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Effectiveness of Stock Control in the Pharmaceutical Industry

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Abstract

Stock control has become has become one of the dimensions upon which companies compete on the global scale. Most companies even use complex computer models to manage their stocks. It has been realized that a firm's strategic viability is now dependent on the ability of the firm to operate with substantially low stocks. Innovations in stock control assisted by technology can lead to the entire restructuring of industries. Recent technological development is making the system of stock control simpler and attractive. The entire stocks of pharmaceutical firms form their main working capital. Therefore, inefficiency in its stock control systems can cause the company to go into liquidation. Stock Control activities in pharmacies rage from ensuring that, there is an adequate selection of different types and sizes of drugs available in the stores and seeing to it that replacement of the drugs are timely. Effective stock control is known to reduce cost and enhance growth in business. However, the problem is to determine the extent to which stock management can reduce cost and ensure business growth. This motivated the researcher to research into the topic, stock control at Kojack Pharma Limited Takoradi

Keyword: *Stock Control, Inventory Management, Pharmaceutical Stock Control, Medicine Stock Control*

I. INTRODUCTION

Inventory management techniques are applicable to all types of organization that have inventories, even those in which the only stock or inventory is an inventory of office supplies. Merchandise organizations such as pharmaceutical firms are particularly concerned about stock control. This is because too much stock can result in unnecessary costs of carrying inventory and too little inventory can also result in loss of sales if customers buy the products elsewhere. Therefore the question is how much should be kept as inventory or stock in the business? Stock control has become has become one of the dimensions upon which companies compete on the global scale. Most companies even use complex computer models to manage their stocks. It has been realized that a firm's strategic viability is now dependent on the ability of the firm to operate with substantially low stocks. Innovations in stock control assisted by technology can lead to the entire restructuring of industries. Recent technological development is making the system of stock control simpler and attractive. The entire stocks of pharmaceutical firms form their main working capital. Therefore, inefficiency in its stock control systems can cause the company to go into liquidation. Stock Control activities in pharmacies rage from ensuring that, there is an adequate selection of different types and sizes of drugs available in the stores and seeing to it that replacement of the drugs are timely. Stock control seeks to minimize total cost and also check the cost of replenishing goods that have been sold. Also, effective stock control seeks to safeguard against deterioration, obsolescence, obsolete materials, theft and fraud. Therefore, it is a must for every pharmaceutical firm to strengthen its stock control procedures so as to boost the growth of the business.

II. LITERATURE REVIEW

A. Definition of Stock Control

Stock can be defined as the goods kept by an organization for future use. Stock basically represents an investment of the organization. According to Waters (2003), all organizations hold stocks. These are the stores of materials they kept until needed. He goes on to say that stock consists of all the goods and materials that are stored by the organization. Whenever an organization has material that it does not use immediately, it puts them into stock. It is the store of items that is kept for future use. Jessop and Morrison (1994), assert that stock is a general term used to describe goods held by an organization. They go on to say that, the bulk of these goods are usually meant for use in connection with production activities but the term stock includes finished products, dispatch to customer, goods waiting point of sale display, scraps and packages held pending return to suppliers. Control on the other hand, is concerned with the use of resources efficiently and effectively to achieve a predetermine set of objectives contained in a plan it will be recalled that a plan is a method by which it has been decided that the objectivities will be most efficiently achieved.

In an organizational sense, Control is exercised by a feedback of information on performance compared with plan. From the definition above, stock control can be defined as the systematic regulation of stock level.

Lucy (2002) defines stock control as the system used in a firm to control the firm's investment in stock. This includes; recording and monitoring of stock levels, forecasting future demands and deciding when and how many to order. Baily et-al (1994 is of the opinion that stock control and planning are the policies and procedures which systematically determine and regulate things which are kept in stock and what quantity of them are stocked. According to Jessop and Morrison (1994), stock control is the arrangement of flows of materials continuously in order to maintain adequate stock balance to support current rate of consumption with regard to economy.

