



## **INVENTORY COST AND FINANCIAL PERFORMANCE OF FOOD AND BEVERAGES MANUFACTURING COMPANIES IN NIGERIA**

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### **ABSTRACT**

*The study determines the effect of inventory cost on the financial performance of food and beverage manufacturing companies in Nigeria. The specific objectives guiding the study include; determining the impact of inventory cost on the turnover and profit of food and beverage companies in Nigeria. The research design adopted is Ex-post-facto. Three sample sizes were purposively selected among the food and beverage companies quoted on Nigerian Stock Exchange. Data on inventory components, turnover and profit, was extracted from annual reports and accountants of selected food and beverage companies in Nigeria. It is also discovered that inventory cost significantly affects the profitability of food and beverage manufacturing companies in Nigeria. These findings imply that inventory cost is a major determinant of the financial performance of food and beverage companies in Nigeria. Recommendation: The management of the manufacturing organisation of food and beverage in Nigeria should take effective measures in managing its inventory to enhance and improve these companies' sales and profit performance.*

**Keywords:** Inventory, Inventory Cost, Financial Performance, Manufacturing Companies

### **INTRODUCTION**

The value of resources organisations tie up in inventory has been a concern to organisational stakeholders, including creditors, shareholders, debtors and so on. This concern results from a reasonable amount of resources manufacturing firms invest in inventories to keep their organisation in operation. The importance of inventory to organisations also made Adeyemi and Salami (2009) note that the most important essential of any production organisation is materials; a manufacturing company will only be able to perform with materials. It is a must that materials should be provided at a profitable price, in good quantity, and best quality, at the perfect time in the appropriate place and for easy coordination and scheduling of the activities of manufacturing in the best way for industrial undertaking (Adeyemi & Salami, 2010). (Banjoko, 2000 and Nzewi 2007) stated that a production company might likely be out of the market if there is a shortage in materials stocked, excess materials stocked or not properly managed



The cost of materials in many manufacturing firms is higher than fifty percent of the sum cost of goods manufactured by most production firms in Nigeria. Vishal, Marshall and Ananth (2004) also observed that, on average, inventory is 53% of current assets and 36% of total assets for manufacturing organisations. Carter (2002) opines that almost 60% to 70% of an organisation's funds remain locked up in current assets, whereby inventory constitutes the most significant component. It is noted that every successful organisation is because of its ability to efficiently control its diver's form of inventories at a different level of organisation operation. Inventory management in a manufacturing firm is necessary to accommodate unforeseen rise and fall in demand and supply; organisations that need well-managed inventory would keep its resource and produce in inventory while battling low turnover performance (Womack & Jones, 2003).

The continuous shutting down of manufacturing firms in Nigeria is because of inflation or rise in the prices of input of many companies, which serves as a hindrance to the development of economic growth in Nigeria at a time when the employment rate has been a top issue in present time (Okwo & Ugunta, 2012). With such a high fraction of the organisation's assets which are invested in inventory, the continuous shutdown of manufacturing organisations in Nigeria which has been attributed to input cost cannot be far-fetched from inventory cost effect on the financial performance of the organisations. The food and beverage companies have a product that has a limited life span. Ola (2001) opined that the industrial sector contributes up to 28 percent of manufactured Value Added (MVA) and creates direct employment for more than 30,000 unemployed labour. Close to 300,000 is indirect employment, ancillary services producing companies inclusive. The economic benefit of the food and beverage companies can be achieved when they realise a profit; this would establish their existence in business (Adeloye, 2010). Given the important contributions of the food and beverage industry to the Nigerian economy.

## **STATEMENT OF PROBLEM**

The main challenge in manufacturing organisations in Nigeria, especially food and beverages companies, is the increasing cost of inventory leasing to loss, resulting in a total shutdown. (Ogbadu, 2009). A survey was conducted by the Manufacturing Association of Nigeria (MAN) in 2010; 834 manufacturing organisations have been liquidated in Nigeria as of 2009, which include production costs generated by a high increase in prices of input material, high inventory cost and non-availability of major inventory items to meet with customers demand (Adeloye, 2010). While the few surviving manufacturing firms face stiff competition in the current markets. Studies have also shown that the focal variable raw material inventory strongly impacts the profitability of brewery companies in Nigeria (Famurewa, & Orekoya, 2009; Adeyemi & Salami, 2010; Eneje, Nweze, & Udeh, 2012). The food and beverage manufacturing companies are sailing through much turmoil in the present Nigerian economy, with most organisations producing all required facilities needed to enhance the operations of their business to enhance the continuous existence of their organisations.

