KAMPALA INTERNATIONAL UNIVERSITY

SCHOOL OF BUSINESS AND MANAGEMENT

EFFECTS OF INVENTORY MANAGEMENT ON THE PROFITABILITY OF SUPER MARKETS IN UGANDA

CASE STUDY: EMBASSY SUPERMARKET AT NSAMBYA, KAMPALA UGANDA

BY

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APPROVAL

I, the undersigned supervisor approve that the work has been under my supervision and it is worthy for the award of University Degree.

SIGN : ....

MR. MATOVU LUTIMBA GODFREY

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DATE : 19/09/07

DECLARATION

I, Nambalirwa Damalie declare that this research is my original work and it has never been presented by anyone for the award of a degree in any University.

SIGN : ....Damalie..........

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(STUDENT)

DATE : ......19th / 09 / 07......

DEDICATION

I dedicate this research report to my beloved father Mr.Kaggwa Semei and my Aunt Mrs. Ruth Muwanga for their continued support towards my education and other aspects of life. I'm very grateful and may God bless you abundantly.

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ACRONYMS

S.P.S.S	-	Statistical Package for Social Sciences
E.O.Q	-	Economic Order Quantity
J.I.T	-	Just In Time
K.I.U	-	Kampala International University
A	-	Ordering cost / order
Q	-	Quantity order
λ	-	Total quantity ordered in the period under consideration
IC	-	Inventory carrying costs per unit
TIC	-	Total procurement and inventory or total inventory costs
λ /Q	-	No of orders in the period under consideration
TIC	-	Ordering costs + inventory carrying costs

ABSTRACT

Inventory management is a very important function in management especially for those firms that invest heavily in inventory.

Inventory management generally looks at how best inventory (Raw materials, Work in progress and Finished goods) can be planned, organized and controlled in an organization so as to cut inventory cost and maximize its benefits towards the profitability and efficiency of the business.

This is a research report of the research that was carried out on Uganda's Supermarkets on how they handle inventory management and how it affects their profitability and efficiency and how best it can be improved.

The report was presented in five chapters summarized as follows;

Chapter One; This chapter gave the background and introduction to the research, the objectives of the research, the hypothesis, the scope and significance of the study.

Chapter two; this chapter establishes the existing literature from different sources about inventory management and also shows the relationship and usefulness of this literature to this particular study.

Chapter three; this one explains how the research was carried out giving the study design, nature of the data collected, data collection methods, analysis and presentation of data. It also gives the limitations and the limitations faced during the study.

Chapter four; this brings out the research findings, their interpretation and implications in a bid to achieve the research objectives and answer the research questions.

Chapter five; this chapter gives the summary of the research the recommendations of the researcher and the general conclusion to the research.

CHAPTER ONE

1.0 BACKGROUND:

Inventory Management is one of the most important functions that determine the profitability and efficiency of any firm especially those, which invest heavily in inventory.

Firms line supermarkets that invest heavily in inventory should seek to maximize the benefits of goods inventory management and minimize the costs related to poor inventory management. Supermarkets have become prominent and popular in Uganda since the late 90's providing a wide range of products including foodstuffs, cosmetics, electricals, and household items among others.

In Uganda, supermarkets are located in urban city centers and they mainly serve middle and high-income earners.

Due to their nature of operations supermarkets invest a lot in inventory and this affects their profitability and efficiency depending on the degree of inventory management involved.

Its is against this background that I wish to carry out a study to establish the methods of inventory management used in Embassy supermarket in and how they affect their profitability and efficiency.

1.1 STATEMENT OF THE PROBLEM:

In Uganda many firms including supermarkets have neglected the role of inventory management towards their profitability with many concentrating on other functions including marketing, finance, personnel

The research was set out to establish the effect of inventory management on the profitability of super markets.

1.2 PURPOSE OF THE STUDY:

To investigate the inventory management techniques used in supermarket and their effect on the profitability.

1.3 OBJECTIVES OF THE STUDY:

The research was done to achieve the following objectives;

- To find out the various techniques of inventory management in supermarkets.
- To establish the effect of inventory, management on the profitability of supermarkets.
- To identify the problems faced in inventory management

1.4 SIGNIFICANCE OF THE STUDY:

The findings of the study will be useful in various ways including;

- The research brings out the importance of inventory management towards profitability that will prove very useful to the managers and owners of supermarkets.
- The study brought out the various inventory management techniques that can be used

by various supermarkets for better profitability and performance.

- The study will go a long way in highlighting the importance of inventory and inventory management in supermarkets.
- The research is a useful supplement to the students, lecturers, scholars, businessmen who directly deal with inventory and supermarket business management in general.

1.5 RESEARCH QUESTIONS:

The study was set out to find answers to the following questions;

- What are the various inventory management techniques applied in supermarkets?
- What is the effect of inventory management on the profitability of supermarkets
- What are the problems facing inventory management in supermarkets?
- How best can inventory management be improved to positively affect the profitability of supermarkets?

1.6 SCOPE OF THE STUDY:

The study looked at the field of inventory management in supermarkets taking a case study of Embassy supermarket located in Kampala district, Makindye division two kilometers along Gaba road opposite the American Embassy. The research concentrates on the various inventory management techniques used in Uganda's supermarkets and how they affect their profitability. It also looked at the problems of inventory management and recommend solutions to the above hard ships.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION:

This chapter contains a review of a wide variety of literature by different authors on inventory, inventory management, profitability and the relationship between inventory management and the profitability of business firms.

