INFLUENCE OF INVENTORY COSTS ON SUPPLY CHAIN PERFORMANCE IN THE RETAIL SECTOR OF KENYA, A CASE STUDY OF TUSKYS SUPERMARKET

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Abstract

Retail outlets face various problems in managing inventory which include; incorrect demand forecasting, high administrative and transactional costs; stock deterioration and stock-outs of some critical items. The general objective of the study was to determine the influence of Vendor Managed Inventory on supply chain performance in the retail sector, a case study of Tuskys Chania Supermarket. The specific objective of the study was to determine the influence of inventory cost on supply chain performance in the retail sector. The study employed a census study of all the 130 employees of Tuskys supermarket Chania branch. A semi-structured questionnaire was the research instrument that was used to collect primary data from the respondents. The data was analyzed using Statistical Package for Social Sciences. Inferential statistics were analyzed using a multiple regression analysis. The analyzed data was presented using tables. The findings of the study concluded that inventory cost, has a positive significant influence on supply chain performance of retail outlets in Kenya. The study recommended that retail outlets need to understand at what point in the process inventory items are needed and work with their suppliers to have these delivered as needed.

Keywords*: Vendor Managed Inventory, Inventory Levels and Supply Chain Performance*

I. INTRODUCTION

Inventory Costs

Inventory costs are expenses incurred in the process of managing an inventory. Inventory costs are basically categorized into three groups which include; carrying costs consist of opportunity cost, storage charges, security charges and insurance charges whereas ordering costs comprise of clerical and administrative costs incurred in the process of placing an order. They include logistical costs, paperwork costs and follow up costs, stock out cost are expense incurred as a result of not having sufficient inventory for production process or for resale to customer upon demand, such costs can lead to customer dissatisfaction and loss of goodwill (Umeji & Obi, 2014).

Inventory costs are important because of the following reasons; they constitute a large portion of logistical cost incurred in an organization, they determine the amount of inventory levels to be held within a firm, they

affect the profitability (Coyle *et al.*, 2010). When inventory costs are low, it is an advantage for the company that effectively controls its inventory. Inventory carrying costs refers to the cost expenses a firm incurs for managing inventory, they commonly represent one of the highest costs of logistics. This component represents the cost that is associated with storing of an item in the inventory, carrying costs depend on the quantity of items held and the time over which the inventory is held. It includes the opportunity cost, costs directly included in storing the goods, the obsolescence costs of scrapping and reworking, deterioration costs, fire and general insurance costs (Umeji & Obi., 2014). Most of the carrying cost components are hard to predict in advance due to their nature. Inventory carrying costs depend on the amount of inventory stored and it includes only those costs that vary with the quantity of inventory (Eksteen, 2011).

Ordering costs comprise of clerical and administrative costs incurred in the process of placing an order. They include logistical costs, paperwork costs and follow up costs. These cost are included when replenishment orders are placed, depending on the inventory levels. Ordering costs include expenses incurred during market research, analyzing available vendors, transaction costs incurred in processing purchase orders and expenses incurred in checking status of the order processing. Order costs constitute a small portion of the total inventory costs spent in a supply chain (Umeji & Obi, 2014).

Ordering cost varies with changes in the quantity of items required, as the quantity of the items needed increase the ordering costs reduces (Kontuš, 2014). However variations on order processing cost is affected by quantity discounts on items purchased, vehicle capacity, transport costs and lead time (Ingo Morgenstern, 2007). The unit ordering cost declines as the purchase order increases in size

Stock out cost are the costs attributed with running out of stock or not being able to run the production process (Umeji & Obi, 2014). This is the cost of not serving the customer due to shortage in supply. Internal stock-outs implies loss in production resulting in idle time for men and machines. It can also lead to imposition of penalties on delayed deliveries. External stock-out poses a threat of loss in potential sales and customer goodwill due to frequent backorders.

