

EFFECT OF INVENTORY MANAGEMENT ON THE ORGANIZATIONAL PERFORMANCE OF THE SELECTED MANUFACTURING FIRMS

Agu Okoro Agu`

Department Business Management, Collage of management Science, Evangel University Akaeze Ebonyi State, Nigeria

Email: Don_okojoboagu@yahoo.com

Obi-Anike, Happiness Ozioma

Department Business Management, Faculty of Business Administration, University of Nigeria Enugu Campus

Eke Chukwuma Nnate

Department Accounting, Collage of management Science, Evangel University Akaeze Ebonyi State, Nigeria

ABSTRACT

The study sought to ascertain the extent at which inventory control affect the productivity of selected manufacturing firms, to determine the nature of the relationship between demand management and customer satisfaction of selected manufacturing firms and to determine the effect of Just – in- time on the growth of selected manufacturing firms. The study had a population size of 996, out of which a sample size of 285 was realized using Taro Yemeni's formula at 5% error tolerance and 95% level of confidence. The instrument used for data collection was primarily questionnaire and interview. Out of 285 copies of the questionnaire that were distributed, 270 copies were returned while 15 were not returned. The descriptive survey research design was adopted for the study. The hypotheses were tested using Pearson product moment correlation coefficient and simple linear regression statistical tools. The findings indicate that inventory control significantly affects productivity of selected manufacturing firms ($r = 0.849$; $t = 27.726$; $F = 768.754$; $p < 0.05$). There is a positive relationship between demand management and customer satisfaction of selected manufacturing firms ($r = .799$, $P < .05$). Just – in – time has a significant effects on growth of the selected manufacturing firms ($r = .885$; $t = 32.865$; $F = 1080.094$; $p < 0.05$). The study concluded that inventory management is essential in the operation of any business. Inventory as an asset on the balance sheet of companies has taken on increased importance because many companies are applying the strategy of reducing their investment in fixed assets. The study recommended that Organizations should train their personnel in the area of inventory control management that will empower them to be in charge for the smooth running of the inventory management activities or program.

Keywords: *Inventory Management, Performance and Manufacturing firms*

INTRODUCTION

Inventory management is a critical management issue for most companies – large companies, medium-sized companies, and small companies. Effective inventory flow management in supply chains is one of the key factors for success. The challenge in managing inventory is to balance the supply of inventory with demand. A company would ideally want to have enough inventories to satisfy the demands of its customers- no lost sales due to inventory stock-outs. On the other hand, the company does not want to have too much inventory staying on hand because of the cost of carrying inventory. Enough but not too much is the ultimate objective (Coyle, Bardi, and Langley, 2003). The role of inventory management is to ensure faster inventory turnover. It increases inventory turnover by ten (10) and reduces costs by 10% to 40%. The so-called inventory turnover is not yet right to sell products on the shelves based on the principle of FIFO cycle(<http://www.academia.edu/>).

Inventory management is necessary at different locations within an organization or within multiple locations of a supply chain, to protect (the production) from running out of materials or goods. Adequate inventories kept in manufacturing companies will smooth the production process. The wholesalers and retailers can offer good customer services and gain good public image by holding sufficient inventories. The basic objective of inventory management is to achieve a balance between the low inventory and high return on investment (ROT). (Johnson et al, 1974). Inventory levels have been seen as one of the most interesting areas for improvement in organization materials management (Kumar Ordamar, Zhang, 2008).

Inventory plays a significant role in the growth and survival of an organization in the sense that ineffective and inefficient management of inventory will mean that the organization loses customers and sales will decline. Prudent management of inventory reduces depreciation, pilferage, and wastages while ensuring availability of the materials as at when required (Ogbadu, 2009). Inventory management is critical to an organization's success in today's competitive and dynamic market. This entails a reduction in the cost of holding stocks by maintaining just enough inventories, in the right place and the right time and cost to make the right amount of needed products. High levels of inventory held in stock affect adversely the procurement performance out of the capital being held which affects cash flow leading to reduced efficiency, effectiveness and distorted functionality (Koin, Cheruiyot , and Mwangangi , 2014)