2.1 INVENTORY DEFINED:

Inventory refers to any stored resource that is used to satisfy current or future needs of a firm (Heizer and Rander, 1993).

Stevenson 1996 defines inventory as a store or stock of goods. According to Ahujja 1999, inventory consists of all those items for sale or items, which keep the production process running.

Inventory is an alternative of future production or procurement. A material becomes inventory after it has been purchased and delivered to the facility and placed in storage (Vonderembse and White, 1988). Inventory is materials held for future sale or use, (Tersine, 1985).

Looking at the above definitions of inventory, different authors give different but complementary definitions of inventory. It can generally by concluded that inventory refers to any stored materials/resources to be used for future use either for sale or production.

2.1.1 TYPES OF INVENTORY:

Firms keep inventory in various forms that include raw materials, work in progress and finished goods. Kolb (1983) form an accounting perspective also gives the types of inventory as raw materials, work in progress and finished goods.

Tersine (1985) agrees with the Gitman (2000) and Kolb, (1983) on the types but add that the above categories depend on a specific entity that is to say one firms finished product can be another's raw material or work-in-progress.

Inventory can also be classified basing on how it is created. In this context therefore there are four types that is to say cycle inventory, safety stock, anticipatory inventory and pipeline inventory (Kranjewski and Ritzman, 1996).

In contrast Buffa, (1973) gives four different types of inventory as pipeline inventory (stock on hand to meet operational demand), cycle inventory, Buffer inventories, decoupling inventory and seasonal inventory.

Inventory can be classified into two types according to Monks, 1987 as; manufacturing inventory (raw materials and working-in-progress) maintained to support planned manufacturing operations. Distribution inventories, finished goods flowing from the production process. Service firms carry inventories of supplies and equipment (Stevenson, 1996).

Most of the authors that is to say Gitman (2000), Kolb (1983) and Tersine (1983) agree on the types of inventory as raw materials, work-in-progress and finished goods. On the other hand, Buffer (1973) and Monks, (1987) give varying types of inventory. It's also notable that the types given by Kranjewski and Ritzman, (1996) is based on the purpose for which inventory is kept. Stevenson, (1996) is keen to point out that also service firms held some kind of inventory differing from others who concentrate only on manufacturing firms.

2.1.2 WHY DO FIRMS NEED INVENTORY:

According to Bhalla, 1997, firms keep inventory to achieve their transaction, precautionary, speculative and contractual motives.

Inventory allows an organization to;

- Separate production of a good form consumption
- Smoothen workflow within the production system by preventing stock outs
- Take advantage of an unusual low price for a product
- Stock up in anticipation of a cut off in supply

(Venderembse and White, 1988)

The underlying purpose of holding inventory is to uncouple the various phases of a service delivery system or manufacturing process thereby allowing each one to work independently (Hill, 2005). Ebbert and Adam, 1989, note that fundamental reason for carrying inventory is that it is economically impracticable for each stock item to arrive exactly where it is needed exactly when it is needed.

The major reasons why firms hold inventories include;

- Protect against stock outs/shortages
- To meet anticipated customer demand
- Take advantage of economic order cycles
- To maintain independence of operations
- To guard against inflation
- Allow smooth and flexible production operations (Markland, Vickery Davis, 1995).

In addition to the above importance of holding inventory, Heinzer and Renter 1993 also add the ability to take advantage of quantity discounts and having a variety that enhances freedom of selection for customers. All the literature revealed above emphasize the importance of inventory in both manufacturing and service firms. A firm can enjoy some or all the benefits of holding inventory depending on the
co-efficiency and effectiveness of its inventory management system.

2.1.3 INVENTORY COSTS:

A number of authors including Allujja (1999), Citiman, 2000, Stevenson, (1999), Green, (1984) and Markland, Vickery, Davis, (1995) generally give the costs of holding inventory as:-

- Ordering costs; include clerical fixed costs of placing and receiving an inventory order for example documentation of orders.
- Carrying costs; these are variable costs per unit of holding an item in inventory for a specific time period for example storage costs, insurance, security.
- Stock out costs; incurred whenever a business is unable to meet orders. When demand of a product is greater than supply.

Schmmer, (1987), adds that inventory is not costless to stock. It involves the opportunity cost of capital incurred by having a firm's capital invested in inventory rather than other income generating endeavors.

There are also costs incurred by a firm for not housing enough inventory, they include:-
Re-ordering costs, stoppage in operations and loss of customers and market share (Schromberg and Knod, 1991).

Hill, 2005, notes that the nature and amount of inventory costs incurred by any firm depends on the inventory management system employed by a firm. Inventory management seeks to identify and keep inventory costs as low as possible.

Inventory costs vary from firm to depending on the type of item ordered costs of delivery cost of storage among others. (Bhalla, 1997).