Lastly, Lysons (1996), also defines stock control as the technique used to ensure that stock of raw material and other supplies, work – in -progress and finished goods are kept at level that maximum service levels are maintained at minimum cost. The definitions have the same view, just that the authors are using different terms and expressions.
It could be deduced from the above definitions of the authors that, stock control concerns the method of controlling the resources available in order to avoid shortages and abundance which have their consequences. For instance, a shortage in stock will lead to loss of sales and loss customers or clients to competitors. Abundance of stocks can also lead to obsolescence and expiration of products. Every institution has a method of controlling its resources in order to determine what goods and services to produce and sell. Stocks are needed for operational purpose and should be planned, organized and operated in such a way that the period of residence of each items is as short as possible and consistent with economic operations. The only reason for carrying operating stock is that, the items are needed and that supply cannot be exactly matched with demand. The overall subject on inventory control is to minimize, in total, the cost associated with stock.

B. Stock Control Techniques

According to Jessop and Morrison (1994), the usual approach to the control of stock is the control of stock issues to the stores. Stocks are held increase sales and profit. If stock is held, a wider variety of productions can be offered, customers demand can be satisfied and production will be smooth and not halted awaiting delivery of raw materials. The objective of stock control is to minimize the total annual cost associated with stock. Stock must not only be controlled by quality but also by quantity. To control by quantity, the first step is to establish the units of quantity. These units of quantity may be units of weight such as kilograms, units of length such as meters, units of liquid such as liters or units on numbers such as hundreds or thousands or any other units which is appropriate to any of the drugs. He unit of issue is the smallest quantity normally issued from a store house. Al suitable unit of issue is fixed for each item of stock held and this unit should be employed consistently in all receipts, issues, recording and provisioning procedures.
It is necessary for the stock controller to have an estimate of future purchase. Past performance as indicated by the records can be a very good guide and also a source of reliable information as he can get about future changes in production level or alteration in techniques. To effectively regulation the input of materials, the stock controller must know what delivery period is likely to require by suppliers of the drugs for which he is responsible. Here again, past performance will give him an indication foe what to expect but the situation can change rapidly and good liaison with the purchasing office is essential to obtain advice on the current state of market and forecasts of future prospects regarding delivery terms. Effective stock control seeks to reduce total cost and increase revenue. This could be achieved through the unit price of drugs sold. Price is naturally very important and if substantial supplies are regularly required, the buyer will seek to make bulk purchases whenever possible to get the cheapest unit price. The stock controller can play his part by organizing his demands in such a way as to take advantage of the situation. Before placing orders, the amount of discount available should be compared with the extra costs of storage which may be incurred to make sure that, it is in fact advantageous to make bulk purchases.

C. Type of Inventory Control System

According to Lysons (1997), there are two systems of inventory control, thus fixed order point system and periodic review (re-order cycle) system. Baily et-al (1994) also recognizes that, there are two approaches to inventory control.

They are the action level method and the periodic review method. Dobber and Burt (1997), however assert that four types of inventory control system in use. They are

- Cyclical or fixed order quantity system
- The order point or fixed order quantity system
- The Just- In- Time Approach
- The material requirement planning system

Each system monitors and control inventory levels and each system based on its own unique characteristics, provides the inventory manager with information that helps answer questions when to order and how much to order. Considering the explanations given by the four authors, we can say that, the cyclical or fixed order level system, fixed order point system, the action level method and the re-order level method all have the same meaning. The order point or fixed order quantity system and the periodic review system also have the same meaning.

D. The Action Level Method

Jessop and Morrison (1994 explained that, the basic method of controlling stock by quantity is by means of fixing for each commodity, stocks level which are recorded in the stock control system and subsequently used as a means of indicating when some action is necessary.

E. The Periodic Review Method

In this system, an item's inventory position is reviewed periodically rather than at a fixed order point. The periods or intervals, at which stock levels are reviewed, will depend on the importance of the stock item and the cost of holding that item. A variable quantity will be ordered at each review to bring the stock level back to maximum.