Statement of Problem

Inventory is a vital part of current assets mainly in manufacturing concerns. Huge funds are committed to inventories as to ensure smooth flow of production and to meet consumer demand. However, maintaining inventory also involves holding or carrying costs along with opportunity cost. Inventory management, therefore, plays a crucial role in balancing the benefits and disadvantages associated with holding inventory. Efficient and effective inventory management goes a long way in successful running and survival of a business firm, when organizations fail to manage their inventory effectively they are bound to experience, stock out, the decline in productivity and profitability, customer dissatisfaction . Thus the study seeks to investigate the effect of inventory management on the organizational performance of the selected manufacturing firms.

Objectives of the study

The specific objectives were to

1. To ascertain the extent at which inventory control affects productivity of selected manufacturing firms
2. To determine the nature of the relationship between demand management and customer satisfaction of selected manufacturing firms
3. To determine the effect of Just – in- time on growth of selected manufacturing firms

Research Questions

With the above objectives in focus, the study seeks to find answers to the following questions

1. To what extent does inventory control affect the productivity of selected manufacturing firms?
2. What is the nature of the relationship between demand management and customer satisfaction of selected manufacturing firms?
3. What is the effect of Just – in- time on the growth of the selected manufacturing firms?

Question Hypotheses

These hypotheses were proposed for the study

1. Inventory control significantly affects productivity of selected manufacturing firms
2. There is a positive relationship between demand management and customer satisfaction of selected manufacturing firms
3. Just – in – time has significant effects on growth of the selected manufacturing firms

REVIEW OF RELATED LITERATURE

Conceptual framework

According to Miller (2010), inventory management involves all activities put in place to ensure that customer has the needed product or service. It coordinates the purchasing, manufacturing and distribution functions to meet the marketing needs and organizational needs of availing the product to the customers. Inventory management is primarily involved with 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. The scope of inventory management also involves managing the replenishment lead time, replenishment of goods, returns and defective goods and demand forecasting, carrying costs of inventory, asset management, physical inventory, available physical space, demand forecasting, inventory valuation, inventory visibility, future inventory price forecasting and quality management. With a balanced of these requirements, it is possible to reach an optimal inventory level, which is an on-going process as the business needs a shift and react to the wider environment (Ogbo et al, 2014).

Inventory control means availability of materials whenever and wherever required by stocking adequate number and kind of stocks. The sum total of those related activities essential for the procurement, storage, sales, disposal or use of material can be referred to as inventory management. Inventory managers have to stock-up when required and utilize available storage space resourcefully so that available storage space is not exceeded. Maintaining accountability of

inventory assets is their responsibility. They have to meet the set budget and decide upon what to order, how to order and when to order so that stock is available on time and at the optimum cost (Benedict and Margeridis, 1999). Hence, inventory management involves planning to organize and controlling the flow of materials from their initial purchase unit through internal operations to the service point through distribution (Smaros, et al., 2003).

Functions of Inventories

Having (an amount of) stock is costly and can cause various additional risks. Waters (2003) states the following: “stocks are expensive, because of the costs of tied-up capital, warehousing, protection, deterioration, loss, insurance, packaging, administration and so on”. He therefore also wonders why inventories are being maintained by organizations at all. According to the Just-in-Time principle (JIT) when all materials arrive just in time, no stock will be needed and thus inventory management will not have to deal with the temporary storage of all these goods (Coyle et al., 2003). This is how managers often explain the JIT-principle. Unfortunately, the JIT-principle cannot always be applied and JIT is just a way of control in a situation where production takes place based on an order (no mass production). JIT does not mean there are any inventories at all but aims at the elimination of unnecessary stocks during production (Dijk et al., 2007).