Block, Hirt and Short, 2003, note that large amounts of inventory stored may have high holding and carrying costs while minimizing ordering costs. On the other hand small amounts inventory increase-ordering costs while minimizing carrying and holding costs but also carry a higher risk of stock outs. Basing on the above literature revealed it can be interpreted that any firm that keeps inventory incurs various costs and they vary from firm to firm and time to time

2.2 INVENTORY MANAGEMENT TECHNIQUES:

According to Bhalla, 1997, inventory management is concerned with keeping enough stock in hand to avoid stock outs while maintaining a small enough balance to allow a reasonable return and investment.

Proper inventory management is important to the financial health of affirm in that being out of stock drives customers to competitors while an excessive level of inventory results into large inventory carrying costs (Chase, Aquileno and Jacobs, 2001).

The ultimate goal of an inventory management system is to provide customer service at minimum costs. Firms employ various tools, systems and techniques to manage their inventory (Stevenson, 1996). They include:-

2.2.1 ECONOMIC ORDER QUANTITY (EOQ) MODEL:

This model was advocated for by all the authors in all the literature reviewed. The EOQ mode identifies the optimal order quantity in terms of minimizing the sum of certain costs that vary with order size (Schromberg and Knod, 1991).

The EOQ is one of the mostly commonly known and used inventory management techniques, it has a number of assumptions;

- Demand is known and is constant
- Orders arrive in one batch
- The load time is known and is constant
- Ordering and carrying costs are known and constant

(Heinzer and Render, 1993).

2.2.2 PRODUCTION ORDER QUANTITY MODEL:

This is an inventory management model used when the order placed arrives in batches over a period of time or when units are produce and sold simultaneously (Green, 1984).

$$Q = \frac{\sqrt{2DS}}{H(1 - D/P)}$$

Where Q = order quantity

D = annual demand rate

S = ordering costs

H = carrying costs

P = daily production rate

(Monks, 1987)

Arnold and Chapman, 2001 classification above is supplemented by Van Horme and Wanchowicz Jr (2001), who show the type of controls employed for each class of items that is to say. A – items; high priority, tight control regular and frequent review, analysis of demand and supply trends, accurate records. B –items, moderate priority, normal control with good records, regular attention and normal processing. C – items, lowest priority, simplest possible controls, simple or no records.

2.2.5 JUST-IN-TIME (JIT) INVENTORY CONTROL:

JIT inventory system involves the exact amount of items arriving at the moment they are needed. (Chase, Aquilano and Jacobs, 2001).

According to Bhalla, 1999, JIT is based on the idea that all required inventory items should be supplied to the production process at the right time and in exactly the right quantities.

To supplement the above, Monks, 1987, adds that JIT inventory control requires a close co-operation between a company and its suppliers to prevent shortages and production delays. Managers should also reduce variability by both internal and external factors that cause wastage.

2.2.6 TWO-BIN INVENTORY SYSTEM:

According to Vonderebse and White, (1988), this techniques divided inventory into two groups (Bins) in the first bin a sufficient supply is kept to meet current demand over a designated period of time. In the second bin, enough additional items are kept to meet the demand during the lead-time necessary to fill the orders.

However, Tersine, (1985) defines the two bin systems as one that uses two containers for inventory, items are drawn from the first bin until its contents are exhausted its time to re-order.

Stevenson, (1996), goes on to classify inventory management techniques into three classes. That is;

- Fixed order quantity models, these are models that determine the specific point at which an order to purchase is placed and the size of the order that is to say EOQ, ROP, POQ.
- Fixed time period model; these are models where the inventory is counted at a reviewed period for example physical counting, stock takings, cycles counting and optional replacement system
- Single period models; these are used to handle perishables and other items with useful limited lives.

2.2.7 MATERIALS REQUIRMENTS PLAN (MRP):

This technique is applied to items with dependent demand. It involves using various tools to establsih the right number and nature of parts, items, components and raw materials needed to facilitate production in a given period of time (Hill, 2005).

Ahujja, 1999 notes that the MRP system establishes the exact number of each item that is needed and the time when orders for these items should be placed and received.

The literature revealed establishes a wide range of inventory management techniques and most authors have the same techniques. However there is a gap of not showing which technique applies best where and on which item.

2.3 PROFITABILITY DEFINED:

Profitability refers to the company's ability to generate earnings (Edmonds, Edmonds and Tsay, 2000).

According to Lourson, Wills and Chuippotta, (1999), profitability refers to a firm's total revenue minus total expenses that is to say, profit = revenue – expenses.

Profit (net income/earnings) is the amount the business earns after subtracting all operating expenses.

Watson and Brigham, (1987) agrees with Edmonds ad Tsay, (2000) on the definition of profitability nut goes on to add that profitability of affirm is affected by a range of decisions and policies. It involves the effects of liquidity, assets management and debt management.

Profitability refers to the relationship between revenues and costs generated by using a firm's asset in productive activities. A firm's profitability can be increased by increasing by increasing revenues or decreasing costs (Gitiman, 1994).

Chandra, (2001), defines profits as the reward to investment of resources received by stakeholders, investors and entrepreneurs. It is result of production that shows the financial performance of any business firm.

2.3.1 MEASUREMENT OF PROFITABILITY:

According to Jackson and Sawyers, (2001) and Gitiman, (1994), profitability can be measured using various measures relating on its sales, assets, equity or share value. Considering the general expression of profitability (revenues-expenses), the bigger the difference, the greater the firms profitability (Chandra, 2001).

