International Journal of Innovative Research and Advanced Studies (IJIRAS)
Volume 8 Issue 1, January 2021

ISSN: 2394-4404

The Impact Of Inventory Management On The Profitability Of Manufacturing Companies In Nigeria

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Abstract: ***Inventory constitutes a major segment of total investment in manufacturing companies, therefore its management remains very crucial. This study therefore examines the effect of Inventory Management on the profitability of the manufacturing industry. The objectives of the study are to examine the effect of Inventory management on return on asset, investment, net operating margin, and net income of manufacturing firms in Nigeria using manufacturing companies in food and beverages operating in Nigeria as at the time of this study. This study employed the ex-post facto research design and covered a period of 5years from 2015 – 2019. Both descriptive and inferential methods of data analysis were employed. The study reveals that inventory management has significant effect on return on asset, investment, net operating margin, and net income of manufacturing firms in Nigeria. Based on the findings of this study, the following recommendations were proffered: management should avoid tying down of capital on inventory by employing Just-in-Time (JIT) system of inventory; they should also reduce credit sales or average collection period for easy conversion of inventory to cash. This will enable companies to have enough cash to settle their obligations as at when due; the companies should maintain a closer watch on their inventory conversion period by constantly reviewing processes of payment by creditors so to avoid liquidation. and professionals in the field of inventory management should be hired by these companies for advice.***

Keywords: Inventory Management, Profitability, Manufacturing Companies, Liquidity

I. INTRODUCTION

Every management problem is a decision problem. Decision is an important task that all organizations have to take. The allocation of resource is a common issue to all organizations. Organizations have to acquire, allocate and control the factors of production which are necessary for the achievement of the business objectives. Inventory management as one of the key activities of business logistics, has always been a major preoccupation for a company's survival and growth (Siyanbola, 2014). The principal goal of inventory management involves having to balance the conflicting economics of not wanting to hold too much stock. Thereby having to tie up capital so as to guide against the incurring of costs, such as storage, spoilage, pilferage and obsolescence and, the desire to make items or goods available when and where required (quality and quantity wise) so as to avert the cost of not meeting such requirement (Cannon, 2008).

Inventory management in an organization deals with identifying every item of stock. Inventory management is primarily about specifying the size and placement of stocked goods. Inventory management is required at different locations within a facility or within multiple locations of a supply network to protect the regular and planned course of production against the random disturbance of running out of materials or goods (Cannon, 2008). Effective inventory management determined how profit of an organization can be maximized. Maximizing of profit depend on minimizing cost and maximizing revenue. Maximization is an efficient concept which requires increasing profit without increasing the resources used (Stierwald, 2010). The import of inventory

management in organization is to ensure that at any point in time the capital of the business is not necessarily tied down in form of material in the store, which may provide opportunity for fraud and theft. In other word the management wishes to put at minimal rate stock losses, which emanate from store operation. Thus, as business organization stock is of paramount important likewise the profit of the business. Fluctuation Inventory problems of large or small quantities on hand can cause business failures (Cannon, 2008). If manufacturing firms' experiences stock-out of a critical inventory item, production halts could result. It is thus the management of this economics of stockholding, that is appropriately being refers to as inventory management.

Since inventory constitutes a major segment of total investment, it is crucial that good inventory management be practiced to ensure organizational growth and profitability. Inventory management of a business can go a long way in determining the success or the failure of the business. Ineffective inventory management therefore can lead to stock out which will definitely lead to loss of customer and goodwill, which will make the profit of the business decrease and result in ultimate collapse of the organization.

Managers are aware of the vital roles inventory plays in the activities of organizations. In most organizations, direct materials represent up to 50% of the total product cost, as a result of the money entrusted on inventory, thereby affecting the profitability of the organization. Organizations at times do not control their inventory holding, resulting in under stocking and causing the organizations to stay off production, thereby resulting to organizational ineffectiveness (Siyanbola, 2014).

As against this, if management proves inefficient in inventory management, it results into higher inventory conversion period, high costs of inventory, leading to reduced recycling of funds, ultimately effecting profitability and liquidity of the enterprises. A large number of business failures have been attributed to inability of business managers to plan and control properly the inventory conversion period and inventory levels of their respective companies based on their business strategies. In Nigeria, very little have been done concerning inventory management practices in manufacturing firms. Keeping this in view and wider recognition of the potential contribution of manufacturing sector to the economy of Nigeria, this study attempt to fill this gap by empirically analyzing the effect of Inventory Management on the profitability of the manufacturing industry (Sawaya, & Giauque, 2003).