Challenge of Inventory Management

The wholesalers and retailers that are major actors involved in downstream distribution channels face a special challenge in keeping inventory at reasonable levels due to the difficulty of forecasting demand and expectations of customers about product availability (Coyle et al., 2003). The challenge grows even bigger when we think about the diversity of products in terms of their color/design, package type, size and so on. To further explain the problem, we assume there is an accurate demand forecast; however, the aggregate demand needs to be broken down by various specifications of the product into sub-total demand forecast to guide the stock keeping units (SKUs) in the company in order to fulfill the final customer's order. But the sub-total demand forecasts could be diverse, reaching dozens, hundreds, or even thousands of categories; in that case, they become truly difficult, complex and time-consuming. The difficulty of forecasting demands accurately naturally results in two problems, which are in opposite extreme, overstock and stock-out of inventory. As companies strive to avoid lost sales from stock-out of inventory, there is a tendency to overstock

Demand Management

Demand management may be thought of as “focused efforts to estimate and manage customers' demand, with the intention of using this information to shape operating decision.” (Coyle et al., 2003)

Independent and Dependent Demand

Independent demand is what whose usage is based on external market requirements rather than related to other items' demand. The market demand for consumer goods is a typical example of independent demand. Dependent demand is determined by the requirements of other items in the manufacturing process. The requirement of components or parts is based on the demand for the finished products (Toomey, 2000).

THEORETICAL FRAMEWORK

Queuing Theory

This theory will guide the study in investigating the relationship between material handling equipment and effective inventory management. Queuing theory is a mathematical study of waiting for lines or queues (Shingo, 2005). The theory enables mathematical analysis of several related processes, including arriving at the back of the queue, waiting in the queue (a storage process) and being served in front of the queue. The theory permits the derivation and calculation of several performance measures including the average waiting time in the queue or the system, the expected number waiting or receiving service, and the probability of encountering the system in certain states such as empty, full having an available server or having to wait a certain time to be served (Houtzeel,1992).

Empirical Review

Anichebe and Agu (2013) Effects of Inventory Management on Organizational Effectiveness in selected organizations in Enugu, was carried out, to assess the impact of proper inventory management on organizational performances in Yemenite, Hardis & Dromedas, and the Nigeria Bottling Company all in Enugu, Enugu State. Descriptive research method, especially survey, and case study were employed in carrying out the study. The population of the study is six hundred and fifty-eight (658). A sample size of two hundred and forty-eight (248), was derived using the Taro Yamane formula for sample size determination from a finite population. Data were generated using questionnaire, oral interviews, observations, books, journals and the internet. Data were presented in tables and analyzed using simple percentages. Pearson product moment correlation coefficient and linear regression were used in the hypotheses testing. From the analyses, it was discovered that irrespective of the fact that the organizations studied, painted the picture that they were applying the tenets of good inventory management, they from time to time run into the problems of inventory inadequacy. This consequently affected their production, leading to the scarcity of one brand of their products or the other, thereby affecting their profitability and consequential effectiveness negatively. The Findings indicate that there is a significant relationship between good inventory management and organizational effectiveness. Inventory management has a significant effect on organizational productivity. There is a highly positive correlation between good inventory management and organizational profitability. The study concluded that Inventory Management is very vital to the success and growth of organizations. The entire profitability of an organization is tied to the volume of products sold which has a direct relationship with the quality of the product. Against this background the study recommended that Organizations should diversify their inventory system to suit specific needs of production and that management should closely monitor and manipulate their inventory system to maintain production consistency for organizational profitability and effectiveness.

Edwin and Florence (2015) The Effect of Inventory Management on Profitability of Cement Manufacturing Companies in Kenya: A Case Study of Listed Cement Manufacturing Companies in Kenya. Given the milestone contribution of the Cement manufacturing firms to the economy of Kenya, this research is necessary to evaluate the effects of inventory management on the profitability of the Cement manufacturing firms in Kenya. A cross-sectional data from 1999 to 2014 was gathered for the analysis of the annual reports for the three sampled firms listed at Nairobi Securities Exchange (NSE). The ordinary least squares (OLS) stated in the form of multiple regression models was applied in the data analysis to establish the relationship between

inventory management and firm's profitability. The variables used include inventory turnover, inventory conversion period, Inventory levels, storage cost, size of firm, gross profit margin, Return on assets and growth of the firm. The results provide a negative relationship between inventory turnover, inventory conversion period and storage cost with the profitability of the company. In addition, inventory level was found to be directly related to firm's size and storage cost. The study recommends that the Cement manufacturing firms in Kenya should strive to ensure that the right stock is kept in their warehouses to hedge against excessive holding cost and stock-outs.