In addition to the above expression Gitiman, (1994), Weston, Bringham, (1987), Bhalla (1997), Horme and Wanacholwicz (2001) all gave the measures of profitability as shown below:-

$$\text{Gross profit margin} = \frac{\text{sales} - \text{cost of goods sold}}{\text{Sales}}$$

Net profit margin:- this measures the percentage of each sales dollar remaining after all expenses including taxes have been deducted.

$$\frac{\text{Net profits} = \text{Net profit}}{\text{Sales}}$$

Return on equity (ROE) measures the return earned on the owner's investment in the firm.

$$\text{ROE} = \frac{\text{net profits after taxes}}{\text{Stockholders equity}}$$

The higher the ratios the better off are the owners.

Bhalla, (1997), notes a firm's profitability indicates the effectiveness and efficiency in the firms operations. However he notes that profitability is also affected by external factors that can be out side the firm's control. For example tax policies, industrial competitiveness and price fluctuations.

All the literature revealed bring out a well detailed definition and measurement of profitability but apart from only Gitiman (1994), other do not expressly give the determinants of a affirms profitability.

2.4 RELATIONSHIP BETWEEN INVENTORY MANAGEMENT AND PROFITABILITY:

A firm's financial policy is affected by its inventory management policy since inventory is an investment. A firm ties up its money there by foregoing certain other earning opportunities. In general the higher a firm's average inventory, the higher the dollar investment and costs required (Weston and Bringham, 1987).

According to Bhalla, (1997), managers should seek to keep inventory costs as low as possible in order to increase a firm's profitability. On the other hand affirm should keep sufficient stock to improve customer service and prevent stock outs. This in turn increases its sales and despite increased holding costs increase a firm's profit.

From an accounting perspective, inventory at hand is considered as an asset in the balance sheet. In the income statement the cost of acquiring goods (costs of goods sold) is subtracted from, sales to get gross profit. The inventory costs are listed as part of operating costs and are deducted from gross profits to get profits. Hence keeping sales constant if the inventory costs keep on rising the profitability of a firm will also decrease (Weston and Bringham, 1987).

From another perspective (Horne and Wencholwiz 2001), urge that investment in inventory can negatively affect a firm's profitability when the market value of inventory falls below what the firm paid for it, this can result into financial losses. This situation can result form spoilage shrinkage, theft and inflation.

Reviewing the literature above, each author gives a different view on the relationship between inventory management and profitability. It is also notable that there is a gap of information and facts linking profitability and inventory management. The degree of impact between the two aspects is not well defined.

This is the key factor behind this research in which the researcher seeks to establish the proper relationship between inventory management and profitability.

CHAPTER THREE

METHODOLOGY

3.0 INTRODUCTION:

This chapter shows how the actual research was carried out, the data collection methods, data analysis and presentation and interpretation of facts plus the limitations and the limitations of the study.

3.1 STUDY DESIGN:

The research was conducted using Embassy Supermarket as the case study to act as a sample for other Ugandan super markets.

The researcher first established the objectives and research questions then set out to the field to collect data and information so as to achieve the objectives.

This was done using various data collection techniques to collect both primary and secondary data, which was later analyzed and presented.

3.2 SAMPLE SIZE:

Uganda has over two hundred supermarkets and among these Embassy supermarket was randomly selected to act as a sample case study for other supermarkets due to the resource constraints that made studying all the supermarkets in Uganda impractible. At Embassy supermarket's the manager Mr.Mwesigye Peter and Mr. Felix Ojoke the head of the inventory department were specifically sampled out to respond to interviews to reveal facts about inventory management in Uganda.

3.3 AREA OF STUDY:

The study was carried out on Embassy supermarket located along Ggaba road opposite the American Embassy. Embassy supermarket is located in Nsambya parish, Makindye division in Kampala. Kampala is Uganda's capital with over two hundred supermarkets with a total area of two hundred and twenty eight square kilometer situated on 016N 3240E and a population of over two million people.

3.4 TYPE OF DATA AND DATA COLLECTION METHODS:

The researcher employed various data collection techniques to collect both primary and secondary data as explained below; -

3.4.1 PRIMARY DATA:

This involved collecting firsthand information using the methods below

- **Oral interviews**; - The researcher employed both structured and non-structured interviews with the manager of Embassy super market Mr. Mwesigye Peter and the head of the inventory department at Embassy supermarket Mr. Felix Ojoke who revealed several facts concerning inventory management and profitability in Uganda's supermarkets.
- **Observation**; By physically visiting Embassy supermarket a number of times the researcher got a first hand view of inventory management at the supermarket.
- **Conversations and charts**; the researcher had several conversations with employees at Embassy supermarket including ushers, storekeepers and customers of Embassy supermarket.

3.4.2 SECONDARY DATA:

This was already collected data but proved useful to this research and it was collected by;-

- Use of financial records of embassy supermarket for example the balance sheet and income statements cash flows among others
- Supermarket journals, Magazines and News paper articles concerning supermarkets and inventory management.
- Using the Internet to visit several websites concerning inventory management of supermarkets for example www.inventoryopps.com

3.5 DATA ANALYSIS, ANALYSIS AND PRESENTATIONS:

The data collected was classified into various sections before it was analyzed and interpreted using both qualitative and quantitative techniques. Statistical tools like percentages, averages, coefficient of determination and correlations. Descriptive essays and diagrams tables and diagrams backed up the analysis. The report was later typed edited and printed ready to be presented to the university authorities.

