An Evaluation of Stock Control in Maltese Supermarkets

By

DARREN AGIUS

A dissertation submitted in partial fulfilment of the requirements for the award of the Master in Accountancy degree in the Department of Accountancy at the Faculty of Economics, Management and Accountancy at the University of Malta

May 2015

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Abstract

An Evaluation of Stock Control in Maltese Supermarkets

Purpose: The main goal of this dissertation is to evaluate the stock control systems of Maltese supermarkets. It aims to determine the procedures of the stores, accounting and finance function in relation to stock control. It also identifies and evaluates the techniques which are being used by Maltese supermarkets for controlling and valuing inventory. It also analyses the procedures that are used by Maltese supermarkets to carry out stock-taking. Finally, it determines the internal controls which are used by Maltese supermarkets to prevent theft or fraud.

Design: A qualitative approach was adopted to deal with the research objectives. Data was obtained mainly through fourteen semi-structured interviews with various managers, directors, accountants and financial controllers of supermarkets.

Findings: Currently, purchase orders are issued by suppliers’ sales persons and supermarkets’ purchasing managers. Upon delivery, each supermarket performs quality checks on a sample of items in order to detect any expired or damaged items. In the majority of supermarkets, the accounts function is carried out in-house. Every supermarket prepares management accounts and stock control reports to evaluate and assess its performance. The main source of finance used by supermarkets to finance stock is the internally generated funds. The stock control techniques which are used by Maltese supermarkets are stock levels, stock turnover, JIT, Barcode and RFID tags. Every supermarket uses a similar method to carry out stock-taking. Currently, each supermarket makes use of sufficient measures and controls to prevent theft or fraud from happening.

Conclusions: Maltese supermarkets are using appropriate stock control measures which are giving adequate results. However certain supermarkets are letting suppliers’ sales persons to issue a purchase order and to enter in the stores. Moreover any material discrepancy is being ignored by every supermarket. If these supermarkets allow only the purchasing managers of supermarkets to issue purchase orders, restrict the access of the stores to staff only, and evaluate non material discrepancy as well, the supermarkets will improve their stock control system.

Value: The findings of this study will provide relevant information to prospective managers, directors, financial controllers and accountants about the stock control systems which are in place in Maltese supermarkets. Furthermore, this study might be used as a reference by these persons to help them manage inventory better.

Keywords: Stock, Maltese supermarkets, Stock control, Internal controls
Library Reference: 15MACC004
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I hereby declare that I am the legitimate author of this Dissertation and that it is my original work.

No portion of this work has been submitted in support of an application for another degree or qualification of this or any other university or institution of learning.

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Submission noted.

\[\text{Dr Francis Debono}\]

Principal Supervisor

\[\text{Signature}\]

\[\text{12th May 2015}\]

Date
“Dedicated to my Family
especially to my dearest parents
Pauline and Francis Agius
for their loving and
unconditional support”
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<td>AICPA</td>
<td>American Institute of Certified Public Accountants</td>
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<td>AVCO</td>
<td>Weighted Average Cost</td>
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<tr>
<td>CCTV</td>
<td>Closed Circuit Television</td>
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<td>E-mail</td>
<td>Electronic Mail</td>
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<td>EOQ</td>
<td>Economic Order Quantity</td>
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<td>EPOS</td>
<td>Electronic Point-of-Sale</td>
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<td>FIFO</td>
<td>First-In First-Out</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GRN</td>
<td>Goods Received Note</td>
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<td>GVA</td>
<td>Gross Value Added</td>
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<td>IAS</td>
<td>International Accounting Standard</td>
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<td>ICSI</td>
<td>Institute of Company Secretaries of India</td>
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<tr>
<td>IFRS</td>
<td>International Financial Reporting Standard</td>
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<td>IT</td>
<td>Information Technology</td>
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<td>JIT</td>
<td>Just-In-Time</td>
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<td>LIFO</td>
<td>Last-in, First-out</td>
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<td>MRP</td>
<td>Material Requirements Planning</td>
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<td>PO</td>
<td>Purchase Order</td>
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<td>RFID</td>
<td>Radio Frequency Identification</td>
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<td>RMS</td>
<td>Retail Management System</td>
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<td>US GAAP</td>
<td>United States Generally Accepted Accounting Principles</td>
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<td>VMI</td>
<td>Vendor Managed Inventory</td>
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Chapter 1: Introduction
1.1: Introduction

The main theme of this dissertation is stock control in Maltese supermarkets. This chapter commences with general background information on stock which contains the definitions of stock and stock control, the components of stock, the reasons for holding stock and the features of stock control. This chapter then proceeds with a description about the supermarkets industry, the need for study, the objectives of this dissertation and the scope and limitations. Afterwards, a dissertation overview is provided by the researcher.

1.2: Background Information

Working capital is the arithmetic discrepancy between current assets and current liabilities. Current assets are items which are held by a business with the goal of converting them into money within the near future, whereas current liabilities are short-term obligations which are likely to be paid within one year (Hill, 2013). Current assets consist of stocks, debtors, bank, short-term investments, prepayments and cash, while current liabilities include creditors, accruals, short-term borrowings and others creditors within one year. It is very crucial for businesses to have positive working capital as otherwise it will indicate liquidity problems. Very often, those companies which have large working capital are likely to do well since they can enlarge and improve their activities. The main objective of working capital is to make sure that businesses are capable to carry on their operations and they have sufficient cash flow available to cover their short-term obligations and future operating expenses. Good management of working capital generates cash and it assists in decreasing risk and getting more profits (Pike and Neal, 2009). For this dissertation, the researcher is going to focus on one of the main elements of working capital, that is stock, which is often the most material item.
Nowadays, the British term ‘Stock’ and American term ‘Inventory’ is being used interchangeably. However, they could mean two different things. Waters (2003, p.4) states that “stock consists of all the goods and materials stored by an organization”, while “inventory is a list of the items held in stock”. For the purposes of this dissertation these terms are going to be used interchangeably.

According to the International Accounting Standard 2 (IAS 2):

“Inventories are assets:
- held for sale in the ordinary course of business;
- in the process of production for such sale; or
- in the form of materials or supplies to be consumed in the production process or in the rendering of services.”

(IFRS, 2003: IAS 2: para 6)

Stock consists of items which are acquired from suppliers but are not used immediately. When suppliers deliver goods to retailers, these are placed in the stores department. As soon as these items are needed, they are put on shelves to meet customer’s demand or transferred to production for further processing. When there is not enough stock available in the stores department to put on shelves, an order is made by the purchase department to suppliers. This process of stock replenishment is done continuously and it is referred to as stock cycle (Waters, 2003).

Stock is made up of five main components, which consist of raw materials, work-in-progress, finished goods, spare parts and consumables (Muller, 2003). The different types of stock being held in a business depend upon the activities which are carried out. Muller (2003, p.20) argues that “distribution businesses tend to carry mostly finished goods for resale while manufacturing companies tend to have less finished goods and more raw
Chapter 1: Introduction

*materials and work in progress*. In the retail environment it is very reasonable to find only finished goods which are purchased and held for sale to customers (Williams, Haka and Bettner, 2005). Lucey (1996) stated that there are various reasons why firms need to hold stock. These include:

- to ensure that an adequate amount of stocks are available to satisfy current demand;
- to allow for fluctuations in demand and production;
- to take advantage of price discounts on large orders;
- to cover for emergencies;
- to act as a cushion against price increases;
- to lower ordering costs; and
- to permit production processes flow smoothly without interruptions.

An alternative to Lucey (1996), Drury (2008) provided three main reasons why it is important to keep inventory. These are: (1) transactions motive, (2) precautionary motive and (3) speculative motive. Transactions motive occurs at any time when there is an obligation to keep adequate stocks to meet production and sales requirement. A business is profitable as long it has customers on the other end. A firm’s job is to retain its present customers and attract new ones. In order to do this, the firm must meet the customers’ demand quickly or otherwise it may lose them to a rival. Precautionary motive is when a firm holds extra inventory to cover for any uncertain future demand. Speculative motive is when it is expected that future prices of products may change. As the prices of products tend to increase over time, firms tend to buy in a larger quantity in order to benefit from any future inflation (Drury, 2008).
Chapter 1: Introduction

Olowe (1997) believes that if products are always available in stock, customers are not going to buy goods from somewhere else. On the other hand, if the items are out-of-stock, customers have two options, either to wait until the product is in stock again or else to go and buy elsewhere. The latter would result in loss of customer’s goodwill and it is unfavourable for businesses.

Stock is a key element of the annual cost of sales computation and it is very essential that this figure is entered correctly in the accounts as it affects the income statement and the statement of financial position of the company. Accurate stock records are considered to be one of the building blocks for a stable stock control system and production planning (Backes, 1980). An increase in closing stock results in a decrease in the cost of sales figure and thus, it increases profits. On the other hand, a decrease in closing stock would increase the cost of sales number and consequently it decreases profits. It also affects the amount of tax to be paid (Pong and Falconer, 2012).

Inventory is one of the largest investment of any company representing as much as 40% of total invested capital. Thus, it requires firms to keep an adequate inventory control system so that it lessens the occurrence of loss and wastage in the company (Hsieh and Kleiner, 1992). Inventory control is defined by the Institute of Company Secretaries of India (ICSI 2013, p.42) as being “the systematic control and regulation of purchase, storage and usage of materials in such a way as to maintain an even flow of production and at the same time avoiding excessive investment in materials”.

According to Kumar and Suresh (2008), it involves:

- Ensuring that the right types of products required for production, sale and distribution are currently in the stores when needed;
- Ensuring that inventory is issued using the correct sequence;
- Maintaining accurate records of any movement of items into and out of the store;
- Ensuring that correct stock levels are set for all items;
- Monitoring the stock levels on a continuous basis;
- Measuring stock to ensure that stock records agree with actual stock being held in the stores; and
- Pricing and valuing the items in the store.

### 1.3: The Supermarkets Industry

The supermarket industry is an extremely competitive industry in which a number of companies compete among each other to give the widest selection of products at the lowest possible prices (Ellickson, 2011). In the past people used to go to: (i) a butcher to buy meat, (ii) a fishmonger to buy fish, (iii) a baker to buy bread and (iv) a vegetable stand to buy produce. Nowadays, all these items can easily be found in a supermarket. The invention of the shopping cart and shopping basket helps customers to carry out items before they arrive at the cash point. It also enables customers to buy in bulk.

Supermarkets deal with various items to let customers meet up their different tastes and preferences. It is very hard to maintain accurate inventory records and meet customer desires efficiently if stock is not appropriately synchronised and matched with an effective inventory system (Wanjohi, Mugo and Wagoki, 2013). For an efficient procurement and supply of goods and services inside and outside of the supermarket, it is essential to use a
Chapter 1: Introduction

computerised inventory system “to appropriately match demand and supply forces and be competitive in the market at the lowest possible cost” (Wanjohi, Mugo and Wagoki, 2013, p.47). To maintain an effective inventory management, Lee and Kleiner (2001, p.40) argued that “retailers should understand customer needs, vendor partnerships, technology, data integrity and performance measurements”.

The rate of consumer consumption by the Maltese and Gozitan families has been increasing by a rate of 5.1% each year for the last 15 years. This is a higher rate compared to the preceding 15 years where it averaged 1.7% (Economic Policy Department Ministry for Finance, 2014a). Published statistics show that the Maltese economy registered a gross domestic product (GDP) growth rate of 3.5% in 2014 (Economic Policy Department Ministry for Finance, 2014b). The gross value added (GVA) at basic prices in the wholesale and retail industry, has risen by 3.8% during the first six months of the year 2014, when compared to the same period in 2013. Moreover, the increase of 582 jobs in the retail sector, during the period between June 2013 and May 2014, is an additional evidence of the positive growth development in retail trade (Economic Policy Department Ministry for Finance, 2014c).

1.4: The Need for Study

Firms invest a portion of their capital on their fixed and current assets. The largest portion which is invested on current assets is inventory and thus, it requires for efficient management (Bose, 2006). In the past, several studies were carried out on inventory management with reference to the manufacturing industry (Ellul, 2004; Cauchi 2013), retail industry (Farrugia, 2004; Darmanin 2005) and service industry (Caruana, 2004; Gauci, 2007). However, none of the studies done on the retail industry tackled the aspect of inventory control from the perspective of supermarkets. Since supermarkets deal with
a large range of products, they need to have an efficient stock control system in place to be able to monitor each item held in stock (Il-Woon and Sadhwani, 1991). Some items which supermarkets hold in stock have short shelf-life and if no proper controls are carried out on these items, the shelves of the supermarkets will contain obsolete items and customers will be disappointed with the products available for sale. This research will give a better understanding of the procedures involved and the techniques used in managing and valuing stock in a supermarket. While evaluating the present situation of stock control, this study will also attempt to identify the process which is used by supermarkets to carry out stock-taking as well as determining the internal controls which are used by supermarkets to avoid theft or fraud and suggest ideas on the improvement of stock control.

1.5: The Objectives of the Study

The objectives of this dissertation are:

1) To determine the procedures of the stores, accounting and finance function in relation to stock control;

2) To identify and evaluate the techniques which are being used by Maltese supermarkets for controlling and valuing inventory;

3) To identify those procedures that are used by Maltese supermarkets to carry out stock-taking; and

4) To determine the internal controls which are used by Maltese supermarkets to prevent theft or fraud.
1.6: Scope and Limitations of Study

The purpose of this study is to assess the stock control function of those Maltese supermarkets which employ more than 15 employees. This number was chosen to differentiate between small and large supermarkets. This study was restricted only to large supermarkets. The limitations of this study are the small number of participants and the secrecy of internal data by certain supermarkets. Nowadays, companies are very sensitive about their internal data and this demonstrated to be a barrier to the researcher’s study.

1.7: Dissertation Overview

This section illustrates the structure of the research study. As shown in figure 1 below, this dissertation is divided into five main chapters and hereunder there is a summary of these chapters.

