



ROLE OF STORES MANAGEMENT IN REDUCTION OF REDUNDANT STOCK, A CASE STUDY OF KEROCHE BREWERIES LIMITED, KENYA

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Abstract: Managing redundant stock is critical in enhancing cost reduction. This study explored the role of stores management in reduction of redundant stock and utilized contingency, coordination, inventory theories. A census research design and stratified random sampling were adopted with a target population of 60 participants. A semi-structured questionnaire was self-administered. Data was analyzed using descriptive and inferential statistics. Response rate was 86.7%, majority (63.5%) was male, 38.5% were aged between 31-40 years; 55.8% attained undergraduate degrees. Moreover, 48.1% worked for 3-5 years, 13.5% were executive managers, 26.9% middle level managers, 30.8% supervisors and 28.8% were junior staff. Poor material management and policies causes stock redundancy (mean = 4.40), efficient issue of materials in and out of store was prioritized (mean = 4.42), creation of efficient store control policies reduces redundant stock (mean = 4.08), supply chain contracts are well implemented when supply chain coordination exists (Mean=4.15). The study concluded that stores management, poor material management and policies influences redundant stock. Supply chain contracts are well implemented when supply chain coordination exists. The study recommends that poor material management and organizational policies should be well addressed. Supply chain contracts should support forecasting. Organizations should ensure there are effective inventory management policies.

Keywords: Redundancy; Stock; Management; Inventory; Store; Supply; Chain; Forecasting; Contract

Introduction

According to Carson (2007), stock control refers to a planned method of purchasing and storing the materials at the lowest possible cost without affecting the logistics. Stocks which comprises of raw materials, consumables goods, machinery and equipment, generals store, working progress and finished goods are to be purchased and stored. Similarly, according to Saleemi (2003), stock control refers to the process whereby the investment in materials and parts carried in stocks is regulated within predetermined limits set in accordance with stocks policy. Stocks keep the market efficient and effective. According to Bleakly (2007), cost reduction remains an important strategy to be pursued and achieved by an organization while considering stock control.

Moreover, investors control stock using scientific methods of determining what, when, and how much stock to purchase and how much stocks to retain for a given period of time. Stocks valuation is taken

as synonymous with materials control. But the two terms differ from each other so far as their fundamental activities are concerned. Materials control is said to be the process of providing quantity and quality of materials needed in the manufacturing process with an eye on economy in storage and ordering costs, purchase price and working capital (Dooley et al. 2010). A critical inventory management decision arises when an organization finds itself with an excess of stock on hand. Specifically, the problem is to determine the appropriate amount of stock to dispose. Disposal creates benefits in at least two ways by salvaging revenue obtained from surplus unit disposal and the savings in inventory carrying charges since less stock is now held (Aeppel, 2010).

According to Moore, Lee and Taylor (2003), inventory often represents as much as 40% of the total capital in industrial organizations. It may also represent 33% of company assets and as much as 90% of working capital (Sawaya & Giaque, 2006). Since inventory constitutes a major segment of total investment, it is crucial that good inventory management be practiced to ensure organizational growth and profitability. According to Buffa and Sarin (2007), there are several reasons for keeping inventory. Too much stock could result in funds being tied down, increase in holding cost, deterioration of materials, obsolescence and theft. On the other hand, shortage of materials can lead to interruption of products for sales; poor customer relations and underutilized machines and equipments. Inventories may consist of raw materials, work-in-progress, spare parts/consumables, and finished goods. It is not necessary that a company has all these inventory classes.

Global Perspective on Stores Management

Chet et al (2005) observed that the extent of emphasis on inventories among American firms reached the financial markets where there were rules that would reward firms that controlled inventories. In the UK, stores management are an important element of government with over two million people employed in the sector and account for 25% of total public spending (Gershon, 2004). County governments in the UK carry out their procurement by use of central purchasing bodies to cut down on the cost of acquisition and storage and to take advantage of economies of scale (HM, 2006). Tersine and Toelle (1994) suggest that excess inventory is a "dead weight". Among other adverse effects, it uses valuable storage space, inflates assets, diminishes working capital, and causes a reduction in return on investment (ROI). They further claimed that inventory is in fact a liability if it costs more than it earns. They suggest a variety of means of disposing of excess stock: return to supplier, third-party sale, and even charitable donation. Gottlieb (2000) submits that two-thirds of the U.S. national defense stockpile is wholly or in part in excess and this surplus stock represents an investment of a few billion dollars.