3.6 LIMITATIONS OF THE STUDY:

The study was limited by the little time available hence considering only one supermarket as a case study for others in Uganda. The other limitation was lack of complete access to all the information especially the financial data of embassy supermarket although I accessed some of it.

CHAPTER FOUR

RESEARCH FINDINGS, ANALYSIS AND INTERPRETATION

4.0 INTRODUCTION:

This chapter brings out all the research finds, shows the data analysis and interpretation in a bid to fulfill the objectives of the study and answer the study questions in the research.

4.1 INVENTORY AT EMBASSY SUPERMARKET:

On visiting Embassy Supermarket Premises it was observed that a large amount of stock is kept both in the supermarket shelves and the store behind it. The stock was comprised of finished goods ready for sale, comprising of several brands and categories.

In an interview with the Manager Embassy Supermarket Mr. Mwesigye Peter he revealed that they deal with over 1500 brands of goods from local and international suppliers. He also gave a rough estimate of the percentage composition of stock in Embassy Supermarket as of 28-10-2007 as shown in table I below: -

Table I: Types of Goods at Embassy Supermarket

Category	% of inventory	Examples
Food stuffs & beverages	40%	Fruits, sodas, juices, cereals, beer e.t.c
Householder items	30%	Utensil, toys, furniture, plastics .toiletry e.t.c
Electricals	5%	Televisions, Ratios, DVDs, Video games e.t.c
Cosmetics & chemicals	15%	Lotions, toothpaste, pesticides e.t.c
Others	10%	-airtime -stationary -newspapers -magazines e.t.c

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The implication of the information in the table I above is that inventory management Supermarkets deals with a variety of goods which require different systems of management thus managing inventory in supermarkets requires a broad view of stock management and application of the right techniques for each category if for efficiency and profitability to be realized.

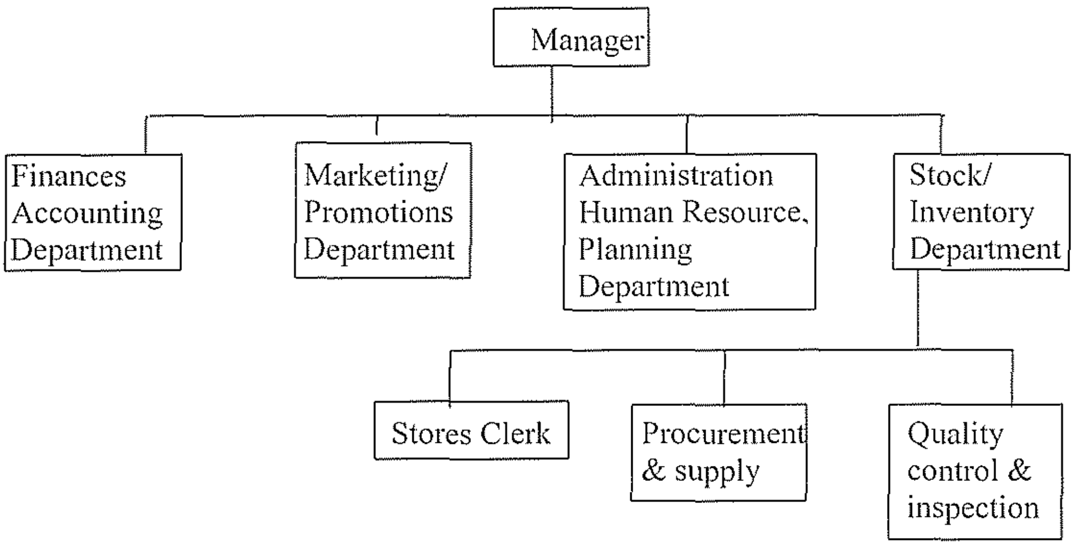
The study also established that inventory forms approximately 49% of the total assets and according to the balance sheet of Embassy supermarket dated 31 December 2006 the composition of the company's assets stresses the importance of inventory in supermarkets, with over 48% of total current assets it is the most important asset in supermarket business hence its management has significant impact on the efficiency and profitability of any supermarket, however also other assets are significant and also contribute to the profitability of the firm.

4.2 INVENTORY MANAGEMENT IN EMBASSY SUPERMARKET:

The study established that the concept of inventory management has just picked up in recent times, in the past little or no attention was paid to inventory management in Uganda's supermarkets.

In the interview with manager Embassy Supermarket he revealed that the department of inventory management was established in 2002 when new management took over the business which was established 2000. He said that now it is one of the most important departments and its very key to the operations of the supermarket. To illustrate this he showed a copy of the firm, organization structure as of October 2006 as shown in fig 1

Fig. 1: Organizational Structure of Embassy Supermarket



Sources: *Embassy Supermarket Business Report. Page 4*

Figure 1 above clearly illustrates the role and importance of inventory management towards the efficiency and profitability of any supermarket. In managing supermarkets inventory management should be highly regarded and all its operations and activities should be well managed if the supermarket is to be profitable and efficient.