Figure 1: Dissertation Outline
Chapter 1: Introduction

- Chapter 1 has introduced the topic of stock control by providing some background information on the subject which includes the definitions of stock and stock control, types of stock and reasons for holding stock. It then proceeded with other subheadings including the supermarkets industry, the need for study, the objectives, scope and limitations of study.

- Chapter 2 presents a comprehensive review of the literature related to stock control which includes the stores function, accounts and finance function, techniques of stock control, valuation of inventory, stock-taking, stock recording system, protection of inventory and past local research concerning stock control.

- Chapter 3 gives an exhaustive description of the research methodology adopted for this study to reach the objectives that were stated in chapter 1. This chapter also provides information about the research instrument which is used to gather primary data, limitations of the methodology along with the research process which comprises an examination of literature, practical research and data analysis.

- Chapter 4 deals with the findings which have emerged from this study and a discussion on each finding is subsequently provided by the researcher.

- Chapter 5 concludes the dissertation by providing a summary of the key findings of the study together with conclusions and recommendations. Finally, this chapter finishes off by suggesting areas for further research.
Chapter 2: Literature Review
2.1: Introduction

In this chapter, the characteristics of inventory management are discussed in further detail. This section starts off by explaining the stores, accounting and finance functions. Afterwards, a description about the different types of inventory costs is provided. This chapter proceeds by discussing the different types of stock control techniques which one can use to manage and value inventory. Other aspects which are going to be covered in this section include stock-taking, valuation of inventory, stock recording systems, manual and computerised stock control systems, protection of inventory and past local research relating to stock control.

2.2: Stores Function

A store is considered to be the place where goods are held for future use (Chitale and Gupta, 2011). Every item of stock spends an amount of time in the stores department before it is moved to the shelves of the retail outlet. This depends a lot on the demand for the product. If demand is steady, then stock spends a very short time in the stores. On the other hand, if the demand is unknown, some stock may stay there for quite some time. Firms must make sure that proper controls are done on stock so that there are no damaged and obsolete products in the stores department (Jessop and Morrison, 1987).
Some of activities which are carried out at the stores department were highlighted by Waters (2003). These consist of:

- receiving merchandise from suppliers;
- recording all items received on a goods received note (GRN) and match them with the purchase order (PO);
- unloading materials from delivery vehicles;
- doing adequate checks on the conditions and quality of products;
- labelling products so that they can be easily found and controlled;
- sorting materials as required;
- holding goods in stock until needed;
- moving products from the stores department to the shelf when necessary; and
- controlling all communications and related systems.

The stores function is made up of three main areas: Purchasing, Receiving and Issuing. Rigorous controls must be present in all three areas to ensure the integrity of inventory (ICSI, 2013).

### 2.2.1: The Purchasing Function

When stock of certain items reaches the re-order point, the storekeeper fills a purchase requisition (Lal, 2007). A purchase requisition is a signed application issued by the storekeeper to notify the purchasing department of items it needs to order and their quantity (Kumar and Suresh, 2008). The purchase department would then issue a PO which is an instruction in writing issued to the selected supplier for the supply of the new merchandise. The PO normally includes the quantities and prices of each item ordered, any discounts if they are given, delivery and payment terms along with other associated
terms and conditions. Copies of the purchase requisition and the PO are sent to the accounts department to be used in checking the supplier’s invoice when a voucher is being prepared for payment (Lal, 2007).

There must be a close coordinated relationship between the stores and the purchase department as they rely on each other. The stores department must provide timely information as regards to stock levels to the purchasing department so that they will not end up with excessive or low inventory in the stores. On the other hand, the stores department depends on the purchase department as to what items they buy, how much they purchase and from whom (Chitale and Gupta, 2011).

2.2.2: Receipt and Inspection

The receiving department executes the task of unloading and unpacking materials from the supplier’s vehicle. When new merchandise arrives at the stores, the storekeeper has an obligation to check carefully the conditions of these goods being received. An inspection report is then made by the storekeeper where each item of stock received is classified as being either accepted or rejected with reasons. If the items received are returned back to the seller for any reason, then a credit note is issued by the seller to completely reimburse the buyer. Afterwards, a GRN is issued summarising all items received. This must be in agreement with the quantity of the PO. If these two documents match, then the invoice is paid to the supplier by the finance department. Otherwise, the payment is withheld (Lal, 2007). Lal (2007, p.70) stated that “copies of the receiving report along with the inspection report are sent to various departments like purchase, stores, accounts department and costing department”.

2.2.3: Issuing and Dispatch

The purchasing department must regularly check the quantity of the items held on shelves and in stores to verify whether there are sufficient products available to satisfy customer’s demand. If there is not enough stock on the shelves, some items from the stores department need to be issued. Normally, the First-In First-Out (FIFO) method is used when issuing stock so that the firms do not end up with obsolete inventory later on. Before goods are withdrawn from the stores department, there must be an adequate level of authorisation. This can takes place under three forms: (1) a signed document, (2) a verbal instruction or (3) a routine arrangement. In some cases, an acceptable approach is to limit the authority of different levels of management within certain financial limits. This would lower the possibility of misappropriation of assets from happening and in certain situations it is used as a safeguard against fraud (Jessop and Morrison, 1987). This function should be completed properly and all issues should be accurately recorded (ICSI, 2013).

2.3: The Role of the Accounting and Finance Function

The American Institute of Certified Public Accountants (AICPA) describes accounting as being “the art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events, which are, in part at least, of a financial character and interpreting the results thereof” (Banerjee and Bhattacharyya, 2008, p.1). The accounting department has four main functions to perform. These consist of: maintaining systematic documentation of business transactions, protecting the interests and the assets of the company, communicating results to all the users of financial statements such as creditors, government and shareholders and meeting all legal requirements (Banerjee and Bhattacharyya, 2008).
During the financial year, accountants prepare and present to a company’s management a set of management accounts summarising essential accounting information. These comprise cash flow, balance sheet along with income statements and are normally prepared on a weekly or fortnightly basis. These are referred to as non-audited financial statements and there is no specific format for these accounts. The main objective of management accounts is to offer up-to-date information to managers to help them make short-term decisions. There is no legal obligation to prepare management accounts. Alternatively, audited financial statements are prepared annually. The format of these financial statements is established by company law along with the accounting standards. The level of detail that is required in these accounts depends on the company’s size (Sahaf, 2009). If a company does not have an accounting department, these functions can be outsourced. However, this depends heavily on the size of the firm (Bailey and Gaulin, 2001).

On the other hand, the finance department is responsible to provide investment and financial decisions on a timely basis. Investment decisions refer to those decisions required to obtain new assets, while financial decisions deal with the problem of establishing the amount of capital needed to finance the firm’s operations, both current and projected, and to determine the best mix of financing (Pike and Neale, 2009). Nowadays, many sellers are providing businesses the option to settle on credit other than the cash basis option. The difference between the two is that on a cash basis, the payment is done upon the delivery of the goods, while credit basis refers to the agreement made by the company and the seller to settle the payment at a later date. The average payment period refers to the time taken by the company to reimburse its creditors. If the payment period is low, it is good for the company’s liquidity as the company is able to settle the payment in a few days and consequently it can get more amount of credit purchase. Conversely, if the average payment period is high, it might have a negative effect on the
company’s liquidity image as it might show that the company does not have enough money to settle the payment immediately (Groppelli and Nikbakht, 2006). A firm can raise new funds from various sources. Some examples of sources of finance include internally generated funds, retained profits, bank overdraft and loan capital. These are summarised in table 1 below.

<table>
<thead>
<tr>
<th>Sources of Finance</th>
<th>Description</th>
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<tbody>
<tr>
<td>1. Internally generated funds</td>
<td>It refers to those funds realised through the firm’s operations and are accessible for capital investment (Fonseka, Yang and Tian, 2013).</td>
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<tr>
<td>2. Retained Profits</td>
<td>It indicates that portion of income that has not been distributed to shareholders as dividends but reserved by the company to be reinvested in the business or to pay debt (Pike and Neal, 2009).</td>
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<tr>
<td>3. Bank Overdraft</td>
<td>It refers to a loan agreement under which a bank lengthen credit up to a limit against which a current account customer can write checks or make withdrawals (Rice, 2014).</td>
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<tr>
<td>4. Loan Capital</td>
<td>It refers to the borrowing of money from a financial institution which must be paid within a specified period regardless the financial position of the company (Pike and Neal, 2009).</td>
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Table 1: Sources of Finance
2.4: Inventory Costs

Inventory brings with it a number of costs which have to be considered when setting inventory levels. These include: (1) unit cost, (2) ordering costs, (3) carrying costs and (4) stock-out costs (Scarlett, 2009). “Unit cost is the price charged by suppliers for one item of stock. This can easily be found by looking at quotations or recent invoices from suppliers” (Waters, 2003, p.52). However, in some cases it can be a bit difficult to determine the unit costs. This happens when there are numerous suppliers offering substitute products or giving different purchase conditions (Waters, 2003). Ordering costs are those costs incurred in preparing and issuing POs as well as in receiving and inspecting the procured items (Horngren, Datar and Rajan, 2012). These include: (a) clerical and administrative expenses related with the purchasing, book-keeping, and receiving department, (b) transport and delivery costs and (c) where merchandise is produced within the firm, the set up costs linked with every production run (Lucey, 1996). The carrying or holding costs are those costs associated with having inventory on hand. “The most evident cost of holding stock is money tied up which is either borrowed or could be used for other purposes. Other carrying costs are due to storage space, deterioration, handling, administration and insurance” (Waters, 2003, p.52). Stock-out costs are those costs related with running out-of-stock. These costs include the following: (i) loss of reputation, (ii) loss of future sale as customers goes in another place; and (iii) loss of customer goodwill (Lucey, 1996). This type of inventory can cause serious harm to the organisation and very often firms are willing to incur a relatively lower cost of holding stock to prevent potential stock-outs (Waters, 2003).
2.5: Inventory Control

The main purpose of inventory control is to retain stock levels so that inventory costs stay at a minimum (Lucey, 1996). Inventory control is very essential in all types of businesses. If the number of inventories keeps accumulating in the stores as a result of low demand, capital is being tied up and it cannot be used for another purpose. As a result, production will suffer because of insufficient stock on hand. Stock control is also required because of three important factors being: demand fluctuations, uncertainty about lead time and avoiding over-stocking and under-stocking (Lal, 2007). The two most important questions to inventory control are: “when an order should be placed? and how much should be ordered? These questions are answered by the use of inventory models” (Kumar and Suresh, 2008, p.92).

2.6: Techniques of Stock Control

2.6.1: Use of Stock Levels

One approach to accomplish inventory control is to set a number of pre-determined stock levels. The four main types of stock levels are: (1) maximum stock level, (2) minimum stock level, (3) danger level and (4) re-order level. The maximum stock level is the level beyond which stocks should not normally go up. The factors which are taken into consideration when setting maximum stock level are: storage space available, capital expenditure, storage along with insurance costs, the consumption rate of materials, the time required to acquire fresh supply, the Economic Order Quantity (EOQ), the price of storage and government restriction. The opposite of maximum stock level is minimum stock level. It refers to the level beneath which stocks should not normally go down. The
factors which are taken into consideration when setting minimum stock level are: the consumption rate of materials, the production constraint, the time required to acquire fresh supply and the smallest amount of quantity that could be purchased (ICSI, 2013).

Danger or Safety level is the amount of stock which firms keep to avoid stock-outs. Normally this level of stock is between the minimum stock level and zero stock. However, in certain instances this number is fixed above the minimum stock level. This depends upon the policy of the organisation. Usually, when the safety level is reached, the storekeeper issues a PO. The Re-Order level is the level of stock at which a company should order more supplies. It ensures that materials are delivered on time before the minimum stock level is reached. A fixed re-order level is set for every item of stock. The three factors which are essentially important when setting the re-order level are: the rate of consumption, the minimum stock level and the lead time (ICSI, 2013). Lead Time is the time elapsed between ordering the goods and their receipt (CIMA, 2005). Normally, companies keep an amount of stock between the minimum stock level and the maximum stock level. Firms are unlikely to hold stocks above the maximum stock level as these are associated with high costs. It is also not likely to hold stock below the minimum stock level as this would lead to not having enough stocks to meet customer’s demand and productive schedules (Narayanappa and Aggarwal, 2013). The formulas of these four stock levels mentioned above are found in Appendix 1.
2.6.2: Stock Turnover

This is a technique used by firms to measure the number of times the funds invested in stock are being converted into sales revenue. It is computed as cost of sales divided by average stock value. The latter is taken as the average of opening and closing stock. The higher the stock turnover is, the better the performance of the firm. This ratio must be evaluated in relation to past performance of the firm, in relation of similar firms or the industry average (Water, 2003). Stock turnover is an essential measure as the capability to turn stock promptly into cash, directly affects the firm’s liquidity (Muller, 2003). Firms can examine the sales of various items of stock to discover which stock is slow moving and which merchandise is obsolete. This would help management to avoid having capital tied up on these goods. The stock turnover can also be worked out as days during the period divided by the stock turnover ratio. This ratio shows the number of days for which stock is put in custody (Lal, 2007).

2.6.3: ABC Classification

The ABC analysis which is sometimes called Pareto analysis follows the 80:20 rule. In inventory control this means that 20% of the stock value requires 80% of the attention, while the other 80% of items require 20% of the attention (Waters, 2003). The items that are kept by firms in stock have all different value. In order to ensure that proper controls are made on all items especially on the most expensive ones, inventory items are ranked into 3 classes (class A, class B and class C) according to investments in each item in the inventory (Lal, 2007). By doing so, the control attention would be concentrated on the relatively small number of units that account for most value (Lucey, 1996). The class A items are the ones which need particular attention as they are the most expensive items.
in stock followed by class B items. The class C items require little attention as they consist of cheap items (Waters, 2003).