Koin ,Cheruiyot , and Mwangangi ,(2014) conducted a study on the effect of inventory management on an organization's performance. the study will employ a descriptive research design the study population too is 459 employees and care will be taken to ensure that the accessible population sampled is of a sizeable to inform the researcher on the formulated research objectives. a sample of 56 employees will be obtained from the target population the data will be collected from the company's supply chain department in liaison with the various integrated functions in the chain using questionnaires. the questionnaires will be dropped to all the heads of the various business process owners linked to the supply chain and their staff the collected data will be compiled for analysis the data will be analyzed using descriptive statistics and this will be done using a statistical package for analysis (specs). the findings indicate that e inventory management system, supplier relation affects the supply chain effectiveness in the manufacturing sector to a great extent while order management and warehouse management affects it to a moderate extent .this study shall demonstrate the practicality and effectiveness of the proposed approach.by means of this research, valid solutions for harmonization of inventory management and procurement performance shall be availed to the decision makers.

Ogbo, Onekanma and Wilfred (2014) carried out a study on the effect of the effective system of inventory management on organization performance in the seven-up bottling company, Nile Mile Enugu. The researchers were motivated to embark on this study, in order to bring to fore the importance of effective inventory control system on organizational performance as it relates to the bottling company. A total of eighty-three respondent constitute the sample for the study. Four research questions and Four hypotheses were generated and tested at 10% (that is 0.10) significant level using descriptive statistics and a non-parametric test (chi-square that is, X^2). The result of the analysis showed that flexibility in inventory control management is an important approach to achieving organizational performance. It was found that organizations benefits from inventory control management by way of easy storage and retrieval of material, improved sales effectiveness, and reduced operational cost. The study also found that there is a relationship between operational feasibility, the utility of inventory control management in the customer related issues of the organization and cost effectiveness technique are implemented to enhance the return on investment in the organization. Effective inventory control management is recognized as one of the areas management of any organization should acquire capability. It is recommended that organizations should adopt the inventory keeping method that best suits their operations.

Kamauand Assumpta (2008) carried out a study on the influence of inventory management on organizational competitiveness, with a particular focus on Safaricom Ltd Kenya. The specific objectives of the study were to determine the effects of inventory shrinkage, inventory investment and inventory turnover on the competitiveness of Safaricom Ltd. A descriptive

research design was used in this study. The target population comprised of Safaricom Kenya Ltd senior personnel in the following departments; Finance division, customer care, supply, and administration, commercial (sales and marketing) department. The study targeted personnel in those departments as they are better placed to answer questions relating to inventory control and the company's competitiveness. The target respondents included the 103 management staffs from the Company's Head Offices in Nairobi. Stratified random sampling was applied where a sample was calculated using Fishers Formula. This generated a sample of 80 respondents. The study collected primary data using questionnaire with both open ended and closed ended questions and administered using drop and pick later method. The quantitative data that was obtained from the questionnaires were coded and keyed into a statistical package of social science (SPSS) analysis software. Both descriptive and inferential statistics were utilized to analyze the results interpreted in terms of percentages and means score and presented in tables and figures. The study found that inventory shrinkage, inventory investment, and inventory turnover affects the competitiveness of Safaricom Ltd. The study concludes that inventory management practices are very vital to the competitiveness of organizations.

Method and Material

The study was carried out primarily through the survey method and interview of employees in three manufacturing organizations in Nigeria which include: Nigeria Breweries Plc, PZ industries Plc and Innoson Nigeria Ltd. Secondary data were obtained from books, journals, and the internet. A sample size of 285 was obtained from the population of 996 at 5% error tolerance and 95% degree of freedom using Yamane's statistical formula. 270(91%) of the questionnaire distributed were returned while 15 (9%) of the questionnaire distributed were not returned. The questionnaire was designed in Likert scale format. The researcher conducted a pre-test on the questionnaire to ensure the validity of the instrument. The reliability test was done using test-retest method. The result gave a reliability coefficient of 0.65, indicating a high degree of consistency. Data collected were presented in frequency tables. Simple linear regression and Pearson product moment correlation coefficient statistical tools were used to test the hypotheses.