Stock out costs are difficult to determine in advance since the retailers aren't able to foresee variations in the consumptions. In cases where the retailer is stocking season items, the retailer is likely to experience stock out if proper demand forecasting approaches aren't taken into consideration when designing inventory control, strategies (Eksteen, 2011). The factors which are considered when calculating the stock out cost include; overtime costs, extra administration and clerical costs, sales loss, goodwill loss and customer loss. Stock out costs not only depend on the quantities that are short but the time the stock is unavailable as well. Stock outs in retail outlets, may lead to customers to accept a back order for future availability of the needed product or purchase substitute item. This may make the firm to loss their goodwill with their customers, which will lead to lower sales and in turn reduced profits.

In a traditional supply chain, each member attempts to minimize its inventory cost. However, when supply chain partners employ the VMI policy, they aim to show that partnership is a way to reach coordination that helps members to align their decisions and reach the minimum total supply chain cost. According to Guan and Zhao (2010), VMI allows the vendor to develop long term plans for proper inventory management at the retailer's warehouse based on demand information, this transfers the ordering costs from the retailer to the vendor which minimizes the inventory costs spent on inventory management. Most retail outlets are able to reduce their inventory levels and supply chain costs by implementing VMI. The reduction of these costs is

high when supply chain players are able to share information on demand and stock levels required as opposed to when the supply chain players aren't willing to share the information.

Local Perspective of Vendor Managed Inventory

The retail sector in Kenya has evolved and developed in the past years. Old players in the retail sector of Kenya include; the dwindling Uchumi supermarket, which was established in 1970s and Nakumatt supermarket which emerged in 1987 (Kitheka & Ondiek, 2014). In previous years, supermarkets have increased in numbers raised because of urbanization and market liberation, in turn has led raised the level of competition within the retail sector. The key players in the retail sector include; Tuskys supermarket, Naivas supermarket, Ukwala supermarket, Eastmatt supermarket, Choppies supermarket, Carrefour supermarket among others (Kamau, 2008).

In Kenya, supermarkets have modernized their supply chain networks and procurement system, this is achieved by using centralized procurement. Due to some micro and macroeconomic factors, Nakumatt supermarket has closed some of its branches in Kenya. Some of the branches of Nakumatt supermarket that have been closed in Kenya include; Nakumatt Ronald Ngala, Nakumatt Haile Selassie, Nakumatt Katwe in Nairob and recently Nakumatt Thika Road mall. Branches mentioned above were closed due to the inability to generate cash quickly enough to pay both workers and suppliers, some of the factors that lead to this situation include; holding high product variety lines which are expensive for consumer; huge wage bills and poor location of their outlets, that is, some of the outlets are placed in nonstrategic areas (Kamau, 2017).

The retail sector in Kenya is one of the best areas for long term investors to venture in sub Saharan Africa. Although Nakumatt holdings was faced with cash flow challenges that left it on the brink of collapse (Cytonn, 2017). Foreign retailers have ventured into the Kenya's retail sector because of their stronger financial muscles, better governance and management systems, lower cost of goods and government incentives, Cytonn, (2017). Some of the foreign retail outlets that have ventured to Kenya include; choppies supermarket, carrefour supermarket and the Game. Choppies is set to be the anchor in the upcoming Kiambu mall and take up space in the Spur mall in Ruiru. Carrefour opened its outlets at Hub mall in Karen, TwoRivers mall in Runda and Thika Road mall in Kasarani.

The performance of retail sector in Kenya is influenced by the icreasing purchasing power of middle class people, economic growth and the rate of investment in attractive retail space (Cytonn, 2017). In 2017, the retail sector's performance declined from 8.7% to 8.3% in 2016, this is attributed to a decline in occupancy rates which declined by 2.7% points to 80.2% from 82.9% respectively. Cytonn (2016), the retail sector has increased GDP growth with an average of 5.1% per annum over the last five years and increased infrastructure development opening up new areas of development and increasing ease of movement.