2.6.4: EOQ

This method of stock control helps companies to answer the question: ‘How much to order?’ The EOQ is the number of units that a firm should order each time to balance off the inventory ordering and carrying costs. These two types of inventory costs have a negative relationship. As the re-order quantity rises, the inventory carrying cost goes up while the ordering cost goes down. On the other hand, when the re-order quantity falls, the inventory carrying cost goes down while the ordering cost goes up. All businesses should strive to attain the best equilibrium between these costs in order to lessen the entire inventory cost (Kumar and Suresh, 2008).

To be able to work out a basic EOQ, Lucey (1996) claimed that certain assumptions are needed:

- That there is known, stable carrying and ordering cost;
- That the rates of demand are known exactly and constant over time;
- That there is known, stable price per unit (i.e. there are no price discounts);
- That replacement of stock is done immediately (i.e. the whole consignment is delivered at once); and
- No stock-outs are permitted.

EOQ can be determined by using either the algebraic method or the tabulation method (Horngren, Datar and Rajan, 2012). Both methods are explained further in Appendix 2 and a practical example is also given. EOQ ignores safety stock which is kept by firms to provide for variations in lead time and demand. The EOQ assumptions are quite unrealistic.
and it is unsure whether these assumptions are properly observed in practice (Ogbo and Ukpere, 2014). To respond for this statement, firms are going a step further by adjusting the EOQ formula in different ways to make it more practical. It is very important for firms to choose the EOQ formula which best suits the need of the organisation (Chhajed and Lowe, 2008).

### 2.6.5: Material Requirements Planning (MRP)

MRP is a stock control system that tries to maintain enough inventory levels to guarantee that necessary materials are at hand when needed. The two key elements of MRP are the master production schedule and the bills of materials. The master production schedule addresses what items will be created, when and in what quantities, while the bills of materials refer to the resources required to create something (Muller, 2003). MRP’s goal is to make available, purchased or company manufacturing components just before they are needed by the next stage of production or delivery (Stevenson, 2007). With the execution of MRP, the organisation will: (a) increase customers’ service and their happiness, (b) reduces inventory levels without affecting customer service, (c) improve the use of labour and services and (d) make better inventory planning (Hsieh and Kleiner, 1992).

### 2.6.6: Just-In-Time (JIT)

JIT which is also referred to as a kanban system is an inventory control technique used to give customers what they need, when it is needed and in the quantity required by using the minimum supply of people, materials and machinery. Its goals are to reduce the number of inventory stock levels to a minimum, to have products available all the time.
with no defects, to reduce lead time and to have zero set up and handling costs. In order to achieve these goals, it is necessary to have an effective material flow system, a consistent delivery system and a close relationship with vendors so that parts and materials are received on time when they are needed (Burt, Pertcarage and Pinkerton, 2010).

Those companies which make use of JIT systems benefit from various advantages. These include: (1) numerous quantity discounts, (2) less amount of time-consumed by negotiating with fewer supplies, and (3) a decrease in clerical work from issuing long-term orders to a small number of suppliers (Drury, 2008). JIT is also helping firms to utilise those areas which were previously used to store stock for something else and to reduce throughput time resulting a larger productivity and more rapidly response from people (Seal, Garrison and Noreen, 2008). This method is different from Just-in-Case as in the latter firms maintain high levels of inventory to make sure that production is not interrupted (Bindu and Ahuja, 2010).

“Manufacturing companies that use EOQ purchasing, either classical EOQ model or a variation thereof, increasingly are faced with the decision of whether or not to switch to the JIT purchasing policy”.

(Bindu and Ahuja, 2010, p.77)

Since then, manufacturing companies started to opt for JIT because the advantages of minimising stock and delivery time were considered as being larger than the expenses related with the increased probability of running out-of-stock. JIT has aided companies in becoming more effective and competitive (Bindu and Ahuja, 2010). This method of stock control is not only used in manufacturing but also in the service industry. A firm which is making use of a JIT system is McDonald’s where it has “adapted JIT production practices to make hamburgers” (Horngren, Datar and Rajan, 2012, p.716). Before, McDonalds used to cook the hamburgers in advance and then put them under the heat lamps to stay warm
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until they are requested by a customer. However, the quality of hamburgers started to deteriorate under the heat lamps the more time it passed and customers were starting to be dissatisfied with the service. Nowadays, by using an innovative bun toaster with JIT production practices, hamburgers are being cooked when ordered. This has improved stock management by decreasing the carrying and spoilage costs. It also enhanced customer’s satisfaction by increasing the quality of hamburgers. The implementation of a JIT system has also helped the Eisenhower Memorial Hospital which is situated in Palm Springs, California to diminish its stock and supplies by 90% in 18 months (Horngren, Datar and Rajan 2012).

2.6.7: Bar Codes

Bar codes are often used for stock control to track an item’s location and turnaround. An example of their usage is the Electronic Point-of-Sale (EPOS) which is mostly used in supermarkets. In these retail outlets, sales are documented by scanning a product’s barcode at the checkout tills (Lysons and Farrington, 2006). There are five types of data scanners which can be used as reading equipment. These are: (1) hand-held light pens, (2) stationary fixed beam scanners, (3) stationary moving beam scanners, (4) hand-held readers and (5) imaging array readers. These reading equipment all work on the principle of illuminating a bar code symbol and translating the reflected light pattern into an analogue signal which is then interpreted and digitally processed (Tyson and Sadhwani, 1988). Bar codes permit retailers to gather information regarding the purchasing, receiving and selling of goods and it also alerts the stores department when to re-order (Lysons and Farrington, 2006).
2.6.8: Radio Frequency Identification (RFID)

RFID is a recognition method used to pass on information from a tag to a reader equipment. It has the ability to recognize objects within a given radio frequency range through radio waves without any human intervention (Vlachos, 2014). RFID technology consists of a unique standard identification number attached to a stock item, tags, frequency, antenna, readers and data interchange. Data interchange depends upon the recovery of data stored on the RFID tags and enables data exchanged to revise the inventory and related accounting records (Parker, Bishop and Sylvestre, 2008). RFID tagging by means of handheld readers can present an efficient and easy way to maintain a constant check on inventory. It can also offer more product security by increasing the precision of the information on the movement of physical goods (Ranky, 2006).

Unlike Barcodes, RFID technology has: (1) the ability to collect constant information rather than information at a single point in time, (2) more space available on RFID tags where to store data, (3) more potential for correct readings than with the mixture of humans and bar codes and (4) potential for reducing reading and recording time as many RFID tags can be read and documented into a computer at the same time (Parker, Bishop and Sylvestre, 2008).

2.6.9: Vendor Managed Inventory (VMI)

VMI is a method of replenishment whereby the customer no longer places orders but instead shares information with the supplier by using information technology (IT) (Reddy and Vrat, 2007). This method is also known as continuous replenishment or supplier-managed inventory. In a VMI relationship, it is not the responsibility of the customer to
make stock replenishment decisions but it is passed to the supplier (Waller, Johnson and Davis, 2001). In return, the customers need to give an indication about the amount of stock levels it wishes to keep on hand. The success of VMI depends upon the collaboration between the customer and the supplier (Reddy and Vrat, 2007). The suppliers must observe carefully the buyer’s inventory levels and makes periodic resupply decisions when necessary. Customers and suppliers both derive benefits out of VMI. These refer to cost reduction and improved service (Waller, Johnson and Davis, 2001).

2.7: Valuation of Inventory

IAS 2 requires that: “Inventories shall be measured at the lower of cost and net realisable value” (IFRS, 2003, p.2). The general principle is that inventory should be measured at cost. However, it can be difficult sometimes to decide which cost should be used. This usually happens when the inventory has experienced a decrease in value due to damage, reduction in selling prices, wear and tear or obsolescence (Walker, 2009). There are three approaches that are allowed by the United States Generally Accepted Accounting Principles (US GAAP) to determine the cost of inventory. These are: (1) FIFO method, (2) Last-in, First-out (LIFO) method and (3) Weighted average (AVCO) method (Gray and Ehoff, 2013).

2.7.1: FIFO Method

FIFO method presupposes that for valuation purposes the materials received first are sold first. It uses the price of the first lot of materials bought for all issues until all units from this batch have been sold. As a result, the stock at hand at the end of the year is priced at
the latest costs (ICSI, 2013). This method is appropriate where: (1) the price and amount of raw materials units are large, (2) material is easily recognized as belonging to a specific purchased lot and (3) not more than two or three different receipts of materials are readily available at one time (Lal, 2007).

2.7.2: LIFO Method

This method is also known as the replacement cost. Under LIFO, it is assumed that an entity disposes of its newest inventory first. Hence, the stock at hand at year-end is from the earliest purchases (Waters, 2003). Since items which are bought at present cost more than the same items acquired in the past, LIFO method best matches present costs with present revenues (Muller, 2003). Although this method is permitted under the US GAAP, it is not permitted by IAS 2 (CIMA, 2005).

2.7.3: AVCO Method

Here the average cost is used. This means that after every purchase an average cost is calculated from the cost of purchases and the cost of stock. This method tries to offset the effects of price variations. It also reduces the number of calculations and gives an acceptable figure for stock. AVCO method is very simple to understand as prices are averaged and this presents valuable information for decision making. The closing inventory value for AVCO should always lie between those for LIFO and FIFO as it is an averaging method (Walker, 2009).
2.8: Stock-Taking

Inventory must be counted and valued with accuracy at the end of every financial year to figure out the company's profit or loss. Stock-taking is carried out either periodically or perpetually. The former is often conducted at the end of the financial year while the latter is conducted on a continuous basis over the whole year. Stock-taking helps in identifying any discrepancy between what is reported in the stock records and the actual stock levels (Waters, 2003).

2.9: Stock Recording Systems

Usually, firms choose to use either the periodic system or the perpetual system to account for inventory.

2.9.1: Periodic Inventory System

Under a periodic inventory system, firms perform a physical count of the inventory at specific time. During this period, a physical count of all inventories is made and the value of inventory is computed by using the FIFO, LIFO or AVCO methods (Lal, 2007). The cost of sales is determined by deducting the closing stock from the amount of the opening stock and purchases made during the present year (Kieso, Weygandt and Warfield, 2010). The annual stock-take is often used to give feedback in relation to the level of record accuracy compared with a desired goal or standard (Harrington, Lambert and Vance, 1990). The periodic inventory system provides information about stock and cost of sales only when stock is counted (Kieso, Weygandt and Warfield, 2010). Therefore, it is very difficult to identify inventory loss by using this type of inventory system because stock is not updated
on a daily basis. Since the process to carry out a physical inventory count is quite long, few firms do stock-takes more than once a year (Il-Woon and Sadhwani, 1991).

2.9.2: Perpetual Inventory System

A perpetual inventory system is defined by Owler and Brown (1970, p.672) as being “a method of recording stores balances after every receipt and issue, to facilitate regular checking and prevent the closing down of work for stock-taking”. Unlike periodic inventory system, a perpetual system provides information about stock and cost of sales on a continuous basis. It records all purchases and sales of goods immediately in the inventory account as they occur. However, this does not apply to periodic inventory system as all purchases in a periodic system are recorded in the purchases account (Kieso, Weygandt and Warfield, 2010). When talking about perpetual inventory system it is important to distinguish between cycle inventory or continuous stock-taking and perpetual inventory system. Perpetual inventory system is a system of maintaining up-to-date records while cycle counting is the physical inspection of records with actual stock. Cycle counting is only a part of perpetual inventory system. Some of the advantages which a firm benefits from when using a perpetual inventory system are: (1) the financial statements can be prepared at any time since stock records are updated continuously, (2) a system of internal check stay in use continuously, (3) avoiding the lengthy and costly process of inspecting all items of inventory at year-end and (4) any discrepancies between stock records and physical stock are recognised immediately (Arora, 2009).
2.9.3: Manual and Computerised Stock Control Systems

Any stock control system (whether manually or using computer software) must help businesses to trace stock levels, place orders and issue stock. The easiest manual system is the stock card where it enables a business to maintain a documentation of collected stock and issued stock. It can be used in conjunction with a simple re-order system where it gives an indication when one has to order stock (Trenerry, 1999). An alternative way of how to track inventory is through the use of computer systems. The computer has the ability to receive, store and process information at high speed and with a high level of precision. It can also perform calculations, evaluate records and present data which can be useful for decision making. It is a powerful tool used for materials management where large amounts of buying and storage items are dealt with (Arnold, Chapman and Clive, 2008).

The computer offer several benefits. These include: (1) more accurate and reliable information is achieved as calculations are done by a computer, (2) doing accounting less time consuming as invoices are processed automatically, (3) making the process of setting up accounts quicker so that statements and reports are produced instantaneously at the click of a button, (4) decrease in safety stock levels and (5) better interactions with other departments (Romano, 2013). All data relating to stock control during the issuing and receiving of goods is matched against the computer records and the balancing figure is calculated automatically. The use of a computer also helps companies to avoid stock-outs by making orders themselves and issue a purchase requisition when the re-order level is reached (Firewall Media, 2006).
Bhatia (2008) argues that retailers are more likely to use a computerised system to improve stock control. As they require timely information on the sales figure, it is necessary for them to use EPOS machinery. Computerised systems do not only keep up-to-date stock records but they can also identify any slow moving items and provide instant reports on any outstanding orders (Bhatia, 2008). Stock recording systems must contain a record which lists down the items held in stock and a good location system so that items can simply be traced. It is essential for companies to make sure that these recording systems are kept updated automatically and reflect the actual view of the present situation as decisions regarding stock levels depends on stock records (Wild, 2012).

