). Drivers of finished-goods inventory in the US automobile industry. *Management Science*, 56 (1), 202-16.
- Cassivi, L. (2006). Collaboration planning in a supply chain. *Supply Chain Management: An International Journal*, 11 (3), 249-58.
- Cooper R.D., & Schindler P.S. (2001), *Business Research Methods*, Tata McGraw Hill Edition.
- Dolganov, A.N., Ford, V., Tarasyev, A.M., & Turygina, V.F. (2018). Optimization of Information Resources in Industrial Ecology. In *Ifac Paperonline, 17th IFAC Workshop on Control Applications of Optimization CAO 2018*, Yekaterinburg, Russia, 15–19 October 2018; Elsevier Science Bv: Amsterdam, The Netherlands, 2018; Volume 51, pp. 67–72.
- El Jaouhari, A., Alhilali, Z., Arif, J., Fellaki, S., Amejwal, M., & Azzouz, K. (2022). Demand Forecasting Application with Regression and IoT Based Inventory Management System: A Case Study of a Semiconductor Manufacturing Company. *International Journal of Engineering Research in Africa*, 60 189-210.
- Finco, S., Battini, D., Converso, G., & Murino, T. (2022). Applying the zero-inflated Poisson regression in the inventory management of irregular demand items. *Journal of Industrial and Production Engineering*, 39(6), 458-478.
- Faramarzi-Oghani, S., Dolati Neghabadi, P., Talbi, E. G., & Tavakkoli-Moghaddam, R. (2023). Meta-heuristics for sustainable supply chain management: A review. *International Journal of Production Research*, 61(6), 1979-2009.
- Graman, G.A., & Magazine, M.J. (2006). "Implementation issues influencing the decision to adopt postponement". *International Journal of Operations & Production Management*, 26(10), 1068-1083.
- Jonah, K. I. (2011). *Rudiments of Management*, Lagos Business School, 99 (213).
- Johnson, B.B. (2008). Organizational Control. *Journal of Business Management*, 81(102).
- Kolias, M. (2011). An application of fuzzy sets theory to the EOQ model with imperfect quality items, *Original Research Article Computers & Operations Research*, 31(12).
- Kim, G. (2022). A Study on Determinants of Inventory Turnover Using Quantile Regression Analysis. *Asia Pac. J. Bus.* 13, 185–195.
- Kwadwo, B. P. (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.
- Kulkarni, P., Azizi, V., Wang, L., & Hu, G. (2021). Analysis of decision making and information sharing strategies in a two-echelon supply chain. *International Journal of Supply Chain and Inventory Management*, 4(1), 81-106.
- Krzyżaniak, S. (2022). Optimisation of the stock structure of a single stock item taking into account stock quantity constraints, using a lagrange multiplier. *Logforum*, 18(2).
- Lau, A., & Snell, R. (2006). Structure and growth in small Hong Kong enterprises. *International Journal of Entrepreneurial Behavior & Research*, 2(3), 29-47.
- Macharia, S. M., & Mukulu, E. (2016). Role of Just- In -Time in Realization of an Efficient Supply Chain Management: A Case Study of Bidco Oil Refineries Limited, Thika. *The Strategic Journal of Business & Change Management*, 3(6), 123-152.
- Mwangi, S. M. (2016). Role of Just-In-Time in Realization of an Efficient Supply Chain Management: A Case Study of Bidco Oil Refineries Limited, Thika. *Strategic Journal of Business & Change Management*, 3(2).
- Mentzer, J. T., Min, S., & Zacharia, Z. G. (2000). The nature of inter-firm partnering in supply chain management. *Journal of Retailing*, 76(4), 549–568.
- Milusheva, P. (2019). Some aspects of the decision to buy, not to produce parts and components. *Econ. Comput. Sci*, 2, 64-67.
- Milusheva, P. (2020). Challenges to Supply Construction Companies in Conditions of Pandemic. *Economic Science, education and the real economy: Development and interactions in the digital age*, (1), 233-237.
- Naliaka, V. W., & Namusonge, G. S. (2015). Role of inventory management on competitive advantage among manufacturing firms in Kenya: A case study of Unga Group Limited. *International Journal of Academic Research in Business and Social Sciences*, 5(5), 87–104.
- Namagembe, S., & Munene, J. C. (2016). Information sharing inventory management and customer satisfaction: The case of manufacturing firms in Kampala. *International Journal of Economics and Management Sciences*, 1 (6), 35-44.

- Okanda, S., Namusonge, G. S., & Waiganjo, E. (2016). Inventory management practice and the performance of the unit of Vaccines and Immunizations in the Ministry Health, Kenya. *International Journal of Academic Research in Business and Social Sciences*, 6 (7), 142- 158.
- Petrov, P., Radev, M., Dimitrov, G., & Simeonidis, D. (2022) Infrastructure Capacity Planning in Digitalization of Educational Services. *Int. J. Emerg. Technol. Learn.* 17, 299–306.
- Petrov, P., Radev, M., Dimitrov, G., Pasat, A., & Buevich, A. (2021) A Systematic Design Approach in Building Digitalization Services Supporting Infrastructure. *TEM J. Technol. Educ. Manag. Inform*, 10, 31–37.
- Ramanathan, R. (2006). ABC inventory classification with multiple criteria using weighted linear optimization. *Computers & Operations Research*, 33 (3), 695–700.
- Ziukov, S. (2015). A Literature Review on Models of Inventory Management under Uncertainty. *Business Systems and Economics*, 5 (1), 26-35.