Vendor Managed Inventory has not been widely implemented by most retail outlets in Kenya, this is because there is a belief that VMI is an expensive venture and also it erodes their business privacy. Most retail outlets experience increased cost in the management of inventory due to traditional methods of operation (Benson, 2011). In Kenya, VMI was introduced in 2002 and it has been facing challenges in its implementation (Kitheka & Ondiek, 2014). Effective implementation of VMI as an inventory management system has mainly affected by the quality of information technology tools and unwillingness to distribute and share timely information among supply chain partners in most retail stores in Kenya.

Vendor Managed Inventory in Tuskys Supermarkets

The implementation of Vendor Managed Inventory in Tuskys supermarket has been faced by some challenges which include; inadequate support from the top management, unwillingness to share information within the supply chain partners and high set up and tooling cost. Kamau (2008), VMI in Tuskys supermarkets allows the suppliers of various products to directly observe the inventory status of their product and obtain necessary demand information on the customer requirements, this is achieved through the use of Electronic Data Interchange (EDI), Radio Frequency Identification Devices (RFID) and Electronic Point of Sale (E-POS). This demand information enables the suppliers to determine and make replenishment decisions that are necessary. There have been some positive outcomes with regard to inventory management at Tuskys supermarket. Some of these advantages include; accurate demand forecasting, minimal sock levels, improved customer services and lower administrative and transactional costs within the supply chain (Gacheri, 2010). These are thought to be linked to VMI but this has not been empirically determined.

Profile of Tuskys Supermarket Limited

Tuskys supermarkets is a private retail outlet, which was incorporated in the Republic of Kenya on 18th May 1990 under the Kenya Companies Act (Cap 486). Tuskys supermarket is a family owned business that has expanded in the recent and is increasing competition within the market. It was established in Nakuru, the firm deals with retail business, it has supermarkets spread all over in major towns and cities within Kenya and Uganda, (Leparachao, 2014). Tuskys Supermarket is the leading Supermarket Chain Store in Kenya, it has 63 Supermarkets (56 outlets in Kenya and 7 outlets in Uganda). Tuskys supermarket intends to open more retail outlets in the future and expanding their services to other countries in the Africa region. It targets the middle and low-income consumers. It has developed a smartcard based loyalty system that is currently in use in all retail outlets.

Most of Tuskys supermarket outlets are strategically positioned and it has gained leadership in retail sector by optimizing on Information Communication Technology systems to improve their operational efficiency. Tuskys supermarket is increasing its presence in country as it continues to be a dominant market player in the retail sector of Kenya, because of their friendly prices (Gacheri, 2010). The supermarket has indeed proved to be a resilient and responsive to brand and consequently the chain has experienced growth.

STATEMENT OF THE PROBLEM

A study carried out by Bhausaheb & Routroy (2010), shows that firms are keen in controlling their inventory levels since this helps them to reduce cost, enhance quality of service and increase profitability. Irungu and Wanjau (2011), carried out a study on the effectiveness of vendor managed inventory systems in retail supermarkets in Kenya, proposed that retail outlets should implement Vendor Managed inventory system to mitigate the aforementioned problems. To this end Tuskys supermarket went ahead to implement VMI in order to solve the inventory problems they were experiencing which included; poor inventory control, lack of real time product information and high inventory costs.

Some advantages of Vendor Managed Inventory include; reduced demand uncertainty, reduced inventory levels, improved customer services and it lowers administrative and transactional costs within the supply chain (Gacheri, 2010). These are thought to be linked to VMI but this has not been determined empirically. The actual influence of VMI on the larger supply chain performance has not been established and limited empirical

studies have attempted to determine its influence. As such it's against this backdrop that the study determined the influence of vendor managed inventory on supply chain performance in retail sector in Kenya.

GENERAL OBJECTIVE OF THE STUDY

To determine the influence of vendor managed inventory on supply chain performance in retail sector; A case study of Tuskys Supermarket Chania.

SPECIFIC OBJECTIVE OF THE STUDY

To determine the influence of inventory costs on supply chain performance in the retail sector.

RESEARCH QUESTION

Do inventory costs influence supply chain performance in retail sector?