The software used for computerised systems can either be developed in-house or outsourced. Although many companies are choosing the option to outsource the software, there are still companies like Wal-Mart and Eli Lilly which are using an in-house system. The main difference between these two terms is that in-house developed software is a programme which is developed by people who are employed in the firm while outsourcing involves the purchase of software which is not made in-house (Wild, 2012). Outsourcing software is made up of two types being tailor-made and off-the-shelf software. The main difference between the two is that tailor-made software is a programme which is developed for specific organisation for a specific purpose while off-the-shelf software is a programme which is developed by professional programmers and is made available for sale such as Microsoft Office. Tailored-made software is created for large computer systems such as insurance companies and banks and these are more costly when compared to off-the-shelf software. Although off-the-shelf software is cheaper, it offers the same amount of functionality and firms can easily seek help on how to use the software on the World Wide Web (Hardcastle, 2008).
Three types of stock management software which are used nowadays by retailers include:

- **Microsoft Dynamics Retail Management System (Microsoft Dynamics RMS)**

  Microsoft Dynamics RMS gives retailers an entire EPOS solution that can be tailored to meet specific business requirements. It automates EPOS procedures and store operations. Furthermore, this software provides sophisticated functionality such as multidimensional inventory management, advanced procurement, receivables management and modified reporting (Microsoft, 2014).

- **E-shop**

  E-shop provides retailers with tools and procedures that one needs to make effective decisions in regards to stock management, purchasing and control costs. This software has been created to offer rigid integration of product management, EPOS, procurement, warehouse management, sales management, store management, head office control and business reporting. E-shop helps retailers to ease the process of stock replenishment to perform in line with forecasted demand (Electronic Products Ltd, 2005).

- **ISL stock manager**

  ISL Stock manager software was created for businesses for managing and controlling their inventory with the use of computer. This software includes various functions in it including profit management, preparation of a PO, monitoring stock levels, monitoring items against expiry, warehouse management, and issuing reports. ISL stock manager is accessible in many versions to meet the users’ different desires (Sofotex, 2014).
2.10: Protection of Inventory

Inventory needs to be entered correctly in the accounts as it affects the income statement and the statement of financial position of the company. However, very often, a discrepancy tends to occur between stock records and the physical count of inventories. This is referred to as shrinkage. This may arise due to internal theft, damage, shoplifting, and paperwork errors and it is usually expressed as a percentage of sales. Two terms which are related to retail theft are pilferage and embezzlement. Pilferage involves employees stealing in small amounts, while embezzlement entails a breach of trust whereby employees take money or the company’s possessions and use them for personal use. Pilferage can cause more harm than embezzlement and some of the reasons why employees steal are substance abuse, excessive gambling and financial problems (Norman, 2009).

The amount of money spent on inventory each year is very large. For most organisations, the inventory account represents a large portion of the assets on the statement of financial position. Hence, adequate protection of stock is required to lower down the likelihood of theft or fraudulent financial reporting from occurring. All organisations have a duty to design and execute useful internal control policies and procedures to protect stock units bought and held in inventory (Parker, Bishop and Sylvestre, 2008). These consist of: (1) making use of RFID tags to keep track of any stock movement throughout the stores, (2) the carrying out of surprise checks on stock to make sure that it is held in good condition, stock records agree with physical stock and POs has been properly authorised, (3) having persons responsible to review work of others, (4) making use of job rotation so that any fraudulent transactions are identified immediately, (5) inspecting each item of stock received against POs and invoices, (6) doing cycle counting, (7) signing for all stocks issued from the store, (8) conducting regular management reports on stock
and (9) using adequate physical security measures such as locking doors, employing security guards, installing intrusion alarm system and Closed Circuit Television (CCTV) cameras (Needles, Powers and Crosson, 2013).

The most important internal control to avoid and identify fraud is to have segregation of duties. This means that for every transaction, a minimum number of two persons are involved and each person is held responsible for specific duty along the process. By doing so, it will help firms to reduce the risk of collusion between employees. It is very crucial to ensure that the approval function, the stores function and the accounting and reconciliation function are separated among employees. Some examples of good segregation of duties include having a person issuing a purchase requisition and another person who authorises it and having a person who issues a PO and another person who inspects the goods once they arrive in the stores (Gelinas, Dull and Wheeler, 2011).

In the retail industry, most particularly in supermarkets, inventory protection does not only deal with measures against theft or fraudulent transactions but also deal with measures against perishability. All items which are kept in stock require a certain temperature to be maintained as otherwise the items will deteriorate. For example, items such as yogurt, milk and cheese need to be placed at a cooler temperature than packets of pasta and nuts. Moreover, frozen items are maintained at a lower temperature. It is essential for supermarkets to make sure that all equipment used to maintain items at a specific temperature such as refrigerators, freezers and air-conditions works properly. This equipment requires maintenance to be carried out on a regular basis (Whitman et al, 2009).
Supermarkets’ stock is made up of a combination of long and short shelf-life products and retail shops need to ensure that all items once expired they are removed from the shelves. Another important measure which is undertaken by retailers to counter the problem of perishability is to carry out an inventory review to identify obsolete items. These are also carried out on a frequent basis (Bragg, 2004). Sometimes managers also inform stackers, who are those persons in charge of replenishing the shelves, to put those items which expire first in front of those items which expire later. This is usually done to lower the possibility of wastage. If in a business stock is uncontrolled, it would be difficult to know exactly how much stock it has and therefore it would be impossible to control it. A good system of internal control should guarantee that there is enough control in place to safeguard stock from the likelihood of theft, fraud and perishability (COSO, 2012).
2.11: Past Local Research Relating to Stock Control

There were six dissertations relating to management and stock control in the past. These were:

1. Purchasing and Stock Management – A Case Study in a Local 5-Star Hotel (Caruana, 2004);
2. An Evaluation of Stock Control in Selected Major Importers of Consumables (Farrugia, 2004);
3. The Management of Inventory Levels in the Local Manufacturing Industry- An Evaluation (Ellul, 2004);
4. Coping with Inventory Management Challenges in the Retail Fashion Industry: A Case Study (Darmanin, 2005);
5. A Comparative Study of the Stock Control Systems Installed within 5-Star Maltese Hotels (Gauci, 2007);
2.11.1: Purchasing and Stock Management – A Case Study in a Local 5-Star Hotel (Caruana, 2004)

The scope of this dissertation was to assess the internal control system and procedures in a local five star hotel and identify possible ways how the hotel can improve its current system. From this study, Caruana (2004) found that:

1. No tangible proof of quotation from suppliers was provided by the purchase manager;
2. The stock levels used by the hotel were the minimum and maximum stock level which were kept fixed throughout the year;
3. All suppliers were local and one supplier was chosen for each particular good;
4. Where possible, the purchasing manager preferred to tie up his suppliers with a contract to provide continuous supply;
5. In some circumstances, the purchase manager proceeded with POs without having sufficient signatures;
6. POs were issued to suppliers by fax;
7. There was a limitation of space especially during peak seasons in two particular stores being the main store beverage and main store food;
8. Food items packed in boxes were placed on the shelves due to time constraint;
9. As regards to placing the stock on shelves, the FIFO basis was used. New stock was usually placed after old stock especially food items;
10. After the normal operating hours, the stores were only opened if the duty manager, security officer and the person requesting the goods are all present; and
11. Stock-taking was done at the end of each month. The hotel during stock-take used to count the items found on the shelves and write down the number rather than
matching the actual physical count of stock with stock records. This was usually carried out to not leave some items out.

### 2.11.2: An Evaluation of Stock Control in Selected Major Importers of Consumables (Farrugia, 2004)

The aims of this dissertation were to identify and assess the techniques which were being used by the selected major Maltese importers for stock control, to assess the advantages and disadvantages of each stock control and to recommend any possible improvements in the current systems. The methods of stock control which were identified in this dissertation were: (1) use of stock levels, (2) EOQ, (3) use of stock turnover, (4) stock-takes, (5) use of budgets and (6) use of computers and (7) use of customer profit reports. 13 importers were selected to participate in this research. The results which were captured by Farrugia (2004) are summarised in table 2.
## Methods of Stock Control

<table>
<thead>
<tr>
<th>Methods of Stock Control</th>
<th>Number of importers who were making use of this method</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of Stock Levels</td>
<td>6</td>
<td>Other two importers made use of minimum stock level only. The other five importers did not make use of this model and focused more on physical stock movement rather than stock levels.</td>
</tr>
<tr>
<td>EOQ</td>
<td>6</td>
<td>The other seven importers did not make use of this method since demand was not stable over the years.</td>
</tr>
<tr>
<td>Use of Stock Turnover</td>
<td>5</td>
<td>Other six importers calculated the stock turnover ratio but it was not used for decision making.</td>
</tr>
<tr>
<td>Stock-Taking</td>
<td>13</td>
<td>All 13 importers made use of a perpetual inventory system. Nine importers used the FIFO method for valuing inventory while the rest made use of the weighted average method (AVCO).</td>
</tr>
<tr>
<td>Use of Budgets</td>
<td>13</td>
<td>All importers prepared sales budgets on weekly (1/13), monthly (6/13), quarterly (3/13) and semi-annually basis (1/13).</td>
</tr>
<tr>
<td>Use of Computers</td>
<td>13</td>
<td>12 importers had a stock system which was fully integrated with the accounting system.</td>
</tr>
<tr>
<td>Use of Customer Profit Reports</td>
<td>12</td>
<td>10 importers believed that a good customer relationship could help firms managing stock better and please customers at the same time.</td>
</tr>
</tbody>
</table>

*Table 2: Methods of Stock Control*
Farrugia (2004) also devoted another section in her results explaining the purchasing process, the receipt and inspection process, the storing and recording of stock movement and the issue of stock from stores of these firms. These are summarised in table 3 below.

<table>
<thead>
<tr>
<th>Process</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchasing Process</td>
<td>Only seven importers issued a purchase requisition and the rest did not issued this form since the person in charge to issue a purchase requisition was the director. As regards to PO, all importers issued a PO and a copy of POs was sent to the accounts departments. Two importers also stated that another copy was sent to the stores department.</td>
</tr>
<tr>
<td>Receipt and Inspection</td>
<td>Only nine importers used to inspect goods while being unloaded. The other four importers used to check these items before the goods were placed in the store.</td>
</tr>
<tr>
<td>GRN</td>
<td>Only 11 importers issued a GRN. The storekeeper of each importer used to make three copies of GRN, one was kept for his own records, another one to send to the accounts department and another one to be filed with the PO.</td>
</tr>
<tr>
<td>Storing and recording of stock movement</td>
<td>Only four importers assigned a fixed place for each item of stock. Two importers stated that stock was located according to its expiry date whilst another two argued that stock was placed according to whether they are fast or slow moving items. As regards to the recording of stock movement, all importers argued that there was proper segregation of duties in recording purchasing and sales.</td>
</tr>
<tr>
<td>Issue of stock from stores</td>
<td>In all firms interviewed, stock was being collected from the store by authorised employees. Stock was issued on a FIFO basis.</td>
</tr>
</tbody>
</table>

Table 3: Purchasing Process, Receipt and Inspection, Goods Received Note
2.11.3: The Management of Inventory Levels in the Local Manufacturing Industry- An Evaluation (Ellul, 2004)

In this dissertation, Ellul (2004) tried to find out and assess the extent to which local manufacturing effectively manage their inventory levels. The response rate that he got from questionnaires was 42% (64/152). The inventory control systems which were identified in this research were: (1) continuous review system with set maximum, minimum and reorder levels, (2) periodic stock reviews at predetermined time intervals (3) JIT, (4) MRP, (5) ABC classification and (6) EOQ. It was argued by Ellul (2004) that out of the first three methods, the most popular method used was the continuous review system while the least popular being the JIT system. As regards to MRP, 42.19% of respondents used an MRP system and the majority of its users were large firms who employed more than 200 employees. Regarding ABC classification, it was argued by the researcher that local companies made little distinction between different stock items. In fact, 75% of respondents said that same level of control was exercised for all stock items. Only 20.31% of respondents stated that they make use of the EOQ model. 81.25% of respondents also stated that they hold their inventory records in computerised form. Furthermore, the remaining 18.75% of respondents said that they were planning to switch to a computerised format in the near future.
2.11.4: Coping with Inventory Management Challenges in the Retail Fashion Industry: A Case Study (Darmanin, 2005)

The aim of this dissertation was to analyse and evaluate how a Maltese retail firm survives with the challenges faced by the industry giving more particular attention to stock management. One major issue which was identified by the researcher was the problem of having too much items in stock. It was argued by Darmanin (2005) that during the sales period, the firm provided huge discounts to get rid of old stock. As the environment in the retail industry tends to change from time to time, this firm had to change the way it uses to operate. Darmanin (2005) stated that the EOQ was not used by the firm since it was very difficult to determine exactly the carrying and ordering costs. Another issue which was identified by the researcher in this dissertation was the setting of inventory pricing. The firm could not charge any price since it operated in a competitive environment. The pricing technique which was adopted by the firm was the cost-plus pricing and it consisted of charging a mark up on its acquisition costs. In 2004, the company upgraded its IT system by implementing new networking system and new software to help them managing inventory better. Darmanin (2005) explained that a point of sale system was in place to maintain real time information regarding sales and stock records which would then help directors in preparing performance reports. The new software also: (1) facilitated the process of inputting data on IT system, (2) has a feature to ensure that all items orders have been received and (3) can inform directors when reaching the re-order level. The researcher also argued that budgets and management accounts were prepared on a monthly basis. A number of stock control reports were also carried out by the firm by the stock control module of IT or produced manually using a spreadsheet application program. It was concluded by Darmanin (2005) that the procedures used for stock management provided good results and credit was given to directors for their experience in managing inventory in a good way.
2.11.5: A Comparative Study of the Stock Control Systems Installed within 5-Star Maltese Hotels (Gauci, 2007)

The objectives of this dissertation were to identify the differences in the stock control systems of Maltese five star hotels and assess any advantages and disadvantages associated with such systems. Six hotels were contacted to participate in this research. Only four hotels however accepted to participate. The stock control techniques which were identified in this research were: (1) stock-takes, (2) quality control checks, (3) EOQ, (4) stock levels, (5) JIT, (6) MRP and (7) computer software. Gauci (2007) found that:

1. Stock-takes were done in all firms on regular basis. These were usually carried out monthly but sometimes these were also carried out on a weekly or fortnight basis depending on how much the management is confident about the accuracy of inventory;
2. Quality control checks were performed in all hotels. Stock was issued on a FIFO basis;
3. EOQ was not used in these hotels;
4. Maximum stock levels, minimum stock levels and reorder levels were all used by hotels;
5. Some sort of JIT was used in all hotels especially in the supply of bread and milk;
6. MRP was not used for the simple reason that hotels offer services and these cannot be stocked for later use as in this environment demand must be equal to supply; and
7. The most commonly used computer software by firms was the materials control offered by Micros Fidelios. However one firm used the food track software.
It was concluded by Gauci (2007) that the majority of local five star hotels used more or less the same type of stock control system. The study also revealed that all hotels interviewed were familiar with the importance that effective stock control has on firms.