4.2.1 KEY ACTIVITIES IN INVENTORY MANAGEMENT PERFORMED IN EMBASSY SUPERMARKET:

In another interview with the head of inventory department at Embassy supermarket, Mr. Felix Ojoke, he revealed that his department performs various activities concerning inventory in coordination with other departments. The department is comprised of 18 people performing various activities which he talked me through and I summarized them in table III below:-

Table III: Activities and Duties in Inventory Management at Embassy Supermarket

Activity	Roles involved /duties	Key personal documents
1. Ordering: involves the request to be supplied by various goods	-Identifying the goods to be ordered for -identifying and notifying Suppliers. -order placement and delivery -negotiation of terms and conditions with suppliers	-Price quotations of goods to be ordered for -written orders offers Personnel -procurement officer, as the procurement team
2. delivery and receiving of goods:- transportation of goods from the suppliers to the supermarket	-delivery of goods/stock -inspection and weighing of goods -establishing the nature/quality of purchased goods Matching the stock delivered to those offered for.	Documents -delivery note -goods accepted note Personnel -transport office -inspection team
3. Storage: Keeping the stock in the right places condition and ensuring its safety	-Placing the stock in the store of supermarket shelves -Monitoring of stores and storage equipment e.g. fridges and Air conditioners -Ensuring security and safety of the stock	-Documents count report -Inflow and outflow of stock statement Personnel -Storekeeper -Security team
4. Dispersing of stock:- involves stock leaving the supermarket.		

The information in table III above brings out the fact that inventory management in supermarkets involves a number of complex activities that cut across the period from purchasing stock until when stock leaves the supermarket.

This implies that for successful inventory management the supermarket should recognize that importance of inventory to its overall profitability hence commit all the required resources necessary for the efficient management of inventory in supermarkets.

4.2.2 INVENTORY MANAGEMENT TECHNIQUES USED AT EMBASSY SUPERMARKET:

The study established that various supermarkets apply different inventory management techniques depending on various circumstances and objectives.

In the interview with Mr. Mwesigye Peter the manager Embassy Supermarket, he said that the type of technique used is determined by a number of factors that included:-

- The nature and capacity of the suppliers
- The type and nature of goods involved
- The objectives and policies of the supermarket among others

He went ahead to explain that most supermarkets in Uganda do not have a proper inventory management system hence complex methods like E.O.Q which have many limitations are not frequently used especially in small and medium size supermarkets.

According to him most supermarkets including his Embassy supermarket apply the J.I.T method for perishable goods and those goods that are frequently bought and there is easily available. This method is applied in such a way that the goods are ordered for as soon as their stock is about to run out. He gave an example of newspapers, fruits, bread, and milk that are almost supplied on daily basis. He said that the quantity purchased under this method depends on the speculation of the demand and the purchasing power of the firm. He adds on that this technique is efficient in cutting storage costs but increases ordering and delivery costs and also leaves the firm vulnerable to stock outs if the suppliers fail to supply goods on time.

According to Mr. Mwesigye the most commonly applied method is the visual review menthod. In this method the manager looks at the present inventory situation of the supermarket and basing on his/her experience and knowledge determines what kind and amount of goods to order for.

He said that almost all supermarkets apply this method apart form a few like Shoprite and Game supermarket. In this technique goods ordered for depend on the current market situations and demand predictions. He gave an example that during the days of 'go back to school' the supermarkets stock a lot of scholastic materials like, books, pens, pencils, sets, soap and UHT milk, because demand is high for these goods at that time.

Mr. Mwesigye notes that the reason why many supermarkets have not adopted techniques like E.O.Q and ABC is that they lack of information concerning the future demand of particular goods, fluctuation of prices and also the suppliers cannot grantee the supplying of the right goods in their right quantities at the right time.

In another interview with Mr. Felix Ojoke the head of the inventory department Embassy supermarket he said that their inventory system involves a number of control techniques applied to ensure efficient inventory management these included:-

- Use of control accounts for all items
- Computerized receipting to ensure not theft of goods by customers or staff
- Inventory physical counting carried out every Sunday from 9.00pm
- Use of security Cameras, videos and applying several attendants and Askaris to monitor and guard the stock.

From the information above one can conclude that most supermarket in Uganda manage inventory using past experience and the knowledge of management that runs the firms. They have no established inventory system based on techniques such as E.O.Q, ABC, J.I.T and this compromises the efficiency in inventory management which is later expressed in increased inventory costs and stock outs hence low profitability of supermarkets in Uganda.

However with more emphasis now being put to inventory management soon Uganda's supermarkets will incorporate tools like E.O.Q, ABC, and JIT into their inventory systems basing on the trends from other developed countries and economies.