DATA ANALYSIS AND DISCUSSION

The data obtained from the field were presented and analyzed with descriptive statistics to provide answers to the research questions while the corresponding hypotheses were tested with Simple linear regression and Pearson's Correlation and Linear regression at 0.05 alpha level To what extent does inventory control affect productivity of selected manufacturing firms

Table 1: Coded Responses on inventory control affect productivity of selected manufacturing firms

S/no	Questionnaire items	S.Agree /Agree	Disagree /S.Disagree	Total
		Freq	Freq	
1	Effect procurement of materials enhances productivity	264 (208)	6 (12)	270
2	Storage of materials ensures continuity of production and productivity	252 (208)	18 (12)	270
	TOTAL	516 (96%)	24 (4%)	540 (100)

Source: fieldwork 2016

Table 1 shows that 516(96%) of the respondents indicated S.agree / agree, while 24 (4%) indicated disagree/ S.disagree. Based on responds from percentage analysis it was concluded that inventory control significantly affects the productivity of selected manufacturing firms.

Hi: Inventory control significantly affects the productivity of selected manufacturing firms.

Table 2. Model Summary

Model	R	R Square	Sum of Squares	T	F	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.849 ^a	.721	284.826	27.72	768.75	.720	.60869	.191
			110.410	6	4			
			395.237					

a. Predictors: (Constant), Inventory control

b. Dependent Variable: Productivity

R = 0.849
 R² = 0.721
 T = 27.726
 F = 768.754
 DW = 0.191

Interpretation:

The regression sum of squares (284.826) is greater than the residual sum of squares (110.410), which indicates that more of the variation in the dependent variable is explained by the model. The significance value of the F statistics (0.000) is less than 0.05, which means that the variation explained by the model is not due to chance.

R, the correlation coefficient which has a value of 0.849, indicates that there is a positive relationship between the inventory control and productivity. R square, the coefficient of determination, shows that 72.1% of the variation in the implementation of the productivity is explained by the model.

With the linear regression model, the error of estimate is high, with a value of about 0.60869. The Durbin-Watson statistics of .191, which does not tend to 2 indicates there no is autocorrelation.

The inventory control coefficient of 0.849 indicates a positive significance between inventory control and productivity, which is statistically significant (with $t = 27.726$). Therefore, the null hypothesis should be rejected and the alternative hypothesis accordingly accepted. To determine the nature of the relationship between demand management and customer satisfaction of selected manufacturing firms

Table 3: Coded Responses on nature of the relationship between demand management and customer satisfaction of selected manufacturing firms.

S/no	Questionnaire items	S.Agree /Agree	Disagree /S.Disagree	Total
		Freq	Freq	
1	Meeting customer expectation produces customer satisfaction	237 (246)	33 (24)	270
2	customer repeating purchase for a particular means that such customer is satisfy	255 (246)	15 (24)	270
	TOTAL	492 (91%)	48 (9%)	540 (100)

Source: fieldwork 2016

Table 3 shows that 492(91%) of the respondents indicated S.agree / agree, while 48 (9%) indicated disagree/ S.disagree . Based on responds from percentage analysis it was concluded that there is a positive relationship between demand management and customer satisfaction of selected manufacturing firms.