2.11.6: An Evaluation of Stock Control at a Multi-national Manufacturing Company Operating in Malta (Cauchi, 2013)

The purpose of this dissertation was to evaluate the stock control techniques that a local company operates. The methods which were identified in this dissertation were: (1) stock-takes, (2) quality controls checks, (3) the use of stock levels, (4) EOQ, (5) MRP and (6) JIT. The actual stock control systems which this firm used were: (a) stock-takes, (b) quality control checks and (c) variances reports. The results that came out of this research are listed below:

1. Stock-takes were carried out twice a year. Once a year, the stocks were audited by the external auditor. The FIFO method was used to value inventory. When asked whether it like to have over stocking or under stocking, the firm preferred having over stocking of items as under stocking can lead to loss of future sales;

2. There were five types of random checks performed each year. These were carried out by the warehouse supervisor, the quality assurance department, the external client, the supplier of spare parts and the external auditor. Checks on high valued items were performed more frequently than other stock; and

3. Variances reports were done on a daily basis to ensure that there was no discrepancy between the stock records and the actual inventory held in the store.
2.12: Conclusion

Inventory control is very important for every type of business and their owners need to make sure that an efficient inventory control system is in place to reduce the risk of having a stock-out situation or over stocking. Any unnecessary costs might also be avoided. This chapter has dealt with all fundamentals of inventory management. An examination of existing literature relating to stock control has been provided by the researcher. The areas which were discussed in further detail were the stores function, accounting and finance function, types of inventory costs, techniques used of stock control, stock-taking, valuation of inventory, stock recording systems, manual and computerised stock control systems, protection of inventory and past local research relating to stock control. The next chapter deals with the research methodology utilised by the researcher to carry out this study.
Chapter 3: Research Methodology
3.1: Introduction

This chapter provides a detailed description of the research methodology adopted for this study. Section 3.2 deals with some key definitions relating to research methodology and the choice of methodology. The research process is then explained in detail in sections 3.3. Afterwards, in section 3.4 an overview of this chapter is given.

3.2: Research Methodology Definitions

According to Neville (2007, p.1) research is “a process of enquiry and investigation”. Research can either be qualitative or quantitative. This choice depends on what the researcher is trying to find out. If the researcher wants to explore in depth the attitudes or behaviour of people, one would go for qualitative research. On the other hand, if the researcher wants ones research to be based on collecting and analysing numerical data, then one would go for quantitative research. Quantitative research reaches many more individuals than qualitative research but the contact with the people is very low (Dawson, 2002). Information can either be obtained from field research or desk research. The information which is collected from field research is called primary data while information which is obtained from desk research is called secondary data. The difference between the two is that secondary data is information which is already made available by somebody else such as written, non-written materials and survey data while primary data is information which is gathered during the time under study (Armstrong and Kotler, 2008). Both primary and secondary data provide reliable information. However, primary data is more costly to produce and it is also time-consuming since information needs to be gathered from scratch (Walliman, 2011).
One way of how one can obtain primary data is through face-to-face interviews. These interviews involve one-to-one meetings between two persons, being the interviewer who is the individual asking questions and the interviewee who is the individual answering questions. There are three types of face-to-face interviews which one can use to collect data. These are structured, semi-structured and unstructured interviews. In structured interviews, a set of questions are read in chronological order from a questionnaire to the interviewee and then answers are written down. Semi-structured interviews involve having the interviewer who asks questions to the interviewee like structured interviews with a difference that certain questions may be added or opted out to maintain the flow of the conversation. Unstructured interviews involve an informal conversation between the interviewer and the interviewee to explore in detail a particular topic (Saunders, Lewis and Thornhill, 2009).

3.2.1: Reasons for Choice of Methodology

In this study, since the population which was being studied was not very large and in order to gain in depth information regarding inventory management, a qualitative approach was used. This approach was also seemed to be the best approach to reach the objectives stated in chapter 1. The research instrument used for this study was semi-structured interviews. This involved the researcher asking a set of questions about aspects of stock management to various managers, directors, accountants and financial controllers. In some situations, there were questions which were not asked by the researcher while in other circumstances, other questions were added to maintain the flow of the conversation (Saunders, Lewis and Thornhill, 2009). In some interviews, the order of questions was varied as well.
3.3: The Research Process

Research process is defined by Kothari (2004, p.10) as consisting of “series of actions or steps necessary to effectively carry out research and the desired sequencing of these steps”. The research process of this dissertation was carried out in the following steps: an examination of literature, practical research and data analysis.

3.3.1: Examination of Literature

It was essential to start the research process by obtaining an understanding of the area that was going to be studied. As a result, secondary data was used to carry out an examination of existing literature on the subject. The two main sources which were used for the literature review were the World Wide Web where a number of articles, journals, surveys and electronic books were used by the researcher together with books and past dissertations which were located at the library of the University Of Malta. After having analysed all the theoretical part of the subject, the next step was to evaluate the local situation.

3.3.2: Practical Research

A list of all Maltese supermarkets which operate in Malta and Gozo was obtained by the researcher from the yellow pages. The researcher went to visit quite a number of these supermarkets to ask them to participate in the research. Electronic mails (e-mails) and telephone conversations were also used in this process. Afterwards, those participants who accepted to take an interview were interviewed at a later date.
The interview schedule was divided into eight sections with a set of questions attached to each section. In the first area of the interview schedule, the researcher had the opportunity to gather short background information about the supermarket. This comprises the years of operation, number of employees, the number of branches and the types of stocks that were found in the establishment. The second section was about the stores function. In this area, the interviewee was asked questions concerning the purchasing process, receipt and inspection, and the issuing of stock. The third section dealt with the role of the accounting and finance function in the supermarket. In this section, the interviewee was asked questions relating to financial statements, stock data, management reports, average payment period and sources of finance. The next part of the interview schedule covered the techniques which were used for stock control. Questions relating to excessive stock, stock-out and stock turnover were also discussed. The fifth area dealt with the relationship between the supermarket and its suppliers. Several questions were asked to the interviewee regarding its main suppliers to assess their performance and the procedure used for placing orders. The sixth section proceeded by talking about stock takes. The interviewee was requested to give a detailed description regarding the stock takes which were carried out in the supermarkets. The next area covered the stock recording system where the interviewee was asked on whether a computerised system was in place. Any IT issues relating to stock control were also discussed. The eighth and final section of the interview schedule dealt with the security of inventory where the interviewee explained how supermarkets monitored the expiry of products and what controls were used to prevent pilferage and deterioration. The questions which were asked in the interview schedule were all based on the examination of the literature of the dissertation, set out in chapter 2. The interview schedule was used to ensure that all important questions were asked. The questions found on the interview schedule consisted mainly of open-ended questions and a few closed-ended questions. A copy of the interview questions is available in Appendix 3.
After the formulation of the interview schedule, a number of semi-structured interviews with managers, directors, accountants and financial controllers employed in the same supermarkets were carried out in order to collect detailed information for the dissertation. This was also done in order to gather different point of views from respondents. The interviews were conducted in the months of October and November in 2014 and in the months of February and March in 2015. At each interview, the researcher provided a covering letter signed by the tutor on behalf of the University of Malta to assure respondents that the information gathered from the interviews was only going to be used for the purpose of writing the dissertation. A copy of the covering letter is available in Appendix 4.

The interviews took place at the respondent’s office and these lasted between 20 to 50 minutes each to complete. Given that the bulk of the interview schedule was based on open-ended questions, it enabled respondents to freely express their opinion by not restricting them to discuss other issues. Since the majority of all those interviewed have been working in this environment for a quite number of years, they were able to provide practical examples to sustain their arguments. In all interviews, the respondents allowed tape recording of the interview. This helped the researcher not to lose focus and understand better what the respondent was saying. In those situations where the respondents were unable to answer certain questions, further interviews with other members of the supermarkets were conducted to answer these questions.

In doing this dissertation, the researcher came across various limitations. One of the limitations encountered during this research was the fact that in some circumstances, respondents were unable to answer certain questions due to confidentiality issues. Another limitation which was met by the researcher was the fact that due to time constraints or availability of respondents, in some instances only one interview was
carried out with a particular supermarket. However, to counter this limitation, the researcher asked respondents whether it was possible for them to answer the interview questions via e-mail. The answers of those respondents who accepted was also sent by e-mail.

For this study, 11 supermarkets were interviewed and a total of 14 interviews were carried out. Out of 14 interviews:

- Five interviews were conducted with the directors of supermarkets;
- Four interviews were carried out with the managers of supermarkets;
- Four interviews were set up with the accountants; and
- One interview was conducted with a financial controller.

All respondents were knowledgeable about the stock control systems which are in place in the supermarkets. The information regarding the supermarkets and its respondents is presented in table 4.
<table>
<thead>
<tr>
<th>Names of Supermarkets</th>
<th>Position of Respondent</th>
<th>Position of other Respondent (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermarket A</td>
<td>Director A</td>
<td></td>
</tr>
<tr>
<td>Supermarket B</td>
<td>General Manager B</td>
<td></td>
</tr>
<tr>
<td>Supermarket C</td>
<td>Accountant C</td>
<td></td>
</tr>
<tr>
<td>Supermarket D</td>
<td>Supermarket Manager D</td>
<td></td>
</tr>
<tr>
<td>Supermarket E</td>
<td>Director E</td>
<td>Accountant E</td>
</tr>
<tr>
<td>Supermarket F</td>
<td>Director F</td>
<td>Financial Controller F</td>
</tr>
<tr>
<td>Supermarket G</td>
<td>General Manager G</td>
<td>Director G</td>
</tr>
<tr>
<td>Supermarket H</td>
<td>Director H</td>
<td></td>
</tr>
<tr>
<td>Supermarket I</td>
<td>Accountant I</td>
<td></td>
</tr>
<tr>
<td>Supermarket J</td>
<td>Accountant J</td>
<td></td>
</tr>
<tr>
<td>Supermarket K</td>
<td>General Manager K</td>
<td></td>
</tr>
</tbody>
</table>

*Table 4: Details of Respondents*
3.3.3: Data Analysis

The responses to the personal semi-structured interviews were then transcribed. The information obtained from respondents was analysed through the use of coding and a discussion on these findings was carried out in chapter 4. Coding consisted of classifying the most relevant aspects of each interview under a number of categories or labels. From these labels, emerging concepts then started to form up. Each supermarket was assigned a letter from the alphabet to protect its identity and to maintain confidentiality. From one interview to the next, the researcher noted that new as well as repeated data was being collected. This enabled the researcher to develop further ones arguments. The researcher has stopped collecting data when it was noticed that further interviews were not generating new ideas and all data which was being gathered from the inclusion of additional participants was of a repetitive nature (MacDonald and Headlam, 2009). Afterwards, the researcher has drawn conclusions and provided some recommendations on the basis of the research findings.

3.4: Conclusion

This chapter has covered the research methodology used by the researcher in carrying out this dissertation. Some important definitions relating to this chapter were provided in section 3.2 in order to help the reader understand their meaning. The reason for choosing qualitative research was also provided in this section. Then, section 3.3 dealt with the research process into further detail. This was subdivided into three main areas namely examination of literature, practical research and data analysis. The limitations of such methodology were also explained in this chapter. The next chapter deals with the findings which have come out from this study and a discussion on the findings is subsequently provided.
Chapter 4: Findings and Discussion
4.1: Introduction

This chapter presents the findings and discussion of this research. It has been divided into subsections to reflect the areas which were covered in the interview schedule. Within each subsection, the analysis starts with the presentation of the findings reflecting the results which came out from the interviews. Afterwards at the end of each subsection, a discussion from the researcher is provided to analyse, comment and evaluate these findings.

4.2: Introductory Remarks

In this chapter the terms ‘delivery person’ and ‘suppliers’ sales person’ are going to refer to the same person since the person in charge to place the order is the one who normally delivers the order. Moreover, the term ‘divisions’ is going to refer to the sections of the supermarket which includes deli, bakery, butcher, fishmonger, dairy, fruit and vegetables, health and beauty care, household, detergents, frozen, packaging products and beverages (both alcoholic and non alcoholic). Alternatively, the term ‘branches’ is going to refer to the retail outlets of the supermarkets.

4.3: Background Information

The supermarkets which were interviewed have been in operation for a number of years as illustrated in figure 2. The types of stock which are found in these supermarkets are all finished goods since supermarkets deal with consumables. The majority of products are bought on a sale and return basis in every supermarket. Each supermarket is divided into
various divisions with a range of products associated to each division. All supermarkets have stores department where to store short and long shelf-life products. Short shelf-life products are placed in the fridges and freezers while long shelf-life products are placed on the pallets or on the shelves of the stores. However, the stores department of one supermarket does not have any refrigeration equipment since all products have long shelf-life.