Koumanakos (2008) studied the effect of inventory management on firm performance in 358 manufacturing firms operating in three industrial sectors in Greece, food textiles and chemicals were used in the study covering 2000-2002 period. The findings suggested that the higher the level of inventories preserved by a firm, the lower the rate of return. Agus and Noor (2006) did measure the perception of managers about the impact of inventory management practices on financial performance of manufacturing firms in Malaysia. According to Waters (2008), organizations have dramatically changed their views of stock in the recent years. Historically, they saw stock as a benefit, with high stocks ensuring maximum service and even giving a measure of wealth. This thinking encouraged organizations to maximize their stocks and is still the reason why countries keep reserves of gold and why individuals keep food in the freezer. But with the advent of the twentieth century, it became clear that these stocks had costs that could be surprisingly high.

Lazaridis and Dimitrios (2005) highlighted the importance of firms keeping their inventory at an optimum level by analyzing the relationship between working capital management and corporate profitability and stressed that its mismanagement will lead to excessive tying up of capital at the expense of profitable operations. They suggested that managers can create value for their firms by keeping inventory to an optimum level. A similar study by Rehman (2006) empirically established a strong negative relationship between the inventory turnover in days and the profitability of firms. Sushma and Phubesh (2007) in their study of 23 Indian Consumer Electronics Industry firms established that businesses' inventory management policies had a role to play in their profitability performance.

According to Lucey (2006), efficiency in inventory means the ability to quickly receive and store products as they come in and retrieve and ship when they go out. Every extra second spent in these processes adds to the costs of inventory management. Plus, efficient distribution is a customer satisfaction issue for trade channel sellers and retailers. Retailers expect suppliers to meet prescribed delivery timetables and customers expect customized orders and products to arrive on time. Well-managed inventory control is often a key in meeting profit margin objectives. Most times one loses time and money that should be spent processing orders for other customers (Levi, 2007). A disorganized warehouse means that staff will have to search for inventory items; if you look at the cost of labor, the level of inefficiency leads to a huge and unnecessary expense. If the warehouse is tidy and organized, not only does risk of misplacing inventory items decrease, but the efficiency of order pickers will increase as well. Having items consistently stored in a way that is convenient to order pickers means that staff will be able to ship more orders in a given amount of time. Increased orders means better productivity; if part of the cost savings this level of organization brings is rolled into an employee incentive program staff will have more motivation to work faster and smarter (Chen & Paulraj, 2004).

Regional Perspective on Stock Control

Ogbo (2011) posited that the major objective of inventory management and control is to inform managers how much of a good to re-order, when to reorder the good, how frequently orders should be placed and what the appropriate safety stock is, for minimizing stock-outs. Thus, the overall goal on inventory is to have what is needed, and to minimize the number of times one is out of stock. Inventory management is an ongoing process that relies on inputs from forecasts and product pricing, and should be executable within the cost structure of the business under an overall plan. Inventory control involves three inventory forms of the flow cycle: Basic stock entails the exact quantity of an item required to satisfy a demand forecast while seasonal stock is the quantity build-up in anticipation of predictable increases in demand that occur at certain times in the year. Safety stock is the quantity in addition to basic inventory that serves as a buffer against uncertainty.

Good inventory management by the procurement function also means having accurate forecasting and accurately timed replenishments (Onwubolu & Dube, 2006). In most companies, inventories represent up to 50% of the total product cost, the money entrusted on inventory, thereby affecting the performance of the procurement function and the overall performance of the company. MarfoYiadom et al. (2008) also added that holding large quantity of inventory offers wide range of benefits to an organization and can as well be associated with certain costs. They noted among other things that holding large inventory helps to ensure that: possibility of disruption to production from a stock out is remote, large stocks mean that large orders can be placed so that buyers can negotiate favorable prices

and thus get trade discounts, material drawn from a large stock will maintain a constant quality whereas if stocks are replenished frequently, separate batches may have slight differences, large stock protects the firm against price increases for a few months, large stocks mean fewer and less frequent orders, which will cut the cost of buying inventory.

Disposal creates benefits in at least two ways; namely, the salvage revenue obtained from surplus unit disposal, and the savings in inventory carrying charges since less stock is now held. Moreover, institutions should integrate their inventory management systems with those of their suppliers (Power, 2005). By so doing, the efficiency of the supply chain process will be significantly enhanced. According to Power (2005), developing integrated inventory systems is one of the challenges that organizations face as they develop inventory systems. In addition, complex systems are costly to develop and thus discourage organizations from developing them.

Local Perspective on Stock Control

In Kenya stores management is responsible for enhancing the productivity of the stores. In the chain of internal customers and suppliers, stores have several internal customers which are the various departments in the organization. Procurement in counties has also been devolved, and there is a risk of inefficiencies (KISM, 2013) hence the need for proper stores management in order to reduce redundant stock. Furthermore, most organizations end up holding their capital on stocks due to poor stores management. However, most of the local studies such as Pauline *et al.* (2013), Kimaiyo and Ochiri, (2014) and Tyan and Wee (2003); Rogers (2005) and Kihara (2013) focused on inventory management and organizational performance and not management of redundant stock. In the past, inventory management was not seen to be necessary. In fact excess inventories were considered as indication of wealth.