II. LITERATURE REVIEW

Conceptual Framework

Independent Variable   **Dependent Variable**

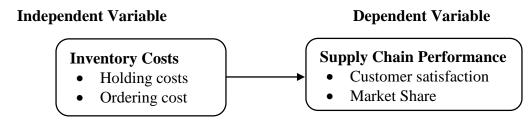| Inventory Costs	Supply Chain Performance
• Holding costs • Ordering cost	• Customer satisfaction • Market Share

Figure 1: Conceptual Framework

REVIEW OF SUPPLY CHAIN PERFORMANCE

According to Zhang and Okoroafo 2015), Supply Chain Performance (SCP) is the ability of the supply chain to deliver the right product to the correct location, at the appropriate time and at the lowest cost of logistics. Supply chain performance takes into account the time of delivery, cost and value for the end consumer. Supply chain performance exceeds the functional boundaries of the organization- that is production, distribution, marketing, research and development. The performance of the supply chains should be constantly improved. A well-organized system for measuring the performance of the supply chain is crucial for better supply chain management because it helps to identify problems and areas of measurement. Gunasekaran *et al.,* (2008) suggest that supply chain performance measures can be divided into financial and non-financial measures. Top management need financial measures for management level decisions whereas lower management and workers need operational measures for daily business.

Cost is an important supply chain performance measure, supply chain costs are associated with operating the supply chain (Burt, Petcarage & Pinkerton, 2010). Cost is critical and therefore it needs to be tracked more carefully and comprehensively than any other supply chain performance measure. Fawcett *et al.,* (2007), cost control and cost reduction strategies should be aligned with organizational structure, procedures and processes and the organizational culture of an organization. Lead-time is another supply chain performance measure. Wisner *et al.,* (2012), lead-time is the time between ordering and receiving of delivery. The key measures include; due dates, scheduled or promised and delivery windows. Handfield *et al.,* (2011), these measures should identify total cycle time. Lead-time measures should focus on elimination of delays and delivering

continuous improvement on target time. Order delivery lead time consist of fulfillment of the average percentage orders among supply chain members that arrive on time, complete deliveries and damage free deliveries, satisfying customer requirements on a timely manner (Handfield *et al.,* 2011). Order lead-time is an important source of competitive advantage for top performing supply chains and their members' companies (Handfield, Monczka & Giuinipero, 2011).

Zanoni *et al.,* (2014), Supply chain performance can be assessed using the Supply Chain Operations Reference model (SCOR). The model was introduced in 1996 by the Supply Chain Council, which is a global organization of firms interested in Supply Chain Management (SCM). SCOR model is a business process reference model and it provides a framework that includes supply chain business processes, metrics, best practices, and technology features. It attempts to integrate the concepts of benchmarking, process measurement as well as best practice analysis and apply them to the supply chain (Ochego & Odari, 2018).

SCOR model is based on five core processes: deliver, make, plan, return and source. A plan is a guideline on how an organization intends to meet its requirements with the available resources. Source are processes involved in acquiring the necessary resources for an organization to run its production processes, management procurement and service delivery to the end customers, it involves acquisition of raw material, subassemblies and components necessary for the operations of an organization. Make refers to all activities involved converting raw materials to finished goods. Deliver refers to activities and processes that provide finished goods and services.

Return involves activities such as post-delivery customer support and processes that are associated with returning or receiving returned products. The five performance metrics of the SCOR model have been grouped into two broad categories namely; customer facing metrics and internal facing metrics. The customer facing metrics are; reliability, responsiveness and flexibility while the internal-facing metrics include cost and assets (Supply Chain Council, 2008). The performance measurement system should be adapted to the specific needs of each supply chain. Proper selection of a set of indicators, and their dimensions helps to identify problem areas and is crucial in managing the organizations and whole supply chains in a turbulent environment and competitive global markets.