Furthermore, since the stock recording system is computerised and fridges and freezers along with cash points require electricity to work, every supermarket makes use of a generator to ensure that there is no breakdown in the system during a power cut situation. As regards to the opening hours, there are two supermarkets which open every day, another four supermarkets which operate six days for every week except Sundays.
and there are five supermarkets which open five times a week except Thursdays and Sundays. However, those supermarkets which open on Sunday open only for four hours.

Figure 3: Company Respondents by Size
Figure 4: Company Respondents by Size

Figure 3 and figure 4 illustrate the replies received by company size, which is defined in terms of the number of employees and the number of branches respectively. From Figure 2, Figure 3 and Figure 4, it was established that the majority of supermarkets: a) have been in operation for less than twenty years, b) employ between 16 and 45 employees and c) have more than one branch.
4.4: Stores Function

4.4.1: Issuing and Authorisation of a PO

In five supermarkets, the purchasing manager issues a PO. The IT system enables this person to enter into each supplier account and see what items are left in the supermarket and place an order accordingly. Conversely, in a different supermarket, there are two persons who are employed in the purchasing department and who are responsible to issue and authorise a PO when due. One respondent said:

“In the past the orders were usually placed by the suppliers’ sales persons themselves. However what was happening was that rather than selling the amount which was required by the supermarket, they were selling more stock than the supermarket actually needed to earn a commission and as a result the supermarket was experiencing over stock and incurs more expenses”. (Accountant C)

On the other hand, in two different supermarkets, as soon as the amount held in stock reaches the re-order point, the IT system informs the purchasing manager about the quantity which needs to be ordered to replenish stock. The purchasing manager then issues the PO based on the quantity presented by the IT system. In supermarket I, the purchasing director has six personnel, whereby each individual is assigned a particular section in the supermarket and that person needs to ensure that a PO is issued on a timely basis. In two particular supermarkets, suppliers’ sales persons are authorised by the supermarkets to go around the aisles and the stores of the branch and place the order themselves. However, in one of these supermarkets, the suppliers’ sales persons are assisted by the storekeepers to place the order together.
One respondent claimed that:

“A PO is sometimes omitted especially when dealing with existing suppliers. We only issue a PO in those situations when dealing with new suppliers or when existing suppliers tend to bring more items than necessary”.
(Supermarket Manager D)

Conversely, in eight supermarkets, POs are issued for every purchase and are sorted by suppliers. Furthermore, POs and invoices are serially pre-numbered to maintain a proper paper trail of actual purchases and to certify that all invoices are accounted for. Each respondent stated that purchase transactions are recorded in the accounts when products are received so that if the re-order quantity is not equal to the quantity delivered, the accountant will not need to reverse the double entry and adjust the accounts. As regards to the authorisation of the PO, in five supermarkets, if the amount is not substantial, the person in charge for such authorisation is the purchasing manager. On the other hand, if the amount concerned is very high, then this person needs to ask the director before authorising the PO. In another two supermarkets, even though the POs are issued by the sales persons, these are authorised by the director and the storekeepers respectively. The director can authorise any amount in a supermarket. Alternatively, supermarket D allows the storekeepers to authorise any amount and if there are any offers available in the market, the storekeepers need to consult with the supermarket manager before accepting any offers. Two other different supermarkets rely on the accuracy of the IT system and the director authorises any amount which is issued by this system. In supermarket I, regular meetings are carried out between the purchasing personnel and the purchasing director regarding any offers and changes in prices of the products. Through these meetings, the purchasing director then authorises the PO.
These findings seem to indicate that POs are not issued only by the purchasing department as stated in the literature but they are also issued by suppliers’ sales persons. The IT system is helping the purchasing managers to facilitate the process of placing an order. Nowadays technology is continuously improving and a lot of people are using computers to facilitate their day-to-day operations. Computers have a lot of advantages and if the data is correctly inputted in the system, it should give a good and an accurate result. Conversely, supermarkets should not allow suppliers’ sales persons to issue POs on their own because as stated in the above findings, there is the risk that they might place their own interest before the needs of the supermarket. The objective of the sales person might be different from that of the supermarket and as a result rather than saving costs, the supermarket ends up incurring more costs. When sales persons earn a commission on the amount of sales made to the supermarket, they might be encouraged to order more items than necessary to earn higher commission.

As regards to the authorisation of a PO, the managers and the directors are the ideal persons to carry out this task. The fact that the manager consults with the director before authorising the PO when the amount involved is high, shows that there is good communication going on between these persons. However, storekeepers should not be in a position to authorise a PO. Authorisation should come from a higher level of management and this should be passed to a manager. In addition, the storekeepers should constantly communicate with the general manager about each purchase and not only when there are offers in the market. This would help the supermarket to have an element of control in place and not allowing the storekeepers to be in a position to order how much they want.
4.4.2: Receipt and Inspection

Upon the delivery of goods, quality checks are made by 10 supermarkets to ensure that the products are received in good condition and are not expired. The storekeepers are also responsible to scan these items and input them as inventory in the system before these are placed in the stores. In this process, six supermarkets also enter the expiry date of the items. However, 10 respondents argued that it is impossible to check each and every item especially if the products received are packed in boxes. In these supermarkets, the procedure is to take a sample out of all products received and checks those items for expiry and to ensure that they are received at right quantity. In addition to this, the manager of a particular supermarket argued that:

“Our storekeepers also need to take a look to the goods received and verify that the boxes are clean and that chilled products are arrived in the chillers. Quality checks are then continued by the stacker when they go in the stores to bring items to place them on the shelves”. (General Manager G)

Unlike other supermarkets, one supermarket does not perform quality checks upon the arrival of goods. These are only carried out once they open up boxes to place them on the shelves. The only check that this supermarket does upon the delivery of goods is to ensure that the right amount of boxes was received. After the quality checks, a GRN is issued by five supermarkets. This is matched with the PO before it is corresponded with the invoice. These supermarkets require sales persons to sign the invoice before they are given the cheque. The other six supermarkets that do not make use of GRNs, only match the invoice with the PO to ensure that they are the same before proceeding to the payment. Invoices are also checked for casts and calculations.
One particular respondent insisted that:

“If suppliers’ delivery persons fail to deliver the exact amount, adequate reasons need to be given and proper adjustments needed to be done on the invoice. When these situations arise, suppliers’ delivery persons are required to sign on behalf of the supplier as a proof indicating that there was a difference in quantity delivered”. (Manager B)

This procedure is also carried out by six supermarkets. Moreover, the directors of these supermarkets decide whether they should keep the stock and arrange the invoice or else give them back to the supplier. In the latter case, the supermarkets request the suppliers to issue a credit note. 10 respondents claimed that it is very rarely that the amount of quantity received agrees with the amount of quantity ordered. One respondent argued that one possible reason for having a discrepancy between the quantity ordered and the quantity received could be that upon the issue of a PO, the purchasing manager might notice later on that he needs to order more of a particular item and when he calls the supplier to place the order, he forgets to issue a new PO. Five other respondents claimed if the extra stock which is received is a fast moving item, the supermarket is more likely to retain the stock. However, this depends on the demand for the product by the customer. In addition, the director of a particular supermarket stated that:

“If these goods are not authorised by any member of management, the excessive stock is sent back to the supplier because if you keep the stock, the supplier may be willing to do it again”. (Director G)

Unlike the above supermarkets, Accountant I stated that if the figures of the PO do not match with the GRN, the supermarket sends all the order back to the supplier. In the stores of the supermarket, seven supermarkets have a space which is only used to place damaged items. This is a temporary place whereby all damaged items are placed there until the sales person comes and visits the stores again. Alternatively, in addition to this, two other supermarkets also send a photo of the damaged item to the suppliers to inform
them about the event. However, the other two supermarkets do not follow this procedure. In fact, the respondents of these supermarkets stated that when they notice damaged items, they call the suppliers immediately and ask them to take back the damaged goods as soon as possible. Conversely, all 14 respondents claimed that if the storekeepers notice the damaged items whilst the salesman is unloading the van, these are immediately sent back to the supplier.

All the findings which were gathered in this subsection tend to be in line with the literature. Quality checks are very important and unfortunately there is one supermarket that does not perform these checks upon the arrival of goods. As a result this supermarket will not know the exact condition of those items which are received by suppliers. Checks are only carried out when the supermarket need to replenish the shelves. So it might happen that some items which are placed in stores might be expired by the time they are needed. Then, these items need to be sent back to the supplier and replaced by new stock as it is against the law to offer products on shelves which are expired and hefty fines may be charged to the supermarkets. This might cause a stock-out situation for a particular product and if this item is a high value item, the supermarket may lose sales. Nowadays, there are many supermarkets and peoples’ attitude varies. There are people who wait until the product is in stock again and there are others who choose to go and buy the product from somewhere else.

Besides the issue of expiry on products, there is as well the problem of damaged goods. If quality checks are not performed as soon as the products arrive at the supermarket, the supermarket will not know whether the damage took place in transit or through the handling by storekeepers. Suppliers may also refuse to take back the damaged stock and inform the supermarket that the products were delivered in a safe way. From the above
findings one can also note that although the majority of supermarkets do not issue a GRN, they still verify that the invoice match with the PO before proceeding to the payment. Moreover, the fact that the majority of the respondents argued that in the event when the amount of the invoice does not agree with the PO, directors are the ones who take the decision on whether to keep the stock or not, shows that there is already an element of control in place. The directors are the ones who make the most important decisions in a company and there is no one better to take such decisions.

4.4.3: Issuing and Dispatch

In all supermarkets interviewed, stock is issued on a FIFO basis. However, this also depends on the expiry date. As soon as certain items are lacking from the shelves, the stackers are authorised by the supermarket to replenish the shelves. When stock is issued from the stores, it is scanned and automatically deducted from the system. However, in six supermarkets, this procedure is not carried out as the supermarket’s inventory consists of one whole value which reflects both the amount which is present on the shelves and in the stores. Some form of documentation only needs to be in place if items are removed from the stores and sent to another branch. This procedure is carried out by seven supermarkets since they have more than one branch. Alternatively, in six supermarkets, certain spot checks are carried out in order to ensure that the products which are issued from stores are actually placed on the shelves. Moreover, the directors of five supermarkets argued that spot checks are not carried out in their supermarket and it is the responsibility of the stackers to ensure that all items issued from the stores are placed on the shelves.
It is reasonable to say that in an environment like supermarkets, the expiry date is an important factor which one should consider when issuing stock from the stores. Sometimes supermarkets receive stock which expires before the stock which is held in stores. In those circumstances, those products which expire first are the first which are issued. Otherwise, the supermarket will end up having expired items in stock. In fact, even when the stackers replenish the shelves, they put those items which expire first in front of those items which expire at a later stage. Moreover, an appropriate level of authorisation seems to be in place via verbal and written instructions in those circumstances where the items which are issued from the stores are placed on the shelves or transferred from one branch to another respectively. From these findings, one might also notice that certain checks are performed randomly to ensure that there is no theft going on in the supermarkets.

4.5: The Role of the Accounting and Finance Function

4.5.1: The Role of the Accountant in the Supermarket

In seven supermarkets, the accounts function is carried out in-house whereas in the remaining four supermarkets, it is outsourced. In these supermarkets, the accountant is responsible for: 1) statutory reporting such as VAT returns, Income Tax and Social Security Contributions, 2) the reconciliation of bank accounts, 3) payroll and HR issues, 4) the preparation of management accounts and other reports, 5) overseeing all overhead expenditure, and 6) the monitoring of transactions posted into the accounting system. The latter is carried out on a regular basis to make sure that these are correctly inputted in the accounting records.
4.5.2: Preparation of Management Accounts

Results show that seven supermarkets prepare management accounts on a monthly basis. However, one particular supermarket prepares management accounts on a weekly basis while in three other supermarkets, these are prepared on a quarterly basis. Five respondents argued that with the preparation of management accounts, the supermarkets know exactly how much profit each division and branch is making as they tend to classify the income and expenses per division and branch. Although the literature states that management accounts are not obligatory, the above results show that all supermarkets tend to prepare them. This is a very good sign as very few businesses can continue to operate without them.

4.5.3: Preparation of Stock Control Reports

On the other hand, the accountant and the management of supermarkets prepare daily, weekly and monthly reports pertaining to stocks, purchases and sales. Table 5 summarises the stock control reports which are prepared on a spreadsheet format by these supermarkets and assessed during the management meeting.
<table>
<thead>
<tr>
<th>Name of Report</th>
<th>How often is prepared</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchases Report</td>
<td>Every week (11/11)</td>
<td>It contains a list of all purchases made by each supermarket and division during the week. This report also informs the supermarket of previous purchases which are still not yet paid.</td>
</tr>
<tr>
<td>Sales Report</td>
<td>Every day (7/11)</td>
<td>Sales reports comprise a list of all sales made by each division and branch on a daily basis or once a week as well as the gross profit margin of each item.</td>
</tr>
<tr>
<td>Stock Turnover Report</td>
<td>Every week (11/11)</td>
<td>It lists down all the products held in the branch by the rate of stock turnover.</td>
</tr>
<tr>
<td>Stock Expiry Report</td>
<td>Every week (6/11)</td>
<td>This report informs the staff about those items which are going to expire in the following two weeks.</td>
</tr>
<tr>
<td></td>
<td>Every fortnight (5/11)</td>
<td></td>
</tr>
<tr>
<td>Stock Level Report</td>
<td>Every month (11/11)</td>
<td>It shows the details of current stock levels of all products held in stock.</td>
</tr>
<tr>
<td>Low Stock Report</td>
<td>Every week (5/11)</td>
<td>It identifies all products which are below the minimum stock level. This report is only prepared by those supermarkets which make use of</td>
</tr>
</tbody>
</table>
### Chapter 4: Findings and Discussion

<table>
<thead>
<tr>
<th>Report</th>
<th>Frequency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales Returns Report</td>
<td>Every month (11/11)</td>
<td>This report contains the product’s description, reason for returning the item and the quantity of those items which were returned to suppliers. This report is used to evaluate the supplier’s performance.</td>
</tr>
<tr>
<td>Stock Movement Report A</td>
<td>Every week (5/11)</td>
<td>It summarises all transfers which were made from stores to the shelves. This report is prepared by those supermarkets which divide the inventory amount of stores and shelves into two separate figures.</td>
</tr>
<tr>
<td>Stock Movement Report B</td>
<td>Every fortnight (7/11)</td>
<td>This report lists down the details and the quantity of those items which were transferred from one branch to another. This report is prepared by those supermarkets which have more than one branch.</td>
</tr>
<tr>
<td>Stock Valuation Report</td>
<td>Every month (11/11)</td>
<td>This report summarises the value of inventory found in each branch. Three supermarkets were found to use the AVCO method for stock valuation while the other eight supermarkets use the FIFO method.</td>
</tr>
</tbody>
</table>

#### Table 5: Stock Control Reports
4.5.4: Management Meeting

In nine supermarkets, management meetings are carried out once a month, whereas in the remaining two supermarkets, these are carried out on a quarterly basis. In eight supermarkets, the accountant is also present for this meeting. During this meeting, management discuss: 1) the cash flow position of the firm to identify whether it is in a position to pay its suppliers, 2) the sales performance for the period by comparing the current month sales with previous month and also with previous year period, 3) sales projections, 4) the stock turnover report and decide which slow moving items to remove from stock, 5) current offers in the market, 6) staff turnover, 7) new and existing competition in the market, 8) investment in new equipment 9) future goals and 10) evaluate management accounts together with other stock control reports. Moreover, management also monitor the expenses and wages with prior year comparisons.