The main objective of this study is to examine the effect of inventory management on companies' profitability. The specific objectives of the study are to examine the effect of:

- ✓ Inventory management on return on asset of manufacturing companies in Nigeria.
- ✓ Inventory management on return on investment of manufacturing in Nigeria.
- ✓ Inventory management on net operating margin of manufacturing companies in Nigeria.
- ✓ Inventory management on net income of manufacturing companies in Nigeria.

II. REVIEW OF RELATED LITERATURES

CONCEPT OF INVENTORY MANAGEMENT

Inventory management is the art and science of maintaining stock levels of a given group of items incurring the least cost consistent with other relevant targets and objectives set by management (Jossop, 1986). It is important that managers in an organization that deals with inventory should have in mind the objective of satisfying customer's needs and keeping cost at a minimum level. Nwandu, (2006) defines inventory management as a form of administrative control that is particularly essential in all manufacturing, wholesale and retail organizations. The essence of inventory according to Nwandu is to have the right goods quality and quantity at the right place and right time. This process is needed as a part of the supply chain network to protect production system against any kind of disturbance. Tongle (2007), described inventory control or management as a policy specifically designed to identify the most economical quantity of raw materials to purchase and maintain in the warehouse in order to reduce the overall cost associated with inventory management to the barest minimum.

This definition described the policy as a system designed to obtain the right quantity and quality of raw materials at the right price at the particular period of time.

The composition of an inventory differs depending on the kind of production or business carried out by companies. The five different assets that comprises inventory include: Raw materials, work-in-progress, finished goods, extra materials and consumption materials. Manufacturing companies can hold all the five components of inventory materials and keeping these inventories is essential for their production. Inventory to most companies can be seen as an unavoidable cost (Vohra, 2008). But Stierwald (2010) stated that inventory is generally made up of three elements such as raw materials, work-in-progress and finished goods.

PROFITABILITY

Profitability refers to money that a firm can produce with the resources it has. The goal of most organization is profit maximization (Niresh & Velnampy, 2014). The profitability shows the ability of a firm to generate earnings from the use of its assets for a certain period of time (Farah & Nina, 2016). Profitability involves the capacity to make benefits from all the business operations of an organization, firm or company (Muya & Gathogo, 2018). Profit usually acts as the entrepreneur's reward for his/her investment. As a matter of fact, profit is the main motivator of an entrepreneur for doing business. Profit is also used as an index for performance measuring of a business (Ogbadu, 2009). Profit is the difference between revenue received from sales and total costs which includes material costs, labor and so on (Stierwald, 2010).

Profitability can be expressed either in accounting profits or economic profits and it is the main goal of a business venture (Anene, 2016). Profitability portrays the efficiency of the management in converting the firm's resources to profits (Muya & Gathogo, 2016). Thus, firms are likely to gain a lot

of benefits related increased profitability (Niresh & Velnampy, 2014). One important precondition for any long-term survival and success of a firm is profitability. It is profitability that attracts investors and the business is likely to survive for a long period of time (Farah & Nina, 2016). Many firms strive to improve their profitability and they do spend countless hours on meetings trying to come up with a way of reducing operating costs as well as on how to increase their sales (Schreibfeder, 2006).

Profitability is used in measuring performance of the firm. Profitability is one of main aspects of financial reporting for many firms (Farah & Nina, 2016). Profitability is vital to the firm's manager as well as the owners and other stakeholders that are involved or associated to the firm since profitability gives a clear indication of business performance.

III. THEORETICAL REVIEW

The theories adopted for this work include: the trade-off theory and operating cycle theory.