## **OBJECTIVES**

1. To determine the effect of inventory cost on the turnover of food and beverage manufacturing firms in Nigeria.
2. To determine the effect of inventory cost on the profitability of food and beverage manufacturing firms in Nigeria.



## **RESEARCH HYPOTHESES**

1. Inventory costs do not have any significant impact on the turnover of food and beverages in Nigeria manufacturing companies
2. Inventory cost does not significantly impact the profitability of food and beverage in Nigerian manufacturing companies.

## **CONCEPT OF INVENTORY**

Inventories as any resources used to satisfy a current or future need (Render and Stair 1994). In the view of Van (2000), inventory refers to the link between an organisation's production and its sales, including all input that forms the product. Balunywa (2003) sees inventory as a company's physical assets that the firm stocks as either work in progress or finished goods. Inventory is classified into raw materials, work-in-progress, and finished goods (Pandey, 2005; Nzewi, 2007). Estelle (2013) notes that inventory costs are expenses incurred in stocking and safekeeping inventories over a certain period. Inventory costs are often referred to as a percentage of the inventory value (annual average inventory, i.e. for a retailer, the total average of goods purchased during the year) on an annualised basis. It is widely accepted that the carrying costs represent 25% of the inventory value.

### **Effect of Inventory Cost on Organisational performance**

The relationship between inventory management and profitability is viewed from the cost point. Since profits equal total revenue less total costs (Jordan, 1997). where the total cost is the summation of all costs an organisation incurred in its operation, including inventory management.  $SP \text{ (selling price)} - PC \text{ (production cost)} = \text{Profit}$ . In the current competitive market, the selling price is determined by the market forces in which profit can be achieved by reducing the production cost by minimising the cost of the material. Material cost makeup is close sixty percentage of production cost. He also reveals that a firm's cost of material and production is inversely proportional to its profitability, Ramakrishna (2005). Ogbadu, (2009) also posit that the balance from sales income after deducting all cost incurred is called profit. Profit is a factor that can be regulated in which the organisation's administrative team can control its income through price and costs. Lyson (1996) and Adeyemi and Salami (2010) stated that a rise in profitability results from effective inventory management in any manufacturing company in that nearly seventy percent of total funds employed are locked up in current assets, with inventory being the major component. Nyabwanga and Ojera (2012), in continuous observation, also posited that inventory should be effectively and efficiently managed by stocking an appropriate volume of inventories. Excess inventory consumes physical space, creates hidden costs, and increases the possibility of loss, damage and spoilage, which will, in turn, reduce the profitability of the organisation's staff. William and Joon (2005) discovery shows that the relative benefit of inventory pooling tends to diminish with utilisation, and the relative benefit of capacity pooling tends to increase with utilisation. Padachi (2006) study also notes that effective working capital management improves profit performance in Mauritian small manufacturing firms.

## **METHODS**

The researcher adopted the use of an expo-facto research design. The research population comprised Eight (8) food and beverage companies quoted on the Nigerian stock exchange market. The researcher uses purposive sampling techniques to select three food and beverage



companies, which include UTC Nigeria Plc, UAC Nigeria Plc, and Nestle Nigeria Plc, quoted on the Nigeria stock exchange market for the study. These companies were based on the durability of their products/inventory items, producing commodities with a product preservation period of less than one month. The researcher obtained data for the study through the secondary source of data collection, which is majorly Annual Financial Reports and Accounts of the three (3) companies selected for the study. Regression analysis was adopted in determining the effect inventory cost has had on the financial performance indices of the three (3) selected food and beverages manufacturing companies in Nigeria. Result F-test analysis was adopted in ascertaining whether inventory cost affects the financial performance of the food and beverages manufacturing companies in Nigeria.

### **Model Specification of the Study**

Multiple regression analysis is used for this study, where several independent variables influence a given dependent variable. The model can be expressed in its non-stochastic or implicit form as below:  $FPI = f(RM, WIP, MS, CS, GIT)$  ..... equation (1)

Equation (1) above is rewritten in a stochastic form as seen below:

$$Y = a_0 + b_1x_{it} + b_2x_{it} + b_3x_{it} + \dots + b_{ox} + U_t \text{ (Agbonifoh \& Yomere, 1999)}$$

Where:

Y = Dependent variable (FPI)