Management by then considered over stocking beneficial. But today firms have started to embrace effective inventory management (Susan & Michael, 2000). Managers, now more than ever before, need reliable and effective inventory control in order to reduce costs and remain competitive. According to Dobler and Burt (2006), inventory alone account for as much as 30% of the organization invested capital. It's for this reason that the Government of Kenya through its supplies manual (2007) instituted procedures and techniques for the purpose of effective inventory management. Customers also as usual expect quality, cost and delivery from every supplier therefore stores department have to deliver these customer expectations. In the process of discharging these obligations, stores perform some activities that are vital in the running of the day to day activities of the organization.

Problem Statement

According to the PPOA (2007), the private sector procurement in Kenya is shrouded by many challenges: greater transparency and accountability, better value for money, eradication of wastage and corruption, nonexistence procurement manual, unclear pre-qualification procedures, inadequate procedures for registration and technical capacity criterion. Additionally, in stock management, the cost of materials accounts for nearly two thirds of the total costs (Carson, 2007). However, lack of efficiency, a critical factor in materials management has given rise to need for stock control (Gordon, 2007). But the increasing business and industrial activities complexity call for effective stock control practices. The larger range of requirements has greatly increased the number of problems in stock control including improper stock management, shortages of materials, accounting shortages;

deterioration and obsolescence. Further, firms are now embracing effective inventory management to reduce costs and remain competitive (Susan & Michael, 2000). Inventory alone accounts for as much as 30% of the organization invested capital (Dobler & Burt, 2006). Customers also expect quality, cost and delivery from every supplier. Good inventory management means having accurate forecasting and accurately timed replenishments (Onwubolu & Dube, 2006). Additionally, inventories represent up to 50% of the total product cost in many companies. Locally, a number of studies have been done on procurement; Mwiti (2010) conducted a study on challenges affecting management of inventory in central government of Kenya. A case study of police department, Waweru (2010) conducted a study on effects of inventory levels and stock outs on procurement performance of Kenya Forestry Research Institute, Muhati (2010) conducted a study on effect of inventory strategies on the performance of Commercial banks in Kenya. However, the literature cited above indicates that there has been no study conducted on the role of stores management in reduction of redundant stock in the manufacturing sectors. It is upon this premise that evaluating the role of stores management in reduction of redundant stock with specific focus on Keroche Breweries Limited- Kenya aimed to bridge this knowledge gap.

The objective of this study were

- i. To find out the influence of store control techniques on the reduction of redundant stock.
- ii. To investigate the influence of supply chain coordination on reduction of redundant stock.

Literature Review

This chapter covers previous studies undertaken on the subject of the study by various researchers and scholars across the globe. The key highlights of the literature are meaning of stores and stock control, the role of stores and stock control and techniques used by organization in controlling stock. The chapter provides a clear picture of the subject of the study and the gap that was filled by the study. The main sources of literature were textbooks, publications. Newsletters, thesis and the Internet search engines.

Theoretical Review

A theory is a proven idea or concept that is used to explain an occurrence. A theoretical framework on the other hand is a collection of interrelated concepts which sometimes resemble a theory (Creswell, 2009). This study adopted the coordination, contingency and inventory theories. According to National science foundation (2009), coordination is the joint efforts of independent communicating actors towards mutually defined goals. Malone and Crowston (2004) first introduced the term coordination theory by referring to a diverse body of theories about how coordination can occur in diverse kinds of systems. They used an interdisciplinary approach to study coordination by drawing on a variety of different disciplines. Malone and Crowston (2004), defined coordination, as managing dependencies between activities so that cooperation, competition and collaboration are describing different approaches to managing dependencies among activities – as different forms of coordination.

Coordination theory is rooted in systems thinking which dates back to Jay Forrester's (2008), system dynamics and is further developed by Aronson (2008). Unlike in traditional analysis which breaks a problem into separate components, the system thinking approach focuses on how the component being studied interacts with other components of the system. One of the key benefits of systems thinking is its ability to effectively deal with complex problems which involve multiple actors and great number of interactions. In any system, multiple actors and their interactions, resources and goals need to be

coordinated in order to achieve common outcomes as desired by all actors. In essence, coordination involves actors, activities, objectives, resources, dependencies and coordination mechanisms.

While Malone and Crowston (2004) developed coordination theory from the perspective of a single organization, organizational coordination is extended to a cross-organization context by the supply chain coordination perspective. The supply chain coordination perspective aims to achieve coordination through incentive alignment, allocation of decision rights and information sharing (Piplani & Fu, 2005). Research suggests that supply chain coordination may lead to reduction of redundant stock and higher profits both in the corporate world (Cachon, 2004). In this study, coordination theory explained the role of supply chain coordination in the reduction of redundant stock. This theory also provided a platform for evaluating the roles of inventory management and store control techniques in relation to their effect on reduction of redundant stock. Contingency theory suggests that management principles and practices are dependent on situational appropriateness.