TRADE – OFF THEORY

Traditionally, financial analysts use short-term liquidity measures such as the current or quick ratios to evaluate a firm's liquidity position (Ogbadu, 2009). These ratios assess firms' ability to satisfy their obligations in the event of liquidation. Static ratios reflect only the balance sheet structure at a given point in time for determining short-term borrowing capacity (Jossop, 1986). Kolias, Dimelis and Filios (2015) acknowledged that these measures do not allow investors and lenders to distinguish between different sources of liquidity. Cannon (2008) also confirmed that because these measures show only the firm's liquid assets for the immediate past period, they do not allow an estimate of future cash flow patterns. Jossop (1986) stated that these measures do not show the accurate and complete picture of firms' liquidity position because the measures exclude inventory from liquidity analysis. The static measures do not provide information about the causes of changes in the inventory cycle over time (Ogbadu, 2009). Vohra (2008) stated that static measures do not address whether changes in cash flows are associated with performance changes. The static measures also do not indicate whether effects are instantaneous or whether there is a time lag before cash flows affect firm performance. Similarly, Ogbadu (2009) acknowledged the weaknesses of these measures in distinguishing the resources unnecessarily tied up in operations.

OPERATING CYCLE THEORY

The flow concept of liquidity can be developed by extending the static balance sheet analysis of potential liquidation value coverage to include income statement measures of a firm's operating activity. In particular, incorporating accounts receivable and inventory turnover measures into an operating cycle concept provides a more appropriate view of liquidity management than does reliance on the current and acid-test ratio indicators of solvency. These additional liquidity measures explicitly recognize that the life expectancies of some inventory management depend" upon the extent to which three basic activities- production, distribution (sales), and collection - are non-instantaneous and un-synchronized (Koumanakos, 2008). Accounts receivable turnover is an indicator of the frequency with which a firm's average receivables investment is converted into cash. Changes in credit and collection policy have a direct impact on the average outstanding accounts receivable balance maintained relative to a firm's annual sales. Granting more liberal terms to a firm's customers creates a larger, and potentially less liquid, current investment in receivables. Unless sales increase at least proportionately to the increase in receivables, this potential deterioration in liquidity will be reflected in a lower receivable turnover and a more extended receivables collection period. Decisions that commit a firm to maintaining larger average receivables investments over a longer time period will inevitably result in higher current and acid-test ratios (Sawaya & Giauque, 2003). Inventory turnovers depict the frequency with which firms convert their cumulative stock of raw material, work-in-process, and finished goods into product sales. Adopting purchasing, production scheduling, and distribution strategies that require more extensive inventory commitments per dollar of anticipated sales produces a lower turnover ratio.

Many researchers have studied inventory from different views and in different environments. The following ones were very interesting and useful for the research:

Anene (2018) analyzed inventory management performance of Corporate India by using three financial parameters - Cash Conversion Efficiency Days Operating Cycle and Days Inventory and by assigning them different weights in the overall score, to rank and analyse inventory management performance. This study provides the estimates by using data of 427 companies over the period 1998-99 to 2000- 01 for each company and for each industry. The presence of these three in the overall inventory performance criterion not only helps in performance evaluation but also will capture the dynamics of risk-return tradeoff.

Anichebe and Agu (2017) investigated a research about the effect of inventory management on the Pakistani firms. A sample of 94 Pakistani firms listed on Karachi Stock Exchange from different sectors of the Pakistani economy for a period of 6 years 1999 to 2004 were selected. The study considered Inventory turnover in days, average collection period, average payment period cash conversion cycle, as independent variables, and net operating profitability of Pakistani firms considered dependent variable. The current ratio was considered as a traditional measure of liquidity, while the size of the firm (natural logarithm of sales), debt ratio and financial assets to total assets ratio all have been used as a control variable. Panel data regression analysis of cross-sectional and time series data analysis was used which are the quantitative (Pearson correlation model, Regression analysis) and the descriptive using SPSS.

Cannon (2008) conducted a research on inventory management efficiency on corporate profitability by taking a sample of 22 quoted corporate listed on the Nigerian Stock Exchange from eight different economic sectors (9 from banking, 1 from petroleum, 2 from healthcare, 2 from

breweries, 1 industrial products, 5 from food and beverages, 1 in building materials and 1 from conglomerates). The study used one-tailed test to determine whether the return on gross inventory is greater than the cost of gross inventory of sampled quoted firms. Thus, the study suggested that improving the positions of gross inventory of the quoted Nigerian firms did not engage in improving the profitability of these companies and that increasing the inventory of a firm will decrease the risk of illiquidity and will ultimately increase profitability.