X = Independent variable (RM, WIP, MS, CS, and GIT)

a,  $b_{it}$  = Regression Coefficients

U = Error term

This model is adopted for the study because it determines the impact of one variable on the other, which undermines the assumptions of the work by determining the effect of inventory cost on the financial performance of food and beverage manufacturing companies in Nigeria. The study regression model analysis of Agbonifoh and Yomere (1999) was modified for this study. The modified model is stated below:

|           |   |                                                                                           |   |
|-----------|---|-------------------------------------------------------------------------------------------|---|
| FPI(T)    | = | $\alpha_0 + \beta_1RM + \beta_2WIP + \beta_3MS + \beta_4CS + \beta_5GIT + \epsilon$ ..... | 1 |
| FPI(PAT)  | = | $\alpha_0 + \beta_1RM + \beta_2WIP + \beta_3MS + \beta_4CS + \beta_5GIT + \epsilon$ ..... | 2 |
| (FPI) T   | - | Turnover                                                                                  |   |
| (FPI) PAT | - | Profit after Tax                                                                          |   |
| RM        | - | Raw Materials                                                                             |   |
| WIP       | - | Work-In-Progress                                                                          |   |
| MS        | - | Merchandise Stock                                                                         |   |
| CS        | - | Consumable Stocks                                                                         |   |
| GIT       | - | Goods-In-Transit                                                                          |   |

## **RESULTS**

### **Hypothesis One**

**H<sub>0</sub>:** Inventory cost does not have any significant impact on the turnover of food and beverages in Nigeria Manufacturing companies

**Table 1: Effect of Inventory Cost Effect on Turnover of Food and Beverage Companies in Nigeria**

| Variable             | t-value      | Significance value |
|----------------------|--------------|--------------------|
| Constant             | .221         | .846               |
| RAW MATERIALS        | .272         | .811               |
| WIP                  | .889         | .468               |
| MERCHANDISE STOCKS   | -.765        | .524               |
| CONSUMERS STOCK      | .603         | .608               |
| GIT                  | .235         | .836               |
| <b>Model Summary</b> | <b>Value</b> |                    |
| R                    | .975         |                    |
| R-Squared            | .951         |                    |
| Adjusted R-Squared   | .828         |                    |
| <b>Anova Result</b>  |              |                    |
| Df                   | 5            |                    |
| F-Value              | 7.746        |                    |
| t-value              | .221         |                    |

**Source:** SPSS Output Summary

### Interpretation

The table above shows that the inventory cost component of food and beverage companies in Nigeria depicts a coefficient of raw materials (.881), Work-in-Progress (.468), Merchandise stock (.524), consumer stock (.608) and goods-in-transit (.836) are all significant to turnover. The correlation coefficient between inventory cost and turnover of food and beverage companies in Nigeria also shows .975, which falls within the very high coefficient point of Pearson correlation coefficient value shows a very high positive correlation coefficient. The r-square value of .828 also shows that the inventory cost of food and beverage companies in Nigeria Plc has an 82.8% impact on the turnover of food and beverage companies in Nigeria. The F-statistics value of 7.746, which is greater than the t-value of .221, shows that the  $r^2$  value of 82.8% of inventory cost is significant to the turnover of companies operating in Nigeria's food and beverage industry. From the findings, the null hypothesis is rejected. In contrast, the alternate hypothesis is accepted that inventory cost significantly impacts the turnover of food and beverage manufacturing companies in Nigeria.

### Hypothesis Two

**H<sub>0</sub>** Inventory cost does not significantly impact the profitability of food and beverages in Nigerian manufacturing companies.

**Table 2: Effect of Inventory Cost on Profit of Food and Beverage Companies**

| Variable             | t-value      | Significance value |
|----------------------|--------------|--------------------|
| Constant             | .961         | .438               |
| RAW MATERIALS        | 7.40         | .536               |
| WIP                  | .642         | .587               |
| MERCHANDISE STOCKS   | .955         | .441               |
| CONSUMERS STOCK      | .561         | .631               |
| GIT                  | -.313        | .784               |
| <b>Model Summary</b> | <b>Value</b> |                    |
| R                    | .957         |                    |
| R-Squared            | .917         |                    |



|                     |       |  |
|---------------------|-------|--|
| Adjusted R-Squared  | .709  |  |
| <b>Anova Result</b> |       |  |
| Df                  | 5     |  |
| F-Value             | 4.405 |  |
| t-value             | .961  |  |

**Source:** SPSS Output Summary

### **Interpretation**

The table above shows that the inventory cost component of food and beverage companies in Nigeria depicts a coefficient of raw material (.536). Work-In-Progress (.587), Merchandise stocks (.441), consumer stock (.631) and goods-in-transit (.784) are all significant to their profit. The correlation coefficient between inventory cost and profit of food and beverage companies in Nigeria also shows .957, which falls within the very high coefficient point of Pearson correlation coefficient value shows a very high positive correlation coefficient. The r-square value of .917 also shows that the inventory cost of food and beverage companies in Nigeria plc has a 91.7% impact on the profit of food and beverage companies in Nigeria. The F-statistics value of 4.405, which is greater than the t-value of .961, shows that the  $r^2$  value of 91.7% of inventory cost is significant to the profit of companies operating in Nigeria food and beverage industry. Findings conclude that; the null hypothesis is therefore rejected while the alternate hypothesis is accepted to the effect that inventory cost significantly impacts the turnover of food and beverages manufacturing companies in Nigeria.