Dobber and Burt (1997), further say that, the use of this system will be a greater change for the elimination of the obsolete items due to the periodic review of stock. Jessop and Morrison. (1994) explained that the periodic review involves examining either the physical stock or stock records for a particular class of commodity at regular intervals and taking simultaneous actions for all items requiring replenishment. This may be at intervals of one month, three months, six months, one year or whatever interval is found satisfactory in practice. Where this method is employed, if there are unexpected variations in consumptions, or if deliveries are seriously delayed, there may be danger of stock out. On the other hand, if consu0ption unexpectedly declines or if deliveries are too far advanced, the amount of stock can be excessive. For these reasons, cyclical provisioning is usually supplemented by using maximum and minimum stock levels as an additional safe guard. The above explanations and descriptions by the books are all expressing the same meaning and idea. The authors express the fact that, periodic review of stock in terms of its physical state and stock records regularly and initiating action to provide replenishment if it is required.

F. Just –In-Time ((JIT) Method

Just – In- time (JIT) system of inventory control is where raw materials arrive at a work center exactly as they are needed. Thus, arranging for delivery just before a requirement is needed. Lucey (2002) says, the aim of JIT system is to produce the items of high quantity, exactly at the time they required. Burman (1995) also says that, JIT consists of a series of methodologies designed to work together to eliminate waste, and waste is defined as any activity that adds cost to a product without adding value. Such waste can occur in any are of a business, therefore, the implantation of a JIT method, requires a total systems approach which will involve every employee and every area. Pharmaceutical firms which deals in only retailing will not benefit from the use of JIT method of controlling stock. This is because, consumers purchase the goods only when they are needed and because of that, this because, they expect the goods to be delivered instantly when they make their requisition. Knowing that JIT system demands a pre-order before delivery, management would not like to adopt this system because it would lead to lost sale since consumers would rather focus their attention on a different firm which can give them the drug as and when it is needed than wait for the drug ordered to be received at a later time. The use of this system would rather be good for wholesale operators. This because, customer normally pre-requisition before purchase and this will prevent wastage. In the part of the management of the pharmacy. Some drugs like antibiotics are not frequently purchased and because of that, management would not like to tie their capital in such drug) that is, investing or buying the drug in bulk to be stored), rather, they will wait for a requisition from customer before an order will be made for that customer. In the nutshell,

he Just – in time (JIT) method of controlling stock will only be profitable, economical and beneficial to pharmaceutical firms which deal in both retailing and wholesaling or wholesaling only like Kojack Pharma Limite.

G. Material Requirement Planning

According to Drury (2004), material requirement planning is a computerized approach for coordinating the planning of materials acquisition and production. The major features involve an estimation of the quantity and timing of finishing goods demanded and then use this to determine the requirement s for components/ sub-components at each of the prior stages of production. This provides the basis for defaming the quantity and timing of purchased materials and any bought – in components. Lyson (1996), is of the opinion that material requirement planning is a product oriented computerized technique aimed at minimizing inventory and maintaining delivery schedules it relate s to the requirement of the material s and components which comprises an end product of time periods known as 'buckets' to planned horizon (typically one year) on the basis of forecast provided by marketing or sales and other input information.

Jessop and Morrison (19994), also say the at materials requirement planning consist of a set of logically related procedures, decisions, rules and records designed to translate a master production schedule into time-phase net requirements and the planned coverage for each component inventory item need to be implemented into this schedule. Material Requirement Planning begins with the knowledge of how much end product is described and when it is needed. This information is broken down into the running and quantity details for each component part or sub-assembly. On the whole, Material Requirement Planning can be said to comprise production control and inventory management. The system is undertaking to ensure that raw materials and components are only available when they are actually required and not before.

H. Holding Costs

According to Drury (2004), holding costs usually consists of the following;

- Opportunity cost of investment in stock.
- Incremental insurance cost.
- Incremental warehouse and storage costs.
- Incremental material handling costs.
- Cost of obsolescence and deterioration costs.

He goes on to say that, the relevant holding costs for use in quantitative models should include only those items that will vary with the levels of stocks. Costs that will not be affected by changes in stock levels are not relevant cost.