Luthans (2006) noted that the traditional approaches to management were not necessarily wrong but today they are no longer adequate. The needed breakthrough for management theory and practice can be found in a contingency approach. Different situations are unique and require a managerial response that is based on specific considerations and variables. In this study, this theory helped explore supply chain coordination, inventory management, stores control techniques and staff training which are situational and dependent on management approaches and their appropriateness. Keeping an inventory (stock of goods) is common in business (Hillier et al, 2005). In order to meet demand on time, companies must keep a stock of goods that is awaiting sale or use. The purpose of inventory theory is to determine rules that the management can use to minimize the cost associated with maintaining inventory and meeting customer demand.

Several authors have come up with inventory control models that can be used by management to effectively control and manage the organizations inventories. Such inventory models answer the questions such as (a) When should an order is placed for a product? (b) How large should each order be? The answer to these questions constitutes what is known as an inventory policy (Larsen et al., 2001). Organization save time and money by formulating mathematical models describing the inventory system and then proceeding to derive an optimal inventory policy that reduces redundant stock. Beamon and Kotleba (2006) developed a multi- supplier stochastic inventory control model whose core premise is to determine the optimal order quantities and reorder level points. The theory and model explained the effect of inventory management on the reduction of redundant stocks in organizations.

Empirical Review

Empirical studies are researches that derive their data by means of direct observation or experiment to answer a question or hypothesis (Sekaran, 2006). This section therefore discussed the empirical literature on store control techniques and supply chain coordination

Supply Chain Coordination

Coordination is more problematic in supply networks where business boundaries and supply chain phases cross. In such situations, for focal companies may act as coordinators and link downstream and upstream operations and subsequently interact with them (Danese et al., 2004). Coordination mechanisms provide a system for supply chain members to collectively create value and achieve

improved supply chain performance (Lewis & Talalayevski, 2004). There are three means of doing this: sharing decision responsibility, sharing information and logistics synchronization (Lee, 2000). Sharing decision responsibility refers to redeployment of decision rights, work and resources to the best-positioned supply chain member. Logistics synchronization refers to organizing the supply chain according to the market to mediate customer demand and to adjust inventory management, production and transportation to meet the demand.

There are two principal methods to share authority within the decision-making process. The first is centralized decision making, where a single entity manages the network. The second is coordination with decentralized decision-making (Lee & Whang, 1999). Centralized decision-making requires that the decision maker has access to all relevant information concerning supply chain performance; which is rarely the case in reality (Li & Wang, 2007). Instead, each actor operates based on local and often asymmetric information and improves its own performance and pursues its own targets. The focus of coordination may be on operational or organizational supply chain linkages. The mutuality of coordination requires sharing responsibility in achieving better performances. This can be achieved in two ways; by adding complementarities on how chain members collectively increase value or coherency i.e. creating common understanding.

Coordination may focus on organizational linkages and sharing benefits and risks. This type of coordination is needed to reward or penalize decision makers according to how their actions support in reaching common targets. Coordinating collective learning means spreading knowledge and capabilities across organizational borders, targeting those capabilities that implement logistics improvement initiatives (Simatupang et al., 2002). Coordination of supply chain concern information sharing and synchronizing logistics processes. The latter coordination mode, synchronizing logistics processes is also called physical flow coordination (Sahin & Robinson, 2002). The focus in flow coordination is products or services and the logistics processes.

Redundant Stock

According to Ellram (2010), the potential causes of excess stock are legion. An abrupt decrease in demand or changing business conditions may lead to an excess stock situation. Similarly, price increases, forecasting errors, customer cancellations, the introduction of a new or competing product, production overruns, over purchasing (to protect against stock-outs), or even simple goofs (errors in the transmission of an order request) may be the basis for the excess occurrence. Poor quality in final product assembly could lead to an over-supply of a sub-component. Ultimately, inadequate materials planning and execution systems are central to the problem of excess stocks. Despite the undoubted benefits of the lean manufacturing and supply chain revolutions of the past decade, supply chain instability continues to plague many businesses (Ellram, 2010). The consequences include excessive inventories, periodic stock-outs, poor customer service, and unnecessary capital investment. These outcomes have recently been documented in many manufacturing and wholesale sectors of the economy.