III. RESEARCH METHODOLOGY

The researcher used a descriptive research design. The population of the study was the retail sector of Kenya and the target population was 130 employees of Tuskys supermarket Chania Branch. Census was employed as a sampling technique. The researcher used questionnaires for data collection. In the pilot study, to ensure validity of the research instruments, the questionnaires were given to experts in the retail sector and supply chain to check through for face validity and determine how well the variables to be measured constructed in the study. Reliability of the questionnaires was measured using the Cronbach alpha coefficient to determine how well the various variables are positively correlated to one another. The data was analyzed using Statistical Package for Social Sciences (SSPS Version 24), inferential statistics was analyzed using a multiple regression analysis. The researcher adopted the regression equation below to determine statistical significance of the independent variables on the dependent variable;

$Y = \beta_0 + \beta_1 X_1 + \acute{e}$

Where Y= Supply chain performance

β_0 = constant (coefficient of intercept)

X1= Inventory Costs

$é$= Standard Error

According to the model, $\beta 0$= the constant term while the coefficient β_ii= 1…4 were used to measure unit change in the independent variables. $é$ is the error term which captures the unexplained variations in the model.

IV: RESEARCH FINDINGS AND DISCUSSION

Inventory Cost

The findings in table 4.1 illustrated that Tuskys supermarkets' firm's cost of holding inventory remained relatively low as revealed by a mean of 3.39 and a standard deviation of .435. In addition, Tuskys supermarkets' focuses on moving stock in and out as quickly as it can, while keeping the amount of inventory it has in back to a minimum as revealed by a mean of 3.34 and a standard deviation of .553. Moreover, Tuskys supermarkets' cost of ordering inventory remained relatively low as revealed by a mean of 3.46 and a standard deviation of .400. Finally, Tuskys supermarket' unit ordering cost declines as the purchase order increases in size as reveled by a mean of 3.47 and a standard deviation of .447. These findings concur with those of Coyle *et al.*, (2010), who established that when inventory costs are low, it is an advantage for the company that effectively controls its inventory.

Table 4.1: Means and Standard Deviation of Inventory Cost

Statements	Mean	Std. Deviation
Holding Costs		
Our firm's cost of holding inventory remained relatively low.	3.39	.435
Our firm focuses on moving stock in and out as quickly as it can, while keeping the amount of inventory it has in back to a minimum.	3.34	.553
Ordering Costs		
Our firm's cost of ordering inventory remained relatively low.	3.46	.400
Our firm's unit ordering cost declines as the purchase order increases in size.	3.47	.447

Supply Chain Performance

The findings in table 4.2 illustrated that Tuskys supermarkets' market share has grown big as revealed by a mean of 3.56 and a standard deviation of .398. In addition, Tuskys supermarkets' sales have increased as revealed by a mean of 3.46 and a standard deviation of .302. Moreover, customer complaints have decreased as revealed by a mean of 3.48 and a standard deviation of .300. Furthermore, Tuskys supermarkets' delivers customer orders with a shorter lead time as revealed by a mean of 3.50 and a standard deviation of .378. These findings concur with those of Frank and Cook (2010), who established that companies that have achieved a high share of the markets they serve are considerably winning the leadership, power, and glory that go with such growth of the market share.

Table 4.2: Means and Standard Deviations of Supply Chain Performance

Statements	Mean	Std. Deviation
Market Share		
Our firm's market share has grown big.	3.56	.398
Our firm's sales have increased.	3.46	.302
Customer Satisfaction		
Customer complaints have decreased.	3.48	.300
Our firm delivers customer orders with short lead time.	3.50	.378

Regression Analysis

The multiple regression analysis showed a strong relationship, $R^2 = 0.632$ which showed that 63.2% of change in supply chain performance of Tuskys supermarkets' can be explained by a change of one unit of all the predictor variables jointly. This is shown on Table 4.3.