I. Cost of Ordering

According to Drury (2004, ordering cost usually consist of the clerical costs of preparing a purchase order, receiving deliveries and paying invoice. Ordering costs that are common to all stock decision are not relevant, and only the incremental coasts of placing an order are used in formulating the quantitative models.

J. When to Order

According to Owlr and brown (1984), this is a question of meeting the practical needs of the operating function. For example, if the storehouse is supplying other pharmaceutical firm drugs, it may be necessary to take up major consignments of substantial quantities. Also, some items are normally purchase standard quantities that is by the tone, the hundred, the liter, etc. for instance, where a particular drug is sold in hundreds, it is for the stock controller to see that his demands are expressed in the standard ordering quantities appropriate to the goods concerned.

K. How to Order

According to Dury (2004), the optimum order size of products is the order quantity that will result in the total amount of the ordering and holding costs being minimized. The optimum order size is known as the economic order quantity. Basically, it is the order size that will result in a minimization of the inventory ordering cost and inventory carrying costs. Generally, the Economic order Quantity (EOQ) has basic assumptions underlying its determination; and these are:

- There is a known constant stockholding cost.
- Rates of demand are known.
- There is a known constant ordering cost.
- Replenishment is made instantaneously, that is, the whole batch is delivered at once.

The Economic Order Quantity (EOQ) formula is given as:

$$EOQ = \sqrt{\frac{2COD}{Cc}}$$

Where
Co = Ordering cost per order
D = Demand per annum
Cc = Carrying cost per item per annum.

L. When to Re-Order

According to Owle and brown (1984), this is the point at which it is essential to initiate purchase requisitions for fresh supplies of the material., this point will be higher than the minimum stock level, so as to cover such emergencies as abnormal usage of the material or unexpected delays in delivery of fresh supplies and will be lower than the maximum stock level, otherwise excess stock would be carried. Dury also says that to determine the point at which an order should be placed to obtain additional stock, one must ascertain the time that will laps between placing the order and the actual delivery of the stocks. This time period is referred to as the lead time. Re-order level however is when lead time multiplied by demand exactly equals units in stock. On this basis, as the next delivery is made, the last unit of stock is being sold. in reality, however, this ideal cannot be achieved. Demand will vary from period to period and re-order points must allow some buffer and safety stock. The re-order level can also be explained as the level of stockholding at which a replacement order is placed.

M. Re-Order Quantity

According to Owler and brown (1984), this is sometimes known as the economic ordering quantity, because it is the quantity which is most economical to order. It equates the cost of ordering with the cost of storage of materials.
It is also the amount of the item of stock to be ordered each time the re-order level is reached.

N. Maximum Stock Level

Owler and Brown (1984), define maximum stock level as the level above which stocks should not normally be allowed to rise. The level should not normally be allowed to rise. The level should be as low as possible but allowing forecast usage of materials and time lags in delivery, in setting these stock levels, certain factors must be taken into account:

- The rate of consumption of the material
- The time necessary to obtain delivery of the material
- The re-order quantity of the material

The maximum stock level would therefore represent the peak holding, that is buffer stock plus re-order quantity. It is also the amount of stock expressed in unit of issue, which is the largest quantity allowed to be held by the company's policy on stocks. The aim of this level is to help check investment in materials.

O. Minimum Stock Level

Owler and Brown (1984) have noted minimum stock level is the level below which stocks should not be normally allowed to fall. If stocks go below this level, there is the danger of a "stock out' that is, running out of stock and this will result in less of contribution if customers buy from elsewhere because orders cannot be met when requested. The aim of this level is to ensure that the company does not completely run out of stocks.