Chen, Frank and Wu (2005) researched on inventory management and corporate profitability while taking sample of 1063 companies from Tehran stock exchange. To test the hypothesis, multiple regressions and Pearson's correlation was used. He analyzed that sale and profit of a company is greatly influenced by the inventory management. Due to inefficient inventory management, a company may be incapable to pay its debts on time. The results show a significant relationship between inventory management and profitability of a company. There is a negative relationship between cash conversion cycle, average collection period, inventory turnover in days and profitability.

IV. METHODOLOGY

This study employed the use of ex-post facto research design. The records that were observed are from 2015 – 2019 a period of five years. The variables that will be tested in the studied firms are accounts inventories, return on total assets, and return on investment, operating profit margin and net Income. The study covers the period 2015 – 2019.In order to determine the effects of inventory management on the profitability of food and beverages firms, the study employed the secondary data of the sampled firms using Pearson's correlation model and pooled panel regression analysis and time series in order to examine the significance of the relationships.

Descriptive analysis is the first step in this analysis; it was used to describe relevant aspects of phenomena about the variables and provide detailed information about each relevant variable. The results have been got by applying the statistical tools namely STATA 13 software has been used for analysis of the different variables.

V. DATA PRESENTATION AND ANALYSIS

MODEL EVALUATION

Variable	VIF	1/VIF
ROA	3.12	0.320550
NET	2.62	0.381591
ROI	2.38	0.420753
OPM	1.05	0.952318
Mean VIF	2.29	

Table 1: Multicollinearity

The variance inflation factor for a predictor indicates whether there is a strong linear association between one predictor and the remaining predictors. The correlation in a situation in which two or more explanatory variables in a multiple regression are highly and linearly related, it renders one of the affected variables redundant and non-effective on the dependent variable. The result shows that there is no multicollinearity because the VIF value is well below 10.

Variable	Obs	Mean	Std. Dev.	Min	Max
roa	53	.0411646	.2360811	-1.272984	.2589178
roi	53	6.240035	452.7626	-.6358684	3296.369
opm	49	.0931642	.1691378	-.3900589	.7328358
net	53	6.39e+09	6.52e+09	135716	2.37e+10
inv	50	1.01e+10	1.13e+10	4.28e+08	4.78e+10

Table 2: Descriptive Statistics

Table 2 shows the descriptive statistics of inventory management and performance components. The result revealed that the mean values of inventory management, INV (1.01e+10). This indicated that INV contributes more to the performance of the food and beverage companies under the period of study. It also revealed that inventory management contributed more to the net income of the food and beverage companies in Nigeria. This is followed by return on investment (ROI), operating profit margin and then return on assets.

HYPOTHESES TESTING

H_{01}: Inventory management has no significant effect on return on asset of food and beverages companies in Nigeria.

MODEL ONE

$$ROA_{it} = \beta_0 + \beta_1 INV_{it} + U_{it}$$

	---- Coefficients ---- (b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
inv	2.69e-12	1.95e-12	-7.34e-13	1.21e-12

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 1.71

Prob>chi2 = 0.0096

Table 3: Hausman Test

Table 3 shows the result of the Hausman specification test. The Hausman specification test shows that the random effect model is a better estimator than the fixed effect model since the Hausman test result shows a chi-square value of 1.71, with a p-value of 0.0096 which is lower than the significant level of 5%.

Random-effects GLS regression — Number of obs = 49
Group variable: coy — Number of group = 9

R-sq: within = 0.0529 — Obs per group: min = 4
Between = 0.0001 — avg = 5.4
Overall = 0.0046 — max = 6

roa	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inv	1.95e-12	2.18e-12	0.90	0.003	6.22e-12	2.32e-12
sigma_u	.10540751					
sigma_e	.06595273					
rho	.71865327	(fraction of variance due to u_i)				

Table 4: Panel regression result for Model one

ISSN: 2394-4404

The random effect result in Table 4 indicated that the coefficient of INV is positive with coefficient values of 1.95e-12 the p-values of 0.003 respectively. This implies that the increasing effect of inventory conversion period (inventory management) bring about increase in return on assets (ROA).

DECISION

Since the p value (0.003) is lower than 5% significant level (p, 0.003 < 0.05), we hereby conclude that inventory management has significant effect on return on asset of manufacturing companies in Nigeria.

MODEL TWO

H_{02}: Inventory management has no significant effect on return on investment of food and beverages companies in Nigeria.