### **DISCUSSION OF FINDINGS**

Research Findings reveal that inventory cost is significant to Nigerian manufacturing companies' turnover performance of food and beverage. Findings support the earlier discovery of Saif, William & Joon (2005) inventory pooling will affect the sales pool of firms that do not provide measures for restocking. It is also discovered that inventory cost significantly affects the profitability of food and beverage in Nigerian manufacturing companies. Padachi (2006) also supports this finding by noting that effective management of working capital enhances the Improved profit performance of Mauritian small manufacturing firms.

### **CONCLUSION AND RECOMMENDATIONS**

From the findings, the researcher concludes that inventory cost determines the turnover performance of food and beverage companies in Nigeria. It is also concluded that inventory cost also affects the profitability of food and beverage companies in Nigeria. The effect of profitability on the profitability of food and beverage companies is a result of the cost of keeping this inventory over the period, which affects return accruable to the food and beverage companies in Nigeria.

These findings imply that if inventory in food and beverage companies is not properly managed, the financial performance of food and beverage companies in Nigeria will be at risk. The researchers, therefore, recommend that; food and beverage companies ensure that sound inventory management technique is adopted in the management of inventory to ensure that these companies meet up with the sales need of the organisation as well as material and product control within the organisations.



## REFERENCES

- Adeloye, L. (2010). A harsh operating environment claims 834 Nigerian manufacturing companies. The punch, 7 March, (online: <http://www.jangola.com/index.php>)
- Adeyemi, S. L. & Salami, A. O.(2010). Inventory management: A Tool of Optimising Resources in the Manufacturing Industry; A case Study of Coca-Cola Bottling Company, Illorin Plant. *Journal of Science*, 23(2): 135-142
- Agbonifoh, B. A. & Yomere, G.O. (1999). *Research methodology in the social sciences and education* (1<sup>st</sup> edition) UNIBEN Press Limited, Nigeria
- Balunywa, J.W. (2003). *Business management- 4<sup>th</sup> Edition*
- Banjoko, S. A. (2000). *Production and Operations Management* Saban Publishers, Lagos.
- Canella S. (2010). *The impact of collaboration and smoothing replenishment rules on supply chain performance.* The University of Palermo.
- Carter S.A. (2002). *Production and inventory control handbook.* New York: McGraw-Hill.
- Eneje, B. C. Nweze, A. U. & Udeh, A.I. (2012). Effect of efficient inventory management on profitability: evidence from selected brewery firms in Nigeria. *International journal of current research*, 4(1), 350-354.
- Estelle, V. (2013). Inventory costs (ordering costs, carrying costs). Definition and formula. Retrieved on 21/12/2014 from <http://www.lokad.com/definition-inventory-costs>. Accessed online.
- Famurewa, W. & Orekoya, T. (2009). *Investment summary report by PHB asset management for Nigerian Breweries Plc.*
- Jordan H. H. (1997). *Inventory management.* IBS.
- LYSON k. (1996). *Purchasing and Chartered Institute of Purchasing and Supply*, Pitman Publishing, London.
- Nyabwanga, R. N., & Ojera, P. (2012). Inventory management practices and business performance for small-scale enterprises in Kenya. *Journal of Business Management*, 4.
- Nzewi, U. C. (2007). *Financial Management.* Noben Press Ltd, Onitsha.
- Ogbadu, E. E. (2009). Profitability through Effective Management of Materials. *Journal of Economics and International Finance*, 1(4): 099-105.
- Ola, B. (2001). *The Brewer's Story.* Financial Standard. Lagos. November
- Padachi, K. (2006). Trends in working capital management and its impact on firms' performance: An analysis of Mauritian manufacturing firms. *International Review of Business Research Papers*, 2(2), 45–58.
- Pandey I, (1995). *Financial management.* Vikas Publishing House New Delhi.
- Pandey, I. M. (2005). *Financial management.* Jangpura New Delhi: Vikas Publishing House PVT Ltd. 1226
- Ramakrishna, R. V. (2005). *Materials management- profit centre.* Indian Institute of Materials Management Knowledge Bank.
- Render, M. & Stair, R. (1994). *Quantitative analysis of management*, 5<sup>th</sup> Edition
- Saif, B., William, L. C. & Joon-Seok, K. (2005). On the benefits of pooling in production inventory systems. *Management Science* 51(4), pp. 548-56.
- Van H. (2000). *Financial management and policy*, Eleventh edition. USA: Prentice Inc.
- Vishal, G., Marshall, L. F. & Ananth R. (2004). *An econometric analysis of inventory turnover performance in retail services.* Havard Business School, T-11, Morgan Hall, Soldiers Field, Boston. Sourced online from <https://questrompublish.bu.edu/ren/Serminar/Vishal%20Gaur/RetailIT%2020040728.pdf>