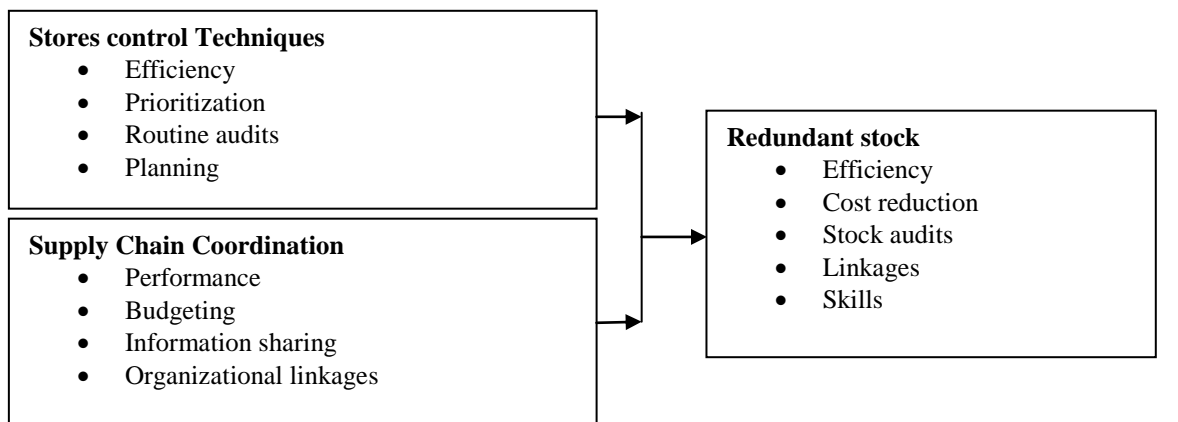
According to Miller (2010), inventory management involves all activities put in place to ensure that customer have the needed product or service. According to Dimitrios (2008), too much inventory consumes physical space, creates a financial burden and increases the possibility of damage, spoilage and loss. On the other hand, too little inventory often disrupts business operations, and increases the likelihood of poor customer service. Rajeev (2008) argues that there is increased need for business

enterprises to embrace effective inventory management practices as a strategy to improve their competitiveness. Stock can come in various forms such as raw materials, work-in-progress, finished goods and goods ready for sale (Levis, 2009). Inventory represents an important decision variable at all stages of product manufacturing, distribution and sales in addition to being a major portion of total current assets of many organizations.

Perakis and Roels (2010) posited that business owners need to fully understand the costs of carrying inventory, not just how much the inventory costs to purchase. Inventory carrying costs consist of all the expenses a company incurs for owning inventory. These expenses include the cost of capital, storage and risks costs (including obsolescence, damage, theft and deterioration) plus the appropriate taxable amounts. Effective inventory control reduces these costs because it reduces the total amount of inventory required to manage the business. Inventory control monitors the level of inventory and proactively manages obsolescence and deterioration by ordering in the appropriate quantities. Effective inventory control also reduces storage costs, because it orders enough inventories to fill consumer demand and not much more. Well defined inventory control policies can reduce the labor costs associated with managing the inventory. Each time inventory gets handled, whether to move it from one location to another, to retrieve it for order picking or to put it away for storage, it involves labor. This handling makes up part of the cost associated with managing inventory. According to Lysons (2006), inventory control enhances profitability by reducing costs associated with storage and handling of materials.

Conceptual Framework

According to Fawcett et al. (2006), a conceptual framework is a basic structure that consists of certain abstract blocks which represent the observational, the experiential and the analytical or synthetical aspects of a process. The study applied a conceptual framework as illustrated below.



Independent Variables

Dependent Variable

Figure 1 Conceptual Framework

Research Methodology

This study adopted a census research design. This design was preferred because since the study was an intensive descriptive and holistic analysis of the organization. Census design increases confidence interval. This is because conducting a census often results in enough respondents to have a high degree of statistical confidence in the survey results. The design was also appropriate for investigating a single entity in order to gain insight into the larger cases. According to Oso (2005), in cases where the number of organizations that can be investigated are few, a small sample is available and an in-depth analysis is necessary, a case study is the most appropriate. The population was drawn from procurement department, finance department, corporate services and stores department. The sample size for this study was 60 employees and since the target population was small and manageable; all the population was included in the study. The study applied a stratified random sampling technique to select a sample size of 60 respondents. Stratified random sampling is the process of selecting a sample in such a way that identified subgroup in the population was represented in the sample in the same proportion as they exist in the population (Patton, 2002).

Table 1 Sample Size Distribution

| Participant | Target population | Percentage (%) |
|--------------------|--------------------------|-----------------------|
| Procurement | 10 | 16.7 |
| Finance | 10 | 16.7 |
| Corporate service | 20 | 33.3 |
| Stores department | 20 | 33.3 |
| Total | 60 | 100.0 |

In order to achieve the objectives of the study, the researcher used a semi-structured questionnaire derived from background of the study, purpose of the study; the objectives guiding the study, literature reviewed and study design. The instruments was checked and cross checked by the supervisors and perfected after piloting to ensure their validity. Prior to conducting the main research, a pilot study was conducted to test reliability and validity of the research instrument by pre-testing the questionnaire. A pilot test was carried out in Nairobi in an industry that had a population with similar homogeneous characteristics as the study sample. A content validity test was conducted to ensure all indicators to be measured were adequately represented. According to Sukaran (2010), content validity is a function of how well the dimensions or elements of a concept have been captured. Reliability test on the other hand looks at the ability of research instruments to give consistent results over and over again (Kombo et al., 2002). Mugenda & Mugenda, (2003) recommends a 10% of the study sample to be considered as a sample size in a pilot study. The pilot study results were not incorporated in the final data analysis. A Cronbach correlation coefficient greater or equal to 0.7 is acceptable (George & Mallery, 2003).