$ROI_{it} = \alpha_0 + \alpha_1 INV_{it} + \mu_{it}$

```
                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |     fixed        random       Difference          S.E.
-------------+----------------------------------------------------------------
inv |   3.82e-09    1.29e-09       2.53e-09        1.57e-08
------------------------------------------------------------------------------
b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test:  Ho:  difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B) =        0.24

Prob>chi2 =      0.0033
```

Table 5: Hausman Test

Table 5 shows the result of the Hausman specification test. The Hausman specification test shows that the random effect model is a better estimator than the fixed effect model since the Hausman test result shows a chi-square value of 0.24, with a p-value of 0.0033 which is lower than the significant level of 5%.

```
Random-effects GLS regression                   Number of obs      =        49
Group variable: coy                             Number of groups   =         9
R-sq:  within  = 0.0005                         Obs per group: min =         4
between = 0.0536                                               avg =       5.4
overall = 0.0096                                               max =         6
                                                Wald chi2(4)       =      0.32
corr(u_i, X)   = 0 (assumed)                    Prob> chi2         =    0.0087
------------------------------------------------------------------------------
roi |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
inv |  -1.29e-09   1.06e-08    -0.12   0.903    -2.21e-08    1.95e-08
------------------------------------------------------------------------------
sigma_u|  117.97612
sigma_e|  500.90007
rho |  .05255798   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Table 6: Panel regression result for Model Two

The random effect result in Table 6 indicated that the coefficient of INV is positive with coefficient values of 1.29e-09, the p-values of 0.003 respectively. This implies that there is increasing and insignificant effect of INV on return on investment (ROI).

DECISION

Since the p value (0.003) is lower than 5% significant level (p, 0.003 < 0.05), we hereby conclude that inventory management has significant effect on return on investment of food and beverages companies in Nigeria.

MODEL THREE

H_{03}: Inventory management has no significant effect on the net operating margin of food and beverages companies in Nigeria.

$OPM_{it} = \lambda_0 + \lambda_1 INV_{it} + \varepsilon_{it}$

```
                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |     fixed        random       Difference          S.E.
-------------+----------------------------------------------------------------
inv |   2.15e-12    2.20e-12       5.01e-14        2.45e-12
------------------------------------------------------------------------------
b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test:  Ho:  difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B) =        0.07

Prob>chi2 =      0.0094
```

Table 7: Hausman Test

Table 7 shows the result of the Hausman specification test. The Hausman specification test shows that the random effect model is a better estimator than the fixed effect model since the Hausman test result shows a chi-square value of 0.07, with a p-value of 0.0094 which is lower than the significant level of 5%.

```
Random-effects GLS regression                   Number of obs      =        49
Group variable: coy                             Number of groups   =         9
R-sq:  within  = 0.0083 Obs per group: min =                   4
between = 0.0215                                               avg =       5.4
overall = 0.0219                                               max =         6
     Wald chi2(0)      =                 .
corr(u_i, X)   = 0 (assumed)     Prob> chi2        =          .
------------------------------------------------------------------------------
opm |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
inv |  2.20e-12   3.77e-12     0.58   0.559     9.60e-12    5.19e-12
-------------+----------------------------------------------------------------
sigma_u |  .17645858
sigma_e|  .11906018
rho |  .68716836   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Table 8: Panel regression result for Model Three

The random effect result in Table 8 indicated that the coefficient of INV is positive with coefficient values of 2.20e-12 and the p-values of 0.009 respectively. This implies that if there is decrease in inventory turnover, it affects operating profit margin (OPM) positively.

DECISION

Since the p value (0.003) is lower than 5% significant level (p, 0.003 < 0.05), we hereby conclude that inventory management has significant effect on the net operating margin of food and beverages companies in Nigeria.

MODEL FOUR

H_{04}: Inventory management has no significant effect on the net income of food and beverages companies in Nigeria.

$NET_{it} = \partial_0 + \partial_1 INV_{it} + \omega_{it}$

```
                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |     fixed        random       Difference          S.E.
-------------+----------------------------------------------------------------
inv |   .2057229    .0669336       .1387893        .0251124
------------------------------------------------------------------------------
b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test:  Ho:  difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)              =       15.97

Prob>chi2 =      0.0031
```

Table 9: Hausman Test

Table 9 shows the result of the Hausman specification test. The Hausman specification test shows that the fixed effect model is a better estimator than the random effect model since the Hausman test result shows a chi-square value of 15.97, with a p-value of 0.0031 which is less than the significant level of 5%.