Hypothesis Two

There is a positive relationship between demand management and customer satisfaction of selected manufacturing firms

Table 4 -Descriptive Statistics

	Mean	Std. Deviation	N
Demand management	2.0826	1.31097	270
Customer Satisfaction	2.0435	1.25690	270

Table 5 Correlations

		Demand managemen t	Customer Satisfaction
Demand management	Pearson Correlation	1	.799**
	Sig. (2-tailed)		.000
	N	270	270
Customer Satisfaction	Pearson Correlation	.799**	1
	Sig. (2-tailed)	.000	
	N	270	270

** . Correlation is significant at the 0.01 level (2-tailed).

Table (4) shows the descriptive statistics of the demand management and customer satisfaction with a mean response of 2.0826 and std. deviation of 1.31097 for demand management and a mean response of 2.0435 and std. deviation of 1.25690 for customer satisfaction and a number of respondents (270). By careful observation of standard deviation values, there is not much difference in terms of the standard deviation scores. This implies that there is about the same variability of data points between the dependent and independent variables.

Table (5) is the Pearson correlation coefficient for demand management and customer satisfaction. The correlation coefficient shows 0.799. This value indicates that correlation is significant at 0.05 level (2tailed) and implies that there is a significant positive relationship between demand management and customer satisfaction ($r = .799$). The computed correlations coefficient is greater than the table value of $r = .195$ with 268 degrees of freedom ($df = n-2$) at alpha level for a two-tailed test ($r = .799, p < .05$). However, since the computed $r = .799$ is greater than the table value of $.195$ we reject the null hypothesis and concluded that a positive relationship exists between demand management and customer satisfaction ($r = .799, P < .05$).

To determine the effect of inventory evaluation on growth of selected manufacturing firms

Table 6: Coded Responses on Inventory evaluation on growth of selected manufacturing firms

S/no	Questionnaire items	S.Agree /Agree	Disagree /S.Disagree	Total
		Freq	Freq	
1	Knowing stock at hand and expected stock enhance firms growth	250	20	270
2	Growth of a firm is measured based on the level stock it has	262	8	270
	TOTAL	512 (97%)	28 (3%)	540 (100)

Source: fieldwork 2016

Table 6 shows that 514(97%) of the respondents indicated S.agree / agree, while 28(3%) indicated disagree/ S.disagree . Based on responds from percentage analysis it was concluded that inventory evaluation significantly affects the growth of the selected manufacturing firms.

Hi: Just – in – time has significant effects on growth of the selected manufacturing firms.

Table 7. Model Summary^b

Model	R	R Square	Sum of Squares	F	T	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.885 ^a	.784	314.904	1080.094	32.865	.783	.53996	.205
			86.883					
			401.787					

a. Predictors: (Constant), Just –in- time

b. Dependent Variable: growth

- R = 0.885
- R² = 0.784
- T = 32.865
- F = 1080.094
- DW = 0.205

Interpretation:

The regression sum of squares (314.904) is greater than the residual sum of squares (86.883), which indicates that more of the variation in the dependent variable is explained by the model. The significance value of the F statistics (0.000) is less than 0.05, which means that the variation explained by the model is not due to chance.

R, the correlation coefficient which has a value of 0.885, indicates that there is a positive relationship between Just – in – time and growth. R square, the coefficient of determination, shows that 78.4% of the variation in the growth explained by the model.

With the linear regression model, the error of estimate is high, with a value of about 0.53996. The Durbin-Watson statistics of 0 .205, which does not tend to 2 indicates there no is autocorrelation.

The Just – in – time coefficient of 0.885 indicates a positive significance between Just – in – time and growth, which is statistically significant (with t = 32.865). Therefore, the null hypothesis should be rejected and the alternative hypothesis accordingly accepted.

FINDINGS

The findings at the end of this study include the following:

Inventory control significantly affects productivity of selected manufacturing firms ($r = 0.849$; $t = 27.726$; $F = 768.754$; $p < 0.05$)

There is a positive relationship between demand management and customer satisfaction of selected manufacturing firms ($r = .799$, $P < .05$).