Data analysis refers to examining what has been collected in a survey or experiment and making deductions and inferences (Kombo et al., 2002). The data collected was coded and analyzed using the Statistical Package for Social Sciences (SPSS version 23) tool. Both descriptive analysis (Mean, standard deviation and percentages) and inferential analysis were used. Further, regression analysis was conducted to test if the strength of the relationship between independent variables and dependent variable was statistically significant. The findings were presented using frequency distribution tables and figures. The study assumed a linear relationship between the independent variables and the dependent variable and adopted the Ordinary Least Square Method of estimation (OLS) in examining the following multiple linear regression model. ϵ is an error term normally distributed about a mean of 0.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \dots\dots\dots \text{Equation (3.1)}$$

Where: Y is the dependent variable (Redundant stock), α is the regression coefficient/constant/Y-intercept, β_1 and β_2 are the coefficients of the linear regression equation.

X_1 = Store control techniques, X_2 = Supply chain coordination

Findings and Discussions

The study targeted a sample size of 60 participants out of which 52 responded giving a response rate of 86.7%. This response was adequate enough and representative of the target population and conformed to Mugenda and Mugenda (2003) stipulation that a response rate of 50% is adequate for analysis and reporting but a response rate of 70% and above is excellent. Cooper and Schindler (2003) argues that a response rate exceeding 30% of the total sample size provides enough data that can be used to generalize the characteristics of a study problem as expressed by the opinions of few respondents in the target population. According to Sekaran (2000), a response rate of over 40% is acceptable for data analysis.

Descriptive Analysis

This section analyzed the findings and discussions on stores control techniques, supply chain coordination, inventory management and staff training and their impacts on management of redundant stock.

Causes of Stock Redundancy

In order to determine the causes of stock redundancy, the participants were asked to respond to a set of statements on a five point likert scale. The first statement was on poor material management systems. As shown in Table 4.10, the mean score for responses was 4.40 indicating that a majority of the participants were in agreement in their responses to the statement. The standard deviation indicates that a majority of the responses did not vary from the mean by more than 0.603. The second statement sought to determine whether poor organizational policies caused stock redundancy. A mean of 4.10 suggests that a majority of the participants were in agreement with the statement. The standard deviation indicates that the responses did not vary from the mean score by more than .409 deviations. These findings implies that poor material handling and poor organizational policies cause stock redundancy.

The third statement asked participants whether poor demand and supply forecasting causes stock redundancy. A mean score of 4.04 implies that majority of the respondents were in agreement with the statement. The responses did not vary from the mean score by more than 0.816. The fourth statement sought to establish whether delay in re-ordering of materials causes stock redundancy. Majority of the participants were strongly in agreement with a mean score of 3.69 and standard deviation of .466. The fifth statement sought to determine whether lack of qualified staff in the stores department causes stock redundancy. The majority of the participants were neutral with a mean score of 3.08 and standard deviation of .505. From the descriptive analysis, it can be inferred that poor demand and supply forecasting, delay in re-ordering of materials and lack of qualified staff in the stores department causes stock redundancy.

Table 2: Causes of Stock Redundancy

| Statements on Stock Redundancy | Mean | S.D |
|---------------------------------------|-------------|------------|
| Poor material management systems | 4.40 | .603 |
| Poor organizational policies | 4.10 | .409 |
| Poor demand and supply forecasting | 4.04 | .816 |
| Delay in re-ordering of materials | 3.69 | .466 |
| Lack of qualified staff in the stores | 3.48 | .505 |

Store Control Techniques

The study sought to determine the effect of stores management on reduction of redundant stock. The first statement sought to find out whether efficient issue of materials in and out of store was prioritized. From the findings in Table 4.12, the mean score was 4.42 implying that the participants were in agreement with the statement. The standard deviation did not vary from the mean score by more than 0.572. The second statement sought to establish whether creation of efficient store control policies reduces redundant stock. A mean score of 4.08 and standard deviation of 0.589 indicates that the participants were in agreement with the statement. In addition, the third statement sought to find out whether carrying out routine audits as a control technique in stores helps in reduction of redundant stock. The mean score of the responses was 3.82 with a standard deviation of 0.713 meaning that the participants were in agreement with the statement. The fourth statement sought to establish whether physical counting of materials at intervals e.g. monthly, quarterly etc reduced redundant stock. A mean score of 3.79 and standard deviation of 0.667 indicated that the participants were in agreement with the statement. The fifth statement sought to determine whether conducting of perpetual stock taking reduces redundant stocks in stores. The findings indicated a mean of 3.72 implying the participants were in agreement in their responses to the statement. The standard deviation indicates that the responses did not vary from the mean score by more than 0.752.