4.5.5: Average Payment Period

As regards to the supermarket’s average payment period, all supermarkets have a credit period ranging from 60 to 90 days. However, Accountant C stated that at first one might have 30 day credit period until one starts to build a relationship with their supplier. Three respondents declared that their supermarket manages to pay its suppliers within a period of 10 days after delivery. Moreover, one particular respondent argued that:

“For a supermarket, it is more appropriate to obtain credit period rather than paying cash as it is always better for the company to keep liquidity”.
(Director F)

If possible, supermarket F tries to take the whole 60 day credit period from each supplier and tries to hold stock for 30 days so that the remaining 30 days will be liquidity at hand.
This argument was also raised by nine other respondents. All respondents claimed that their suppliers give them certain discounts in order to encourage these supermarkets to pay upon delivery on a cash basis. In addition, Accountant E argued that this supermarket pays 70% of all purchases on a cash basis.

The credit period that is given to the above supermarkets seems to be reasonable. Nowadays, the majority of suppliers offer this type of settlement due to competition since those suppliers who do not offer a credit period are unlikely to attract new supermarkets. Supermarkets buy a lot of items from different suppliers and it is not possible for them to settle all their purchases on a cash basis.

4.5.6: Sources of Finance Used

Nine supermarkets manage to pay the suppliers from internally generated funds only for the purchase of stock. However, in certain circumstances, supermarket E and supermarket I rely on bank overdraft as well. Furthermore, the current bank overdraft of supermarket I stands at a range between €600,001 and €700,000. As regards to the current interest rate which is charged by banks to provide a bank overdraft, Accountant I argued that:

“2.25% per annum over Bank Base Rate (currently 2.35%), i.e. present effective rate 4.6% on daily debit balances computed on the basis of a year of 360 days”.

Alternatively, Accountant E stated that information concerning bank overdraft is private and was not ready to disclose any information to the researcher regarding these figures. On the other hand, Director F argued that bank loans are not used by supermarkets to finance stock as these are only provided by banks to finance a capital investment.
Since the internally generated funds are the main source of finance of these supermarkets, it shows that there is an indication of good liquidity and viability. This source of finance also benefits from cheaper costs as supermarkets do not need to incur any borrowing costs. An advantage that internally generated funds might have over bank overdraft is that companies do not need to go to banks and make a bank overdraft. Instead they might use that amount which has been internally generated by the company and pay their suppliers when due. However, those companies which might not have enough internally generated funds to cover their purchasing costs, they have an option to do a bank overdraft.

**4.6: Techniques of Stock Control**

**4.6.1: Use of Stock Levels**

The use of maximum and minimum stock level, danger level and re-order level is used by five supermarkets. Each respondent argued that these stock levels are determined per item and recorded in the IT system. In four supermarkets, at the end of every week, a person from management level adjusts the minimum and maximum stock level according to stock movement. Moreover, in a different supermarket, the director adjusts these stock levels every three months to reflect seasonality. Alternatively, all respondents claimed that the re-order level depended mostly from the rate of consumption and is adjusted automatically according to the sales levels. Given that each product which is held in stock is assigned a minimum and a maximum amount in the IT system, when orders are placed, the IT system matches the quantity ordered with the assigned minimum and maximum amounts and if the quantity ordered exceeds the maximum amount, the system blocks the transaction. This procedure is done for every transaction before authorising the PO.
Accountant E claimed that the maximum stock level is not used. However, this supermarket makes use of the minimum stock level and the amount of items they need on shelf so that the minimum stock level is not set at a level lower than the amount of items they need on the shelf.

On the other hand, four respondents stated that although the maximum and minimum stock levels are not used, the managers still apply some controls. In fact, they are constantly in contact with the stores department to ensure that there is no excessive stock in the supermarkets. If there is excessive stock, the managers adjust for the extra stock by placing fewer orders in the following weeks. Manager G argued that the supermarket only reaches the maximum stock level when there are bulk offers. Conversely, Supermarket J was currently adjusting the stock levels in order to make orders be placed automatically based on seasonality.

Each supermarket keeps a different amount of items in stock due to storage availability and capital. Although there are some supermarkets which do not make use of minimum and maximum stock levels, they still manage to prevent under or over stocking. Two reasons might be due to experience and periodic checks. If one has been operating in the same industry for a number of years already, one might know the demand for certain items more or less, by looking to last month or past year results. However, others still consider these two stock levels as being crucial to their operation. Those supermarkets that make use of all four stock levels seem to have a knowledgeable person responsible to adjust the minimum and maximum stock levels since this person is of a management level. On the other hand, the amount of items held in stock should be enough to meet customer’s demand. It is very important to ensure that once certain items reach the reorder point, a PO should be issued. Otherwise, it is very likely to end up into a stock-out situation.
4.6.2: Stock Turnover

Results show that nine supermarkets make use of the stock turnover formula to identify how quickly their inventory can be turned into sales. Normally, in these supermarkets, this ratio is calculated on a weekly basis and the whole inventory amount is taken into consideration. However, four respondents argued that in addition to this, they also compute this ratio on each item kept in stock to identify any slow moving items. In this respect, two respondents explained that some products even though they tend to be slow moving items or not profitable such as milk, are not removed from stock as customers tend to order them.

The fact that nine supermarkets use stock turnover shows the significance of this ratio. If this ratio is high, it shows that stock is being sold at a faster rate and vice versa. However, sometimes this ratio is not very high because of particular items which might take long to sell. This is why it is important to identify any slow moving items so that when removing them from stock, you replace them by fast moving items to increase the inventory turnover as well. Companies invest a lot of money in stock and it is ineffective to have a low inventory turnover as it shows that more capital is tied up in unused stock.

4.6.3: ABC Classification

One respondent stated that:

“You cannot consider all items the same. You have the high value items, fast moving, and those products which don't give you many sales and so on. Each item is given particular importance”. (Director A)
Supermarket A has high value items in stock and as a result more stringent controls on certain products are required. Furthermore, continuous stock-take is made on health and beauty products as they are high value items and are more subject to theft. This argument was also brought by the manager D. This supermarket places a lot of importance on small items which are of high value such as blades and creams of health and beauty products. This method of stock management is also applied by other six supermarkets. Accountant C stated that products such as cigarettes, vodka, whisky, fillets and rib eye have more stringent controls than other products as these tend to be high value items. In addition, both the manager and the director of supermarket G argued that high value items like spirits are locked in a room and only one stacker along with one supervisor have a copy of the key and they are the only two people who can enter in this room. High value items are reviewed on a regular basis in supermarket H. However, there are three supermarkets which do not make inventory classification. These supermarkets apply the same measures of control for each item of stock.

The above results show that the majority of supermarkets do split their inventory into categories depending on its costs. Supermarkets have a lot of items in stock and it might take a lot of time and almost impossible to control each item. Therefore, they use ABC classification to ensure that adequate control is in place for high value items. Supermarkets cannot keep an eye on each product as otherwise they need to employ many people to do the job. In addition, theft cannot be avoided and it is always there. One can only reduce it to a lower level with the aid of controls. Sorting inventory based on the level of significance permit supermarkets to grant priority to main stock items and manage and control them with adequate care. It also avoids supermarkets from wasting valuable resources on managing items that are of less importance.
4.6.4: JIT

The JIT system is used by nine supermarkets only for frozen items, chilled products and fresh products such as bread and milk. These are ordered on a JIT basis as these consist of perishable items. Conversely, one particular supermarket holds the majority of the products on a JIT basis since the range of products that it offers are all frozen items. As a result, it sometimes encounters a stock-out situation but not very often. Those supermarkets which have more than one branch argued that in stock-out situations, they try to see whether it is possible to bring the products from other branches. However, if the other branch does not have spare capacity, these supermarkets have no other choice but to inform their customers that a particular item is out-of-stock. Alternatively, this method of stock control is not used by two supermarkets as the product line that they offer is considered to be of long life.

The above results revealed that the adoption of JIT very much depends on the type of product being sold. If possible every business should hold its inventory at a minimum to save inventory costs. However, this is not possible in a supermarket as demand tends to vary from time to time. If a supermarket works on a JIT basis, there is the risk to face a stock-out situation. On the other hand, there would be no need for warehouses or large stores if JIT is applied. Although this method is becoming popular in the manufacturing industry, it is very difficult to use it in the retail industry especially in the supermarkets industry as it is not suitable to keep a minimum number of items in stock. Supermarkets tend to order more items than necessary so that if in a particular week the suppliers face a stock-out situation, the supermarket will have extra stock to act as a buffer.
4.6.5: Barcode

One respondent said that:

“If the supermarket receives any product which does not contain barcode, then it is returned back to the supplier. If there is no barcode, one needs to write everything from scratch and it is time consuming for the supermarket.”

(Manager K)

All respondents argued that they utilise barcode in the day-to-day operations while inputting data in the stock recording systems. Three supermarkets were experiencing the problem of having a particular product such as ‘Pringles’ with two different barcodes on it and when they do spot checks to see whether the amount in stock records was the same as the actual stock, this was always showing an adverse variance. However, the computer system of one of these three supermarkets allows this branch to link these barcodes together and adjusts the inventory value automatically.

Each product in the supermarket has a unique barcode which distinguishes it from other products. However, some products might have two products either by mistake or else to indicate that one of them has a special offer on them. The use of barcode is very important in this environment as they deal with thousands of items in stock. Barcodes also fasten the process of recording stock as the details of the items only need to be entered once by the manager. When there is the same product with the same barcode, storekeepers only need to scan the item and it is automatically recorded in the system. However it is very crucial that supermarkets put pressure on suppliers and inform them that they only accept products which have the same barcode so that they will not take much time recording every product from scratch.
4.6.6: RFID tags

Currently, nine supermarkets do not use RFID tags while two other supermarkets make use of this method. The director of a particular supermarket stated that these are only attached to bottles of wine as they are considered to be very costly. A manager of a different supermarket argued that:

“RFID tags come into different forms such as stickers, transparent boxes and bottle necks. These are an effective method of security and this supermarket catches a lot of shoplifting with these tags”. (General Manager G)

Although all respondents argued that it is a good security measure to apply RFID tags, they also stated that these are very costly. For this reason, one specific supermarket preferred to have some percentage of theft rather than implementing the RFID tags. The manager of another supermarket also argued that the amount of theft is not that big. Consequently, he does not think that the supermarket needs items to be attached RFID tags. On the other hand, two respondents declared that these supermarkets were going to start using RFID tags for high value items in the near future.