P. Costs Associated With Inventory

Garrison and Noreen (2006) view stock as an essential part of a budgetary system. Inventory or stock level should not be left to chance but should be carefully planned. Selecting the right level of inventory involves balancing three groups of cost:

- Inventory orderings costs
- Inventory carrying cost
- The cost of not carrying sufficient inventory

Inventory ordering costs are driven by the number of orders places, but not by the size of the orders. These costs are triggered by the act of ordering inventory and are essentially the same whether one unit or thousand units are ordered. Examples include the clerical cost associated with ordering inventory and some handling and transportation costs.
Inventory carrying costs are driven by the amount and value of inventories that are held by the company. Inventory carrying costs includes storage costs, handling cost and insurance. If inventory carrying costs are high, an incentive is created to reduce the overall level of inventories and to place frequent orders in small quantities. The costs of not carrying sufficient inventory result from not having enough inventories in stock to meet customer's needs. These costs include lost sales, customer ill will and the cost of expediting orders for goods not held in stock. Large amount of such costs create incentive to hold large inventories. Conceptually, the right level of inventory to carry is the level that will minimize the total of these three groups.

Q. Stock Valuation Method

According to Owler Brown (1984), there are eight methods. Of valuing stock and these are:

- Fist – In Fist – Out (FIFO)
- Last- In Fist – Out (LIFO)
- Base stock
- Weighted average
- Periodic simple average
- Periodic weighted average
- Standard price

With this method, however, the commonly used ones are the FIFO, LIFO and weighted Average.

R. First – In First – Out (FIFO)

This method ensures that materials are issued at actual cost, so no profit or losses will be incuredd merely by adopting this price. It is assumed that the materials purchased are issued in strict chronological order (Owler and Brown 1984). This method easy to operate and also ensure that, old stocks are issued out first, as a result, little or no determination of stock could be noticed. However, there are a few disadvantages associated with this system which must be noted. It is sometimes a burden to apply if there is no computer system and if materials purchased fluctuate considerably, it involves a number of tedious calculations which may increase the possibility of errors. In some instances also, the price of stock issued does not reflect the current price (economic) value.

S. Last – In First – Out (LIFO)

Owler and brown (1984) describe the LIFO as a method that ensures that materials are issued at actual cost and assumed that the materials received last into stock are issued out first. It can be said that, the last materials purchased are the first materials to be sold. Drury (2004) says, the latest and higher prices are charged to production and this results in a higher cost of sales charged and lower profits compared with FIFO. Water *2003) also says that, this method is the opposite of FIFO and assumes that the units bought last are sold first. LIFO is less widely accepted, and has the disadvantage of assuming that stock always consists of the units bought earliest. If prices are arising this under-estimates the value of stock.

T. Weighted Average

According to Waters (2003), this method finds the average unit cost of all purchases over sometimes, and assigns this value to all remaining. In effect, it adds the total cost of all purchases over a period, and divides this by the total number of units bought, to give a weighted unit cost. Drury (2004) also says that, with this method, the items are

issued at the average cost per units and calculated by the total amount is stock by the total quantity in stock after each new purchase. Some of its advantages are, it gives a fair indication of stock value and also new price is calculated with new receipt of stock to make the price fall in the same rage. It is however complicated to operate because total quantities and total cost are considered.

U. Stock Taking

Stock taking is one of the most essential ways of controlling stock in organization. It can be defined as a complete process of verifying the quantity balances of the entire range of items held is stock (Aremu, 1998). Stock represents cash and invariably, cash is locked up or secured to prevent fraud or to prevent it from missing. Since stock is equivalent to cash, it follows therefore that, it should be carefully protected, counted and checked in a similar way as cash.

If stock is be adequately safeguarded, it must be properly located in a secured building or stockyard, to which no unauthorized persons are allowed to have access to.

According to Lucey (20023), there are two approaches to the task of stocktaking. They are periodic (usually annual) and continuous.

i. Periodic Stock Taking.

The objective of periodic stocktaking is to find out the physical quantities of material of all types at a given date. This is a substantial task even in a modest organization and becomes difficult if not impossible takes in a large firm. (Lucey, 2002).

ii. Continuous Stock Taking

According to Lucy (2002), to avoid some of the disruptions caused by periodic stocktaking and to be able to sue better trained staff, many organizations operate a system whereby a proportion of stock is checked daily so that over the year, all stock is check at least once and many items, particularly the major value or fast moving items, would be checked several times.

Where continuous stocktaking is adopted, it is invariably carried out by staff independent from the storekeepers. This stocktaking is done in order to verify the accuracy of stock records. It is also to support the value of stock shown in the balance sheet by physical verification, to disclose the possibility of fraud, theft or loss and to reveal any weakness in the system for the custody and control of stock.