The findings on the effects of store control techniques implies that efficient issue of materials in and out of store, creation of efficient store control policies, carrying out routine audits as a control technique in stores, physical counting of materials at intervals and conducting of perpetual stock taking reduces redundant stocks in stores. Therefore, more emphasis should be focused upon these factors in order to effectively reduce redundant stocks.

Table 3: Stores Control Techniques

| Stores Control Techniques | Mean | S.D |
|---|-------------|------------|
| Efficient issue of materials in and out of store in priorities | 4.42 | .506 |
| Creation of efficient store control policies | 4.08 | .589 |
| Carrying out routine audits as a control technique in stores | 3.82 | .713 |
| Physical counting of materials at intervals: monthly, quarterly | 3.79 | .667 |
| Conducting of perpetual stock taking | 3.72 | .757 |

Supply Chain Coordination

The study sought to find out the effect of supply chain coordination on reduction of redundant stock. From the descriptive analysis results in Table 4.15, respondents agreed with the statements that supply chain contracts are well implemented when supply chain coordination exists (Mean=4.15, SD=.697) and supply chain coordination can support joint promotional activities, forecasting e.g. reduction of redundant stock (Mean=4.02, SD=.727). Further, the respondents were in agreement that supply chain coordination leads to mutuality i.e. achievement of common goals (Mean =3.96, SD=.559). The participants also agreed that through supply chain coordination, organizations benefit from joint decision making and benefit sharing (Mean =3.79, SD=.667). However, the respondents were neutral on whether risk and reward sharing are achieved through supply chain coordination (Mean =3.44, SD=.725).

The findings on the effect of supply chain coordination showed that supply chain contracts are well implemented when supply chain coordination exists, supply chain coordination supports joint promotional activities, forecasting, supply chain coordination leads to mutuality i.e. achievement of common goals, organizations benefit from supply chain coordination joint decision making and risk and reward sharing are achieved through supply chain coordination.

Table 4: Supply Chain Coordination

| Statement on Supply Chain | Mean | S.D |
|---|------|------|
| Supply chain contracts are well implemented when supply chain coordination exists | 4.15 | .691 |
| Supply chain coordination can support joint promotional activities, forecasting e.g. reduction of redundant stock | 4.02 | .727 |
| Supply chain coordination leads to mutuality i.e. achievement of common goals | 3.96 | .559 |
| Through supply chain coordination organizations benefit from joint decision making and benefit sharing | 3.79 | .667 |
| Risk and reward sharing are achieved through supply chain coordination | 3.44 | .725 |

Inferential Statistics

In this section, the study conducted both correlation analysis and multiple regression analysis to test the influence among the variables.

Correlation Analysis

Correlation analysis was done to investigate the existence and nature of relationship between stores control techniques and reduction of redundant stock. From Table 4.22, the researcher established a strong positive significant relationship ($r = .789$) between stores control techniques and reduction of redundant stock. The result indicates that enhancing store control techniques enhances the reduction of redundant stocks. The findings further imply that there are gaps which need to be addressed in store control techniques to reduce redundant stocks. The findings are congruent with those of Carson (2001) who posited that the system should be clearly explained and the importance and responsibility of the role of store control should be emphasized. The study also established a strong positive and significant relationship between supply chain coordination and reduction of redundant stock ($r = .786$). The findings imply that fast tracking supply chain coordination positively impacts on the reduction of

redundant stocks in institutions. Effective supply chain coordination has the potential to significantly improve the reduction of redundant stock. The findings are consistent with those of Lewis and Talalayevski (2004) that coordination mechanisms provide a system for supply chain members to collectively create value and achieve improved supply chain performance.

Table 5: Correlation Analysis

| | | Reduction of Redundant Stock | of Stores control techniques | Supply Chain Coordination |
|----------------------------------|---------------------|-------------------------------------|-------------------------------------|----------------------------------|
| Stores control techniques | Pearson Correlation | .789 | 1 | |
| | Sig.(2-tailed) | .000 | | |
| | N | 52 | | |
| Supply Chain Coordination | Pearson Correlation | .786 | .623 | 1 |
| | Sig.(2-tailed) | .029 | .010 | |
| | N | 52 | 52 | |
| | Sig.(2-tailed) | .030 | .014 | .015 |
| | N | 52 | 52 | 52 |

Regression Analysis

The researcher conducted a multiple regression analysis to analyze factors affecting the reduction of redundant stock. The predictors of reduction of redundant stock were supply chain coordination and stock control techniques. The Regression model summary in Table 4.25 shows that the predictor variables account for 73.6% of the total variation in the reduction of redundant stock because the 'R square' value is 0.736.