4.2.3 INVENTORY MANAGEMENT AND INVENTORY COSTS:

The research established that supermarkets in Uganda incur various costs/expenses as a result of having inventory, these costs are known as inventory costs. In the interview with Mr. Mwesigye Peter the Manager of Embassy supermarket he revealed inventory costs start from the time goods are ordered for up to the time when they leave the supermarket. He said that the nature and amount of costs incurred by each supermarket is different depending on the techniques of inventory management employed and the type of costs. Mr. Mwesigye talked about a number of inventory costs which one summarized in table IV below:-

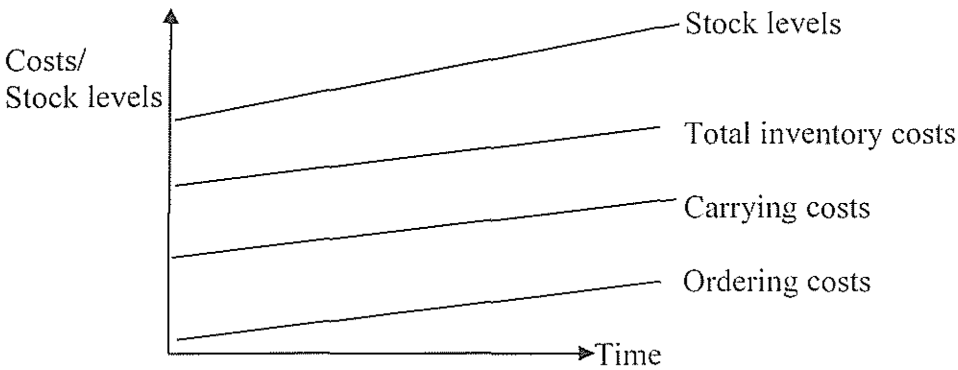
Table IV: Inventory Costs of Embassy Supermarket

Type of costs	Examples of costs
Ordering costs:- costs Incurred during the process of order for the goods.	-Locating suppliers and soliciting bits -Telephone bills incurred during consultations and negotiations with suppliers -Transport costs of distribution of orders
Receiving and inspection costs	-Labor for transferring goods into storage -Weighing and inspection of goods -Transportation of goods from suppliers
Storage costs	-Insurance -Electricity for keeping stock fresh -Security and monitoring -Theft and pilferage -Rent costs -Spoilt and depreciated goods
-Stock out costs –incurred when a supermarket runs out of stock for a particular goods	-Loss of sales and revenues -Poor reputation and loss of market share -Re-ordering costs
-Opportunity costs – incurred when the supermarket has a lot of money tied up in stock which would rather be invested in other areas e.g. marketing.	

Basing on the information from table IV above it is clear that supermarkets cannot do away with inventory costs, however, they should keep the various costs as low as possible. Various costs can be cut using different inventory management techniques for instance, by using the J.I.T approach one can cut on storage costs since few goods are stocked for or shorter period however this increases ordering costs since orders have to be placed more frequently. Therefore inventory management should employ the most suitable technique to every situation so as to cut inventory costs as much as possible.

Another point to note is that these cost vary from time to time but most commonly they increase as stock increases, this relationship is illustrated as shown Figure 2.below:-

Fig 2: Graph showing the relationship between inventory costs, sales and stock Levels.



According to figure 2 above, it can be explained that as stock levels increases this calls for increased storage costs in terms of space, storage facilities among others. And because more goods on stocked ordering costs also increase because the number of orders generally increases, hence total inventory costs also increase as stock increases. This implies the management should increase stock while keeping inventory costs low by employing the E.O.Q that ensures minimum carrying and ordering costs.

In conclusion for sales to increases stock levels have to increase, thus inventory costs also increase, the key here is to keep inventory costs as low as possible using the various inventory management techniques as seen as suitable by any supermarket management.

4.2.4 THE IMPACT OF INVENTORY MANAGEMENT ON THE PROFITABILITY OF SUPERMARKETS:

The relationship between inventory management and profitability in supermarkets as seen in previous sections 4.2.1 – 4.2.2 is not very direct, it brings in the effect of inventory costs on profitability.

Inventory costs appear in the income statement as a component of operating expenses that are deducted from gross profits to achieve net profits. Since inventory costs are determined by the techniques of inventory management employed then the relationship between inventory management and profitability can be established that is, inventory management determines inventory costs, which affect the firm's profitability. At Embassy supermarket the manager Mr. Mwesigye Peter gave me the past figures of inventory costs and profitability illustrated in Table V below:-

Table V: Inventory Costs and Net profits of Embassy Supermarket

Year	Total Inventory costs '000'Shs	Net profits '000' Shs
2002	75,420	98,070
2003	62,420	126,640
2004	70,850	167,020
2005	78,826	201,120
2006	80,770	211,140

Source:Embassy supermarket income statement 31 Dec 2006, page 21

From the data in table V above the relationship between inventory costs and net profits can be established using the correlation coefficient(r) and the coefficient of determination (r^2) as illustrated below.

Let inventory costs be X

Let net profits be Y

Let number of years be n = 5

Table VI: Correlation Coefficient for Net profits and Inventory Costs of Embassy Super Market for 2002-2006

Year	x	y	x^2	y^2	xy
2002	7.542	9.807	56.882	98.177	73.964
2003	6.242	12.664	38.962	160.377	79.049
2004	7.085	16.702	50.197	278.957	118.334
2005	7.826	20.112	61.246	404.492	157.396
2006	8.077	21.114	65.238	445.800	170.538
	($\sum x$) 36.772	($\sum y$)= 80.399	$\sum x^2 = 272.525$	$\sum y^2 =1,387.803$	$\sum Xy =599.281$

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{[n\sum x^2] - [\sum x)^2] \quad [n\sum y^2] - [\sum y^2]}}$$

r = 0.567

r^2 = 0.321 = 32.15%

- The correlation coefficient r of 0.567 shows that there is a strong relationship (correlation) between inventory costs and net profits.
- The fact the 'r' is positive implies that there is a positive correlation between

inventory costs and net profits that is to say net profits increase as inventory costs also increase.