V. Stock Records

Stock records are the documents which take into account the day –to -day, full particulars of individual receipts, issues and balances of stock (Lys, 1996). Stock records can also be defined as a formal set of clerical records that contain information about the stock held within the stores system (Baily et al, 1994). The range of this information will depend upon the system employed and the scope of the operation. However, there are basic functions which every stock record system should aim to cover, the fundamental one being data on stock held at any time. Stock records are kept for a number of reasons. Some of which are:

- To indicate physical stock balances on hand at any given time.
- To establish a link between the physical stock and store account.
- To provide a means of knowing when to order and how to order.
- To serve as price list (where unit price are given). Hence to know the value of stock.

III. METHODOLOGY

This research is a case study which gives an opportunity for one aspect of a problem to be studied in depth within a limited time scale. The researcher identified a problem with the stock control system at Kojack Pharma Limited Takoradi. Data were collected from the firm by the use of questionnaires and through interviews. The data were analyzed and recommendations made after the findings. The solutions to the problem of stock control at Kojack Pharma Limited will help solve similar situations at other pharmaceutical shops.

A. Population Sample

The population under consideration in this study is the entire staff of Kojack Pharma Limited, Takoradi. A sample of staff including the Manager was selected for the study. Few clients were also interviewed and their views were documented.

B. Sampling Technique

The researcher used random and purposive sampling techniques for the study. The random sampling technique was used for clients and the purposive sampling technique for staff and management who have knowledge and skills that the researcher needed.

C. Data Collections Instruments

The researcher made use of questionnaires, interviews and observation as the means for gathering the needed data. The researcher also made use of related literature on the topic, stock control.

D. Data Collection Activities

The researcher used questionnaire as one of the instruments ot gather the information because it was an efficient way to collect information. The researcher designed well-constructed questionnaires with opened and closed needed questions. This is to enable the researcher to obtain primary data. The questionnaires were personally delivered to the staff of Kojck pharma Limited and collected personally by the researcher. The researcher also used interview method in the research because it was also an effective way to collect data. The interview was conducted by the researcher at the office of the firm. He respform the interview were recorded in a note pad by the researcher.

E. Method Of Data Analysis

The researcher used largely quantitative approach in analyzing the data the data were grouped into categories, analyzed and presented in a narrative form. However, some quantitative tools such as percentages and averages were used to establish some relationships

IV. CONCLUSION

A. Summary

This research is conducts to know how stock levels are being in above pharmaceutical company; in order not have shortage in its stock level. The main aims or objectives of the study are: To identify the problems encountered in stock control system, to recommend ways of helping to solve the problems, to determine how inventory control can enhance efficiency in business. To determine the extent to which an effective stock control can affect the business enterprise in terms of growth and to assist Kojack Pharma limited in the implementation of an effective system of stock control.

B. Findings

- The company has been checking balances and levels of stock; this ensures effectiveness in its stock control procedures.
- The determination of Economic Order quantity (EOQ) depends solely on changes in the business environment. This helps the company to prevent wastage or unnecessary purchases of stock for resale.
- The company faces difficulty in maintaining stock control system for fast moving drugs. This is because stock records will always have to be updated.
- The company has been taking stock monthly. This enable the company to taking track of stocks.

C. Recommendations

Based on the finding s of the study, the following recommendations are mad.

It is recommended that, the company should maintain its way of keeping records that is both on the computer and in the records book since this will eliminate the problem of having to access to records of stock when the computer develops a fault.

The firm should find another method of determining Economic Order Quantity ((EOQ) instead of depending solely on the business environment since a targeted period of the business in expectation of peak sales, can be a great loss is within that period, there is an unpresumed change in the business environment leading to a slack in sales.

In order to avoid the difficulty in maintaining stock control system for fast moving drugs, the firm must update records of drugs when a pack of medicine has been sold out.

In order for the stock control system of the business to be enhanced, it is recommended that the firm employ the use of stock cards.

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