Table 5: Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--------------|--------------------|-----------------|--------------------------|-----------------------------------|
| 1 | 0.858 ^a | 0.736 | 0.724 | .2834 |

a. Predictors: (Constant) supply chain coordination and stock control techniques.

This finding is consistent with Toole (2013) who posited that a model that yields an R square value above 0.25 is considered to be of good fit in social sciences. Therefore, further research should be conducted to investigate the other determinants constituting 26.4% which affect the reduction of redundant stock.

ANOVA test was conducted to test the significance of the relationship between the independent and dependent variables. The results in Table 4.24 show that the P-value of 0.001 was established from the ANOVA test. This reveals the existence of a statistically significant relationship between reduction of redundant stock and the independent variables (supply chain coordination and store control techniques).

Table 6: Analysis of Variance

| Model | | Sum of Squares | df | Mean Squares | F | Sig. |
|-------|------------|----------------|----|--------------|--------|--------------------|
| 1 | Regression | 78.102 | 3 | 26.034 | 96.781 | 0.001 ^b |
| | Residual | 12.915 | 48 | 0.269 | | |
| | Total | 91.017 | 51 | | | |

a. Dependent variable: Reduction of Redundant Stock

b. Predictors: (Constant) Supply chain coordination and store control techniques.

Multiple regression analysis was conducted to determine the relationship between the role of stores and its effects on reduction of redundant stock as shown in Table 4.25. Substituting the values in the equation:

$$Y_i = \alpha + \beta_1 X_1 + \beta_2 X_2$$

Y_i represent the reduction of redundant stock, α is the regression coefficient/constant/Y-intercept, β_1 , β_2 , β_3 and β_4 are the coefficients of the linear regression equation and X_1 = Store control techniques, X_2 = Supply chain coordination.

$$Y = 1.554 + 0.735X_1 + 0.729X_2$$

The beta values obtained were used to explain the regression equation. The standardized beta coefficients give a measure of influence of each variable to the model and indicate how much the dependent variable varies with an independent variable when all other independent variables are held constant. The regression model established that taking all factors into account (X_1 = Store control techniques, X_2 = Supply chain coordination) at zero, the constant is 1.554 as presented in Table 4.25.

The findings imply that taking all the other independent variables at zero, a unit increase in store control technique leads to a 0.735 increase in the reduction redundant stock. The findings show that supply control technique has a significant effect on reduction of redundant stocks. In addition, a unit increase in supply chain coordination leads to 0.729 increase in the reduction redundant stock. This indicates that supply chain coordination has a significant effect on reduction of redundant stocks.

Table 7: Beta Coefficients

| | Un-standardized Coefficients | | Standardized Coefficients | t | Sig. |
|---------------------------|------------------------------|-------|---------------------------|-------|-------|
| | β | | Beta | | |
| (Constant) | 1.554 | 1.722 | | 0.902 | 0.034 |
| Stores Control Techniques | 0.735 | 0.262 | 0.725 | 2.805 | 0.000 |
| Supply Chain Coordination | 0.729 | 0.281 | 0.719 | 2.594 | 0.018 |

Conclusions of the Study

This study concludes that stores control techniques had a significant influence on reduction of redundant stock in Keroche Breweries Limited-Kenya. The study found that efficiency, Prioritization, Routine audits and Planning influence reduction of redundant stock in Keroche Breweries Limited-Kenya. The study also concludes that supply chain coordination has a significant influence on reduction of redundant stock in Keroche Breweries Limited-Kenya. The study established that performance, Budgeting, Information sharing and Organizational linkages influence reduction of redundant stock in Keroche Breweries Limited-Kenya.

Recommendations of the Study

The study recommends that poor material management systems and organizational policies should be addressed to reduce stock redundancy. More focus should be put on managing poor demand and supply forecasting and delays in re-ordering of materials. The institution should employ qualified staff in the stores department to effectively handle redundant stocks. Organizations should continue to efficiently issue materials in and out of stores and creating efficient store control policies reduces redundant stock. The institution should regularly carry out routine audits as a control technique in stores reduces redundant stock and routinely conduct physical counting of materials and stock taking at intervals e.g. monthly, quarterly etc reduced redundant stock. There should be proper implementation of stores control techniques in order to reduce redundant stock in institutions. Organizations should continue participating in supply chain coordination with other members of the supply chain to enjoy the benefits of joint decision making and benefit sharing. Supply chain contracts should be geared towards supporting joint promotional activities, forecasting e.g. reduction of redundant stock. Further, supply chain coordination should lead to mutuality i.e. achievement of common goals. Risk and reward sharing should be critically addressed along the supply chain coordination through fast tracking and effectiveness of coordination.

Areas for Further Studies

The study suggests that further research should be conducted on the role of risk management and its impacts on redundant stock in institutions.

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