RFID tags are a very sophisticated method of stock control and they cost a lot of money due to their features that were mentioned in the literature. Stock in isolation already costs a considerable amount of money and the implementation of RFID tags require additional capital. However, some companies might not have the finance to install this system or else they do not require this method of stock control as the amount of theft that they have is not material. Alternatively, it is rational that those supermarkets who implement this method only attaches RFID tags on high value items in order to diminish the likelihood of theft on these items. Supermarkets as an alternative can also lock high value items in showcases.
An interesting fact to point out in this chapter is that although in the literature there were nine methods mentioned of stock control, supermarkets make use of stock levels, stock turnover, ABC classification, JIT, Barcode and RFID. Conversely, the EOQ, MRP and VMI are not used by these respondents. As regards to EOQ, each respondent claimed that they do not use the EOQ formula. In addition, seven supermarkets do not calculate the ordering and carrying costs. The fact that these inventory costs are not estimated might reflect that supermarkets do not consider the ordering and the carrying costs as an issue. Instead, they are more concerned about having stock available on the shelf rather than balancing these inventory costs. The risk of stock-out is an important concern for them because they know that if customers come to the stores and find out a particular item which is out-of-stock most of the time, they end up buying from elsewhere. Furthermore, seven respondents argued that EOQ is more suitable to those firms which have stable demand. Although in theory the EOQ is a good method to manage and control stock, in the supermarkets industry it is very difficult to use EOQ since demand tend to vary from time to time due to seasonality. Moreover, since supermarkets deal with consumables, the MRP is not used in supermarkets. MRP is more appropriate to manufacturing firms as it deals with raw materials and work in progress. Conversely, VMI was also not utilised by these supermarkets. A reason in favour for not using VMI might be to ensure that there is a proper authorisation of the PO by management before placing the order and to check that the quantity which is ordered is reasonable.
4.7: Relationship with Suppliers

4.7.1: Placing an Order

All respondents argued that usually orders are placed on a weekly basis or once every fortnight depending on the sales of the products. However, there are some items such as bread and milk where orders are placed on a daily basis. All POs are printed and then the suppliers’ sales persons go to the supermarkets to pick up the order. One respondent stated:

“A good sales person should not rely on the PO which is provided to him by the purchase manager as the quantity which is ordered is determined by the computer system. Instead they should go and see themselves what is on the shelves and analyse whether the quantity ordered is justifiable”. (Financial Controller F)

Five respondents also argued that some sales persons, when picking up the order, also go through the shelves and the stores of the supermarkets to ensure that what is needed is actually written on the PO. Afterwards, if they notice that some items are lacking on the shelves and there is no sufficient stock in the stores to replace that amount found on the shelves, they will inform the purchasing manager and then an action is taken.
4.7.2: Lead Time

All respondents argued that lead time is dependent on the product. The lead time of four particular supermarkets ranges from one day to two months due to the fact that some items are bought from foreign suppliers. However, perishable items are bought from local suppliers due to their nature. Alternatively, six respondents stated that the minimum lead time is one day while the maximum lead time is three days. The accountant of a particular supermarket declared that:

“Since the products are on a JIT basis, it is highly likely that the lead time is twenty-four hours. However certain products which are not perishable have a lead time of three days”. (Accountant C)

The lead time of a different supermarket ranges between two and three days since the supermarket’s product line does not include short life products. All respondents also stated that the majority of the products arrive on a timely basis and only a small proportion is delayed. As regards to the percentage of orders which are returned to the key suppliers, the number is small as well. This number increases either when the suppliers’ sales persons deliver more than the re-order quantity and they do it on purpose or else when supermarkets order in bulk as they think that the product is going to do well but in reality only a small percentage is sold and as a result the rest is returned back to the supplier.

It is reasonable to say that short shelf-life products such as yoghurts and fresh creams have a lead time of one day while other products’ lead time depend on whether they are fast or slow moving items. The lead time of slow moving items tends to be higher than that of fast moving items since the rate of consumption of slow moving items is likely to be lower than that of fast moving items. As a result, supermarkets require suppliers to deliver fast moving items before slow moving items to avoid stock-out situations. The lead
time is also dependent on the location of the supplier. Nowadays, competition has increased and Maltese supermarkets are not only bringing items from local suppliers but also from foreign suppliers due to price offers and better quality brands. Supermarkets rely a lot on suppliers to deliver on time and the date of delivery is usually agreed beforehand. On the other hand, some delays from foreign suppliers are reasonable especially during winter due to bad weather. Nevertheless, it is in the suppliers’ interest to respect the date as their reputation is at stake.

4.8: Stock-taking

4.8.1: Frequency of Stock-take

Periodic stock-takes are carried out every six months in two supermarkets while in the other nine supermarkets these are carried out once a year. In four supermarkets, a group of employees are selected to carry out this process whereas in the remaining seven supermarkets all employees are involved in stock-taking. Besides periodic stock-takes, 10 supermarkets also carry out perpetual stock-takes. These respondents claimed that it is impossible to carry out a stock-take for all available items continuously, hence, these supermarkets are divided into sections and each section is checked occasionally. Each supermarket makes use of cycle counting while carrying out perpetual stock-take.

Stock-taking is very important in supermarkets as it provides an audit of current stock valuation. These should be carried out regularly especially in those supermarkets, which have low profit margins and encounter high stock turnover and sales volume. The researcher believes that carrying out perpetual stock-take during the year is a good practice as it helps supermarkets to identify immediately any discrepancy which might arise between the stock records and the physical count. Having sufficient stock-take data
is very important as it enables managers to be aware of the financial position of the supermarket. The researcher believes that since the periodic stock-taking process is time consuming and expensive, it may not be carried out so often.

4.8.2: When It Is Carried Out

All supermarkets were found to perform their annual stock-take at the very last weekend of the financial year. There are two supermarkets which close down for three days to carry out this task whereas the remaining nine supermarkets do not close down so that they do not lose sales during the stock-take. In three different supermarkets, the stock-take of the shelves and of the stores is made on the same day. As regards to the other eight supermarkets, the stock-take of the stores is carried out on Friday and Saturday while that of the supermarket is carried out on Sunday.

The above results show that supermarkets are taking advantage from the Sunday closure to carry out the stock-takes without losing revenue. In addition, the fact that the majority of supermarkets divide the stock-taking of the stores and of the shelves into different days might indicate that more focus is being concentrated on these tasks. Conversely, those supermarkets which conduct the stock-take of the stores and of the shelves on the same day might run the risk of doing mistakes while counting due to tiredness especially if the task is carried out by the same people. As a result, in this circumstance, it is very crucial that two different teams carry out these tasks. By doing so, the researcher believes that the supermarket will be increasing the probability of having an accurate inventory count.
4.8.3: How It Is Carried Out

In 10 supermarkets, those employees who carry out the stock-takes are given a handheld barcode scanner so that each item is scanned and after all stock has been counted, the scanner is plugged with a computer in order to transfer the information. Then a variance report is issued to show any discrepancies between the actual stock and the stock records. Alternatively, in one supermarket, it is carried out manually. The director of this supermarket asks the employees involved to write the items on a piece of paper and the quantity next to them. Afterwards the director prints out the stock records and analyses any variances between what is written on the paper and the stock records. If the discrepancy is material, then these supermarkets view the footage from the cameras to see whether theft took place. In these supermarkets, an item is considered to be material when the discrepancy exceeds twenty-five units. This is normally the case for low value items. However, for high value items such as alcohol and meat, a discrepancy of five units is material due to the price that is charged. When there is such discrepancy, the management requires a different employee to re-count the stock and verify this discrepancy to ensure that there was not a mistake while counting the stock. Moreover, five respondents argued that they also go back to the invoices and see whether there was a mistake in the inputting of stock records. Seven respondents claimed that the auditors of the supermarket are also present during the annual stock-take to see whether the people involved are doing the stock-take in the correct way.

The use of handheld barcode scanners is helping supermarkets to accelerate the process of conducting stock-takes as staff only needs to scan the items and write the quantity that has been counted. The fact that supermarkets issue a variance report show that management cares about stock and any discrepancy is promptly investigated. Conversely, although it is reasonable to carry out an enquiry when there is a material discrepancy, non
material difference should not be ignored as these might become material when several items are aggregated together.

4.9: Stock Recording System

4.9.1: Periodic vs. Perpetual Inventory System

The actual level of inventory is maintained by the use of a perpetual inventory system in 10 supermarkets while in another supermarket, a periodic inventory system is in place. This supermarket only knows the exact amount of stock they have on hand from the annual stock-take which is done at year-end. Currently, this supermarket is investing in a technology where it will enable them to track the amount of inventory real time. The accountant of this supermarket explained:

“Right now, in order to carry out random checks, the employees of the supermarket have to check the amount of purchases and sales that were done from the accounting system in order to get the figure that this supermarket has in stock and then compare this figure with the items which are physically counted. With a perpetual inventory system, this process is much straightforward. You just need to compare the actual stock counted with the stock records which are obtained from a perpetual inventory system”. (Accountant I)

The inventory’s figure is very important to all supermarkets as it has an impact on the company’s profit. The above results show that all supermarkets acknowledged the importance of having a perpetual inventory system in place in order to keep the stock records continuously updated. Supermarkets deal with a lot of transactions on a daily basis and this inventory system helps them to know the amount of inventory after each transaction. With a perpetual inventory system, stock records could be updated real time
for supermarkets. Moreover, these companies know exactly how much money is currently being invested in its inventory.

4.9.2: Manual and Computerised Stock Control Systems

Stock is recorded using a computerised system in all supermarkets. One respondent stated:

“It was very hard in the past to control and manage stock when the recording of stock was done manually. Managers used to go themselves and check that an item is not in stores before they place an order to suppliers. Moreover, a stock-out situation used to occur more often”. (Director H)

Without the use of computers, an adequate system of stock control could not be in place especially when dealing with a large variety of items found in supermarkets. It is not viable to physically check each item that is available in stock. Using a manual system, one might also increase the likelihood of having expired items in stock and as a result it might require companies to employ more people to carry out checks about the expiry of the products. Moreover, companies might also run the risk of not noticing theft on time due to the number of items held in stock. Nowadays, with a computerised system, supermarkets can monitor better the items they have in stock.
4.9.3: Name and Type of Software Used

The name of the software which is used by one supermarket is called Microsoft Dynamics RMS, while the name of the software which is used by six supermarkets is called E-shop. Alternatively, two other supermarkets utilise ISL stock manager. Two respondents did not provide the name of the software which was used by the supermarket due to confidentiality. Originally, the majority of all software programs are bought off-the-shelf. Subsequently, these software programs are adjusted according to the business’s needs. On the other hand, two supermarkets use tailor made software which was created internally by the company. When respondents were asked about whether they were encountering problems relating to IT, four respondents argued that their computer system sometimes jams. Conversely, 10 respondents argued that their computer system is updated on a regular basis in order to solve any issues which might arise during the day-to-day activities of the business.

4.10: Protection of Inventory

4.10.1: Measures Used to Safeguard Stock Against Theft

All supermarkets make use of CCTV cameras as a security measure. In addition, three supermarket uses locked doors to protect spirits. However, five respondents stated that it is impossible to stay all the time looking at the cameras to see if something suspicious is taking place. Two respondents argued that if they are suspicious about someone, they can check customers’ bags when they arrive at the cash point. As regards to the authorisation of who can enter in the stores, seven supermarkets permit all employees and merchandisers to enter in the stores. On the other hand, four supermarkets only authorise
the store keepers to enter into the stores. If they are not present at the place of work, a person is only allowed to enter in the stores while accompanied by a security person or the stock manager. All respondents also argued that there was proper segregation of duties taking place in their supermarkets. These respondents stated that the storekeeper is not the one who enters the accounts and neither is the one who is responsible to record stock in the computer system.

Out of nine measures of internal controls that were stated in the literature, the findings which were gathered in this chapter show that these supermarkets: a) make use of RFID tags, b) carry out spot checks on those items issued from the stores, c) match POs with invoices before proceeding to the payment, d) do cycle counting, e) issue some form of documentation when issuing stock from stores and sent to another branch, f) conduct stock management reports regularly, and g) utilise physical measures against theft. The only two measures which are not used very often in these supermarkets are job review by other persons and job rotation due to the limited number of employees who are employed in the supermarket. Job review is only carried out when the discrepancy between the physical stock and the stock records is material.

Nowadays, theft is very common in every business and unfortunately this is not only carried out by customers but by the staff as well. Stealing does not only involve money. For example, eating food within the premises without actually paying is considered to be theft. Employees should be trained about the supermarket’s security measures and the disciplinary policies and procedures. Theft by staff is more difficult to detect as they are more familiar with the security measures that are in place. Conversely, to reduce theft by customers, stackers need to carry out more regular spot checks of the shelves. The above findings also show that the majority of supermarkets might be subject to theft from the
suppliers’ sales persons as they have the authority to enter in the stores. This shows a weakness in the company’s internal control.

4.10.2: Measures Used to Safeguard Stock Against Obsolescence

Every supermarket makes use of stock expiry reports to monitor the expiry date of the products. Those items which are one month away from expiry are normally offered at a discount. Moreover, eight respondents declared that the store keepers watch out for the expiry date of the products before placing new stock on the shelves. If they see that a product is expired, this is removed from stock. In addition, one respondent argued that when a product is about to expire in the following two days, it is removed from the shelves. As regards to the maintenance of fridges and freezers, six supermarkets monitor their temperature online using specific software. When an item from the refrigeration equipment is not working properly, this software immediately alerts the directors of the supermarkets via an e-mail, telephone call or a message indicating failure. Some supermarkets also allow this software to inform the technicians as well. One respondent said:

“Sometimes due to the number of e-mails that I receive daily, I do not realise that an e-mail was sent to me by the program and eventually the technicians will inform me about the failure”. (Director H)

On the other hand, four supermarkets request specific employees to review the temperature of the fridges and freezers three times a day by using data loggers. When these are not maintained at right temperature, these persons inform the general manager and then he goes himself to verify the problem before he calls for maintenance.
Chapter 4: Findings and Discussion

The researcher believes that reports showing which products are going to expire in the coming weeks are very useful to directors of supermarkets as they help them to decide which offer or discount to apply on these products. Certain purchases are not made on a sale or return basis, so as a result supermarkets need to do their best to sell off these items. Given that a lot of money is being spent on inventory, it is reasonable that supermarkets invest in computer software to monitor the temperature of the fridges and freezers. These assist supermarkets to manage and control their stock better. Fridges and freezers hold all supermarkets’ fresh and frozen items and if no sufficient monitoring is given to this equipment, the supermarkets might end up with a lot of waste.

4.11: Conclusion

This chapter has outlined the findings of the interviews acquired from the responses given by local accountants, financial controller, managers and directors of supermarkets. It has also presented an explanation and a discussion of the results attained. The next chapter provides a summary of this research study and it underlines the most interesting points that came out from this study. This eventually leads to the recommendations and suggested areas for further studies.
Chapter 5: Summary, Conclusions and Recommendations
Chapter 5: Summary, Conclusions and Recommendations

5.1: Introduction

This chapter starts off by summarising the main findings that have emerged from the research in section 5.2. It then proceeds by presenting the conclusions of this study and provides some recommendations in sections 5.3 and 5.4 respectively, which supermarkets might use to improve their stock control system. Areas for further research are subsequently discussed in section 5.5. This chapter finishes off by making some concluding remarks in section 5.6.

5.2: Summary

This study had four main objectives and these were to determine the procedures of the stores, accounting and finance function in relation to stock