- The coefficient of determination (r^2) of 32.19% implies that a unit change in total inventory costs (X) causes a 32.15% change in net profits.

The r can be used to state that in inventory management usually inventory costs increase with net profits simply because of the increase amount of goods sold. When sales increase it implies that the amount of goods stored and sold also increases hence increasing the ordering and holding costs and thus an increase in the total inventory costs.

The (r^2) of 32.15% can be interpreted that inventory management accounts for 32.15% for changes in profits and the remaining 67.85% is determined by other factors including:-

- Other expenses which are not directly related to inventory for example marketing, tax
- Cost of goods sold
- Total sales revenues, among others.

For example according to the records of embassy supermarkets in table V above net profits from 2002 – 2003 increased by 28,570,000/= and using the coefficient of determinate of 32.15% it shows of this increase:-

$$\left(\frac{32}{100} \times 28{,}570{,}000\right) = 9{,}142{,}400/=$$

The 9,142,400 shs was due to changes inventory costs and other 19,427,600/= has contributed by changes in other factors that affect profitability in the supermarket.

Form the above findings of the research one establishes that inventory management affects profitability to a certain extent through the level of inventory costs generated determined by the degree and efficiency of inventory management used.

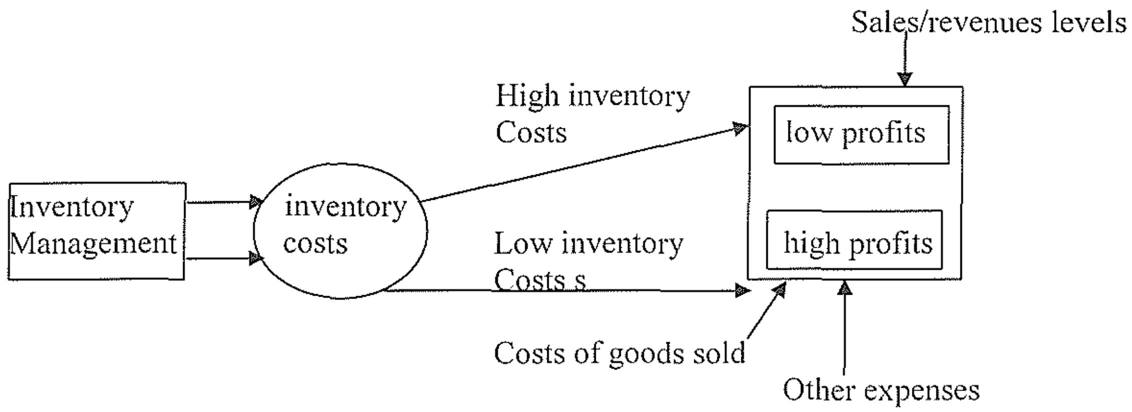
However for profitability to increase management in supermarkets should also consider the performance of other areas alongside inventory management.
Another finding is that when inventory costs grow so big they definitely decrease the level of net profits of supermarkets in Uganda.

In conclusion the relationship between inventory management and profitability is established through inventory costs. If the inventory management system used generates high inventory costs then profitability will be lower, on the other hand if inventory management minimizes inventory costs than profitability will be increased.

However this relationship is affected by performance of other factors like sales, cost of goods sold, administrative expenses among others. Thus for increased profits management should ensure efficiency in inventory management and other areas.

The effect of inventory management on profitability can be summarize in figure 3 below:-

Fig. 3: Relationship between inventory management and profitability of Supermarkets



4.3 PROBLEMS FACED DURING INVENTORY MANAGEMENT AT EMBASSY SUPERMARKET:

The process of inventory faces numerous problems which the established as follows: According to Mr. Mwesigye Peter thus manager Embassy Supermarket the major problems on countered included:-

Increasing inventory costs which negatively affect the profitability of the firm. This is illustrated by the figures in table V where from 2002-2006 costs increased from 75,420,000/= to 80,770,000/= an increase of 6.62% worth 5,350,000/=. This increase was strongly attributed to increased power tariffs, increase in stock, and increase in fuel and prices of other goods.

The other problem stressed by Mr. Ojoke is the lack of enough qualified and experienced staff and handle inventory. He noted that the inventory department has only two people with a degree in inventory, four with diplomas and the rest here S.6 leavers. He said that this makes it hard to deploy factors such as E.O.Q, J.I.T or ABC because the staff cannot adapt to them.

In conversation with one of the users at Embassy supermarket, she said that a lot of goods got stolen by staff or customers and that others got damaged during storage. This problem causes loss to the supermarket as it affects its profitability negatively by increasing operating costs.

Like all other functions in management inventory management faces problems and challenges as seen above, the objective of management in supermarket is to design an inventory management system that minimizes or eliminates such problems if profitability and performance one to be realized

In conclusion chapter 4 has brought out research findings in a bid to answer the research questions and obtain the objectives of the study. The findings were mostly from embassy supermarket but could generally be applied to all other supermarkets since they also operate in similar situations. Some findings, analysis and interpretative or subject to personal opinion and aims of the sources but generally they are reliable facts.