Warren, R. (1994). Financial and management accounting. Feds 4<sup>th</sup> Edition

Womack, J.P. & Jones, D. T. (2003). LEAN THINKING: Banish waste and create wealth in your corporation. London: Free Press Business.

Zanto, B. (2008). Purchasing and supply management. Kaduna: Timo books

## APPENDIX

Table showing Inventory Cost and Financial Performance Indices of Selected Food and Beverage Companies in Nigeria

| YEARS | Raw materials | merchandise | Consumable stocks | Total inventory/stock | turnover    | profit               |
|-------|---------------|-------------|-------------------|-----------------------|-------------|----------------------|
| 2010  | 23441000      | 37719000    | 20830000          | 95549000              | 951552000   | 52651000             |
| 2011  | 24341000      | 48621000    | 27593000          | 132159000             | 1465050000  | 37585000             |
| 2012  | 41655000      | 46154000    | 39897000          | 145650000             | 2153930000  | 93251000             |
| 2013  | 80442000      | 11489000    | 43186000          | 163444000             | 2574139000  | 74768000             |
| 2014  | 92033000      | 7594000     | 35090000          | 168303000             | 2823497000  | 79802000             |
| 2015  | 70990000      | 5477000     | 43439000          | 146684000             | 2800011000  | 301008000            |
| 2016  | 43980000      | 0           | 26670000          | 74983000              | 1636473000  | 607800000            |
| 2017  | 3567000       | 0           | 36862000          | 77875000              | 2234421000  | 602602000            |
| Years | Raw materials | merchandise | Consumable stocks | Total inventory/stock | Turnover    | Return on Investment |
| 2010  | 608354000     | 25055000    | 201281000         | 868494000             | 17507587000 | 2579147000           |
| 2011  | 550130000     | 13777000    | 304587000         | 834690000             | 8161094000  | 2740567000           |
| 2012  | 910960000     | 37494000    | 380793000         | 1329247000            | 20241728000 | 2585465000           |
| 2013  | 816336000     | 57435000    | 395982000         | 1264773000            | 20025628000 | 1880015000           |
| 2014  | 770442000     | 83180000    | 391225000         | 1244847000            | 19326151000 | 1597392000           |
| 2015  | 99543000      | 1980000     | 193672000         | 295195000             | 9465869000  | 5437195000           |
| 2016  | 7238997000    | 1862345000  | 1876418000        | 28483630000           | 47526868000 | 3913669000           |
| 2017  | 6492569000    | 3112027000  | 280201000         | 24233619000           | 60473968000 | 5848602000           |
| Years | Raw materials | merchandise | Consumable stocks | Total inventory/stock | turnover    | Return on Investment |
| 2010  | 2645212000    | 992819000   | 491624000         | 5704845000            | 38422782000 | 5660329000           |
| 2011  | 2145288000    | 57267000    | 357698000         | 5225829000            | 44027325000 | 5441899000           |
| 2012  | 2417593000    | 1361933000  | 396696000         | 6415165000            | 51742302000 | 8331599000           |
| 2013  | 4954112000    | 2815066000  | 612010000         | 10697567000           | 68317303000 | 9783578000           |
| 2014  | 408100700     | 2224034     | 741337000         | 8494039000            | 97981280000 | 12802109000          |
| 2015  | 3833986000    | 3494175000  | 1068163000        | 9902238000            | 80108738000 | 18808784000          |
| 2016  | 3409921000    | 3591896000  | 969542000         | 8784909000            | 1.16707E+11 | 21137275000          |
| 2017  | 4375381000    | 3363290000  | 1221763000        | 9853893000            | 1.33084E+11 | 22258279000          |
| 2018  | 4825104000    | 4145320000  | 2112215000        | 9955244000            | 2.34055E+12 | 32242148000          |
| 2019  | 5214247000    | 5123450000  | 2456456000        | 9978485000            | 2.52432E+12 | 35589153000          |
| 2020  | 6130546000    | 6100420000  | 3724528000        | 9989547000            | 3.13084E+13 | 41137375000          |