ISSN: 2394-4404

```
Fixed-effects (within) regression          Number of obs      =        49
Group variable: coy                        Number of groups   =         9
R-sq:  within  = 0.2513                    Obs per group: min =         4
between = 0.0037                           avg =       5.4
overall = 0.037                                        max =         6
F(4,36)           =      3.02
corr(u_i, Xb)  = -0.1354                   Prob> F            =    0.0302
------------------------------------------------------------------------------
net |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------inv |
.2057229    .1006149    -2.04   0.048    -.4097793   -.0016664
-------------+----------------------------------------------------------------
sigma_u|  6.247e+09
sigma_e|  2.662e+09
rho |  .84635583   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(8, 36) =    14.15Prob> F = 0.0000
```

Table 10: Panel regression result for Model Four

The random effect results in Table 10 indicated that the coefficient of INV is positive with coefficient values of 0.02057 and p-values of 0.030 respectively. This implies that the increasing effect of OPM on net income as a result of a reduction in inventory turnover.

DECISION

Since the p value (0.003) is lower than 5% significant level (p, 0.003 < 0.05), we hereby conclude that inventory management has significant effect on the net income of food and beverages companies in Nigeria.

VI. DISCUSSIONS OF FINDINGS

The findings from hypothesis 1 reveals that inventory has a positive significant relationship with the profitability variables under study which implies that as inventory conversion period increases, the profitability of companies increases. This is also consistent with the work of Duru, Oleka, and Okpe (2018) whose inventory conversion period was positively related though highly significant in his study on inventory management and corporate profitability. Again, Eshun and Essey (2010) found that inventory had highly significant positive relationship with profitability in his study on influence of inventory components on corporate profitability in Nairobi Kenya. The study also agrees with the work of Farah and Nina (2016) on effect of inventory on the manufacturing and construction firms' profitability which shows a significant positive relationship between inventories and profitability. That is, as inventories level increases, profitability of firms' also increases.

Findings from hypothesis 2 reveals that there is a significant positive relation between inventory conversion period (inventory management) and return on internment under study. This is consistent with the work of Khaled and Hayam (2016) which shows a positive relationship between inventory conversion period and return on investment. However, the result is not consistent with the study of Kolias, Dimelis and Filios (2011) on impact of inventory on firms' performance which shows a highly significant negative relationship between inventory and return on assets as a measure of profitability. Koumanakos (2008) on inventory and corporate profitability reveals a highly significant negative relationship with profitability which is consistent with this study.

The test of hypothesis 3 shows an insignificant positive relationship between inventory management (inventory conversion period) net operating margin of manufacturing firms in Nigeria. This is consistent with the works of Kwadwo, and Godfred (2020), which reveals a positive relationship with profitability though highly significant. The study also agrees with the work of Sitienei and Kioko (2015) which shows that inventory conversion period has a highly positive relationship with profitability of firms' in his study on influence of inventory components on corporate profitability.

Finally, hypothesis 4 reveals a positive significant relationship between inventory management (inventory conversion period) and net income of manufacturing firms in Nigeria. This indicates that profitability increases with the level of inventory management. This is consistent with the work of Siyanbola (2016) but not in consistence with the study of Stierwald (2010) on effect of inventory and financing policies on firms' net income. The result of his study reveals a positive relationship between inventory management and firms' net income.

CONCLUSION

The results indicate that Inventory management has significant effect on return on asset manufacturing firms in Nigeria; Inventory management has significant effect on return on investment of manufacturing firms in Nigeria; Inventory management has significant effect on the net operating margin of manufacturing firms in Nigeria; and Inventory management has significant effect on the net income of manufacturing firms in Nigeria.

RECOMMENDATIONS

Based on the findings of this study, we made the following recommendations:

- ✓ Management should avoid tying down of capital on inventory by employing Just-in-Time (JIT) system of inventory.
- ✓ They should also reduce credit sales or average collection period so as to easily convert inventory to cash and enable firms to have enough cash to settle their obligations
- ✓ The companies should have a closer watch on their inventory conversion period by constantly reviewing processes of payment by creditors so that they don't go bankrupt after paying their creditors.
- ✓ Specialized persons in the field of inventory management should be hired by these companies for expert advice on the inventory management in the Nigerian food and beverages companies under study.

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