Just – in – time has a significant effects on growth of the selected manufacturing firms ($r = .885$; $t = 32.865$; $F = 1080.094$; $p < 0.05$)

CONCLUSION

The study concluded that inventory management is essential in the operation of any business. Inventory as an asset on the balance sheet of companies has taken on increased importance because many companies are applying the strategy of reducing their investment in fixed assets, like plants, warehouses, equipment and machinery, and so on, which even highlights the significance of reducing inventory

RECOMMENDATIONS

The following recommendations were made based on are finding:

1. The study recommended that manufacturing firms develop a policy framework to facilitate faster implementation of the best inventory management practices such as JIT and MRP
2. The firms should also strengthen the supplier relation to the level of partnerships and also not only concentrate on one supplier so that the failure of one supplier will not mar the production system
3. Organizations should train their personnel in the area of inventory control management that will empower them to be in charge for smooth running of the inventory management activities or program
4. The study recommended that top management should emphasis on the proper inventory management techniques and measuring of efficiency deviations to identify weaknesses in the process of managing inventories

REFERENCES

- Anichebe, N.A And Agu, O.A (2013) Effect Of Inventory Management On Organisational Effectiveness, Information And Knowledge Management. 3,(8)
- Benedict, C., and Margeridis, H. (1999)*Chain Reaction.Charter*, 70(2):464-479
- Coyle, J. J., Bardi, E. J., and Langley, C. J. Jr. (2003).*The Management of Business Logistic: A SupplyChain Perspective* (7th ed.). Mason: South-Western
- Dijk, E.V., Leeuw, S.D. and Durlinger, P., (2007)*Voorraadbeheer in perspectief: Zeveninvalshoeken van het vak*. Deventer: Slimstock B.V.
- Edwin S and Florence M (2015) The Effect Of Inventory Management On Profitability Of Cement Manufacturing Companies In Kenya: A Case Study Of Listed Cement Manufacturing Companies In Kenya, International Journal Of Management And Commerce Innovations 3(2) 111-119,
- Harland, C.M., (1996) Supply Chain Management, Purchasing and Supply Management, Logistics, Vertical Integration, Materials Management and Supply Chain Dynamics. In *Slack, N (ed.) Blackwell Encyclopedic Dictionary of Operations Management*. UK: Blackwell.
- Johnson, M.E., and Pyke, D.F., (2001) Supply Chain Management.*Encyclopedia of MS/OR*, p.edited by C. Harris and S. Gass
- Johson R. A., Newell, W. T. and Vergin, R. C. (1974) Production and OperationsManagement. Houghton Mifflin Company
- Kamau L W and Assumpta W. K (2015)Influence Of Inventory Management Practices On Organizational Competitiveness: A Case Of Safaricom Kenya Ltd, International Academic Journal Of Procurement And Supply Chain Management,1(5) 72-98
- Koin V. R,Cheruiyot G. K and Mwangangi P(2014)Effect Of Inventory Management On The Supply Chain Effectiveness In The Manufacturing Industry In Kenya: A Case Study Of Tata Chemicals Magadi, *International Journal Of Social Sciences Management And Entrepreneurship* 1(2):189-202,
- Kumar, A., Ozdamar, L., and Zhang, C. N. (2008). Supply Chain Redesign in the Healthcare Industry of Singapore. *Supply Chain Management: An International Journal*, 13(2) 95-103.
- Lam, J., &Postle, R. (2006). Textile and Apparel Supply Chain Management in Hong Kong. *International Journal of Clothing Science and Technology*, 18(4), 265-277.

- Ogbad, E. E. (2009). Profitability Through Effective Management Of Material. *Journal Of Economics And International Finance*, 1(4), 099-105
- Ogbo, A. I., Onekanma I. V and Wilfred I. U (2014) The Impact of Effective Inventory Control Management on Organisational Performance: A Study of 7up Bottling Company Nile Mile Enugu, Nigeria, *Mediterranean Journal of Social Sciences*, Vol 5 No 10
- Smaros S.J., Lehtonen, J.M. Appelquist, P. and Holmstrom, J. (2003) The Impact of Increasing Demand Visibility on Production and Inventory Control Efficiency *International Journal of Physical Distribution and Logistics*, 33(4) 445-465.
- Toomey, J. W. (2000). *Inventory Management: Principles, Concepts, and Techniques*. Norwell: Kluwer Academic Publishers
- Waters, C.D.J., (2003) *Inventory Control and Management - 2nd Edition*. Chichester: John Wiley & Sons Ltd