Table 4.3: Model Summary[b] of overall regression model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.798[a]	.637	.632	.16532

a. Predictors: (Constant), Inventory Cost
a. Dependent Variable: Supply Chain Performance

This result indicated that predictor variable of inventory cost influences the supply chain performance of Tuskys supermarkets' positively. This result concurred with the study of Zhu and Sarkis (2014), who established that a reduction in supply chain response time results from reduction in the order cycle time which is an important measure and a major source of competitive advantage; since it directly influences the customer satisfaction level. The overall influence of this may lead to a substantial reduction in delivery reliability and customer service level. Further test on ANOVA showed that the significance of the F-statistic (24.007) is less than 0.05 since p value, p=0.00, as indicated in Table 4.4

Table 4.4: ANOVA[a] of Overall Regression Model

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	22.197	4	5.549	24.007	.000[b]
1	Residual	15.949	69	.231		
	Total	**38.146**	**73**			

a. Dependent Variable: performance
b. Predictors: (Constant), Inventory Cost

This implied that there was a positive significant relationship between independent variables and supply chain performance of Tuskys Supermarkets. Thus, inventory cost is an important factor when improving supply chain activities. These study findings corresponded with the studies of Swafford, Ghosh and Murthy (2008), who established that setting target for lead times and then working towards reducing those lead times specially order to fulfillment lead time would greatly help organizations achieve the velocity that is needed to be flexible in today's competitive and changing business environment. Finally, the estimated multiple regression model to estimate performance was indicated in Table 4.5.

Table 4.5: Coefficients^a of Overall Regression Model

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	.141	.056		2.503	.015
	Inventory Cost	.275	.080	.387	3.423	.001

a. Dependent Variable: Supply Chain Performance

$Y = \beta_0 + \beta_1 X_1 + \varepsilon$

$Y = 0.141 + 0.275 X_1$

Where; Y= Supply Chain Performance

0.141 = Constant

0.275 = Inventory Cost

The coefficients $\beta_1 = 0.275$ is significantly different from 0 with p values 0.001 is less than p = 0.05 as summarized in table 4.5.

V. SUMMARY

The findings revealed that Tuskys supermarkets' cost of holding inventory remained relatively low, Tuskys supermarkets' focuses on moving stock in and out as quickly as it can, while keeping the amount of inventory it has in back to a minimum, Tuskys supermarkets' cost of ordering inventory remained relatively low, and Tuskys supermarkets' unit ordering cost declines as the purchase order increases in size.

VI. CONCLUSION

Based on the findings of the study, it could be concluded that with vendor managed inventory, inventory cost has a positive significant influence on supply chain performance of retail outlets in Kenya. Additionally, it could be concluded that with vendor managed inventory; the expense retail outlets' holding stock remains moderately low, centers around moving stock in and out as fast as possible, while keeping the measure of stock it has in back to a base, expense of requesting stock remained generally low, and the ordering cost decreases as the buy dispose increments in size. Therefore, through vendor managed inventory, managing inventory costs could enable retail outlets to improve their supply chain processes which could in turn translate to enhanced supply chain performance.

VII. RECOMMENDATION

The study proved that inventory cost, inventory level, information exchange and supply chain flexibility positively influence improving supply chain performance of retail outlets in Kenya. Consequently, the research indorses that it would be suitable for the management of retail outlets to explore the measures on inventory cost, inventory levels, and information exchange and supply chain flexibility on operation with the objectives of achieving a value and cost advantage over players in the market that will convert to achieving a greater business performance.

VIII. AREAS FOR FURTHER RESEARCH

Similar study should be conducted using different variables to establish which other variables influence supply chain performance of retail outlets. Similarly, the data was collected from a single sector of retail industry in Kenya. There are various sectors where inventory management is practiced in Kenya such as building, construction and mining; chemical and allied; energy, electrical and electronics; leather and footwear; metal and allied; motor vehicle and accessories; paper and board; pharmaceutical and medical equipment; plastic and rubber; textiles and apparels; timber, wood and furniture. This study recommends a similar research to be conducted from multiple informants groups of sectors to come up with a variety of outcomes.

REFERENCES

Benson, K. (2011). Effectiveness of VMI in retail outlets. International Journal of Business and Public Management, 1(1), 85-89.

Borade, A. B., & Bansod, S. V. (2010). Study of vendor-managed inventory practices in Indian industries. Journal of Manufacturing Technology Management, 21(8), 1013-1038.

Council, S. C. (2008). Supply-chain operations reference-model. Overview of SCOR version, 5(0).

Coyle, J. J., Novack, R. A., Gibson, B., & Bardi, E. J. (2010). Transportation: a supply chain perspective. Boston, Cengage Learning Publishers.

Cytonn Research (2016) Kenya's Real Estate Retail Sector Analysis. Investor's Perspective on Kenya's Retail Sector-Unpublished.

Cytonn Research (2017) Kenya's Real Estate Sector Retail Report. Cautious optimism in the Face of Turbulence- Unpublished.

Eksteen, R. (2011). Inventory management and ERP at the University of Pretoria: Investigation, optimization and implementation. -Unpublished.

Fawcett, S. E., Osterhaus, P., Magnan, G. M., Brau, J. C., & McCarter, M. W. (2007). Information sharing and supply chain performance: the role of connectivity and willingness. Supply Chain Management: An International Journal, 12(5), 358-368.

Gacheri, A. (2010). Strategic responses by Tuskys supermarket to changing competitive environment. International Journal of Business Management, 6(13), 53-58.

Guan, R., & Zhao, X. (2010). On contracts for VMI program with continuous review (r, Q) policy. European Journal of Operational Research, 207(2), 656-667.

Gunasekaran, A., Lai, K. H., & Cheng, T. E. (2008). Responsive supply chain: a competitive strategy in a networked economy. Omega, 36(4), 549-564.

Irungu, B. K., & Wanjau, K. L. (2011). Effectiveness of vendor managed inventory systems in retail supermarkets in Kenya. International journal of business and public management, 1(1), 85-89.

Kamau, F. (2008). The growth of supermarkets in Kenya; opportunities and limitations for pineapple producers. In Conference Presentation.

Kamau, L. W. (2017). *Effect of Loyalty Programs on Customer Retention: A Case of Nakumatt Supermarkets Kenya* (Doctoral dissertation, United States International University-Africa).

Kontuš, E. (2014). Management of inventory in a company. *Ekonomski Vjesnik/Econviews: Review of contemporary business, entrepreneurship and economic issues, 27*(2), 245-256

Leparachao, P. L. (2014). Effects of Supply Chain Management on Firm's Growth in Retail Industry: A Case Study of Tusker Mattresses Limited. *International Journal of Academic Research in Business and Social Sciences, 4*(10), 491.

Morgenstern, I. (2007). *Introduction Theory of Inventory Control*. Faculty of Physics, University of Regensburg-Unpublished.

Ochego, C. M., & Odari, S. (2018) Role of Supply Chain Operations Reference Metrics on Performance of Small and Medium Enterprises in Kenya: A Case of Isinya Feeds Limited. *International Journal of Social Sciences and Information Technology, 4*(2), 2689-2704.

Swafford, P. M., Ghosh, S., & Murthy, N. (2008). Achieving supply chain agility through IT integration and flexibility. *International Journal of Production Economics, 116*(2), 288-297.

Umeji, A. U., & Obi, C. A. (2014). Cost accounting skills needs of small business operators. *American Journal of Industrial and Business Management, 4*(5), 246.

Wang, W. T., Wee, H. M., & Tsao, H. S. J. (2010). Revisiting the note on supply chain integration in vendor-managed inventory. *Decision Support Systems, 48*(2), 419-420.

Wisner, J. D., Tan, K. C., & Leong, G. K. (2014). *Principles of supply chain management: A balanced approach*. Cengage Learning.

Zhang, H., & Okoroafo, S. C. (2015). Third-party logistics (3PL) and supply chain performance in the Chinese market: a conceptual framework. *Engineering Management Research, 4*(1), 38.

Zhang, Q., Vonderembse, M. A., & Lim, J. S. (2003). Manufacturing flexibility: defining and analyzing relationships among competence, capability, and customer satisfaction. *Journal of Operations Management, 21*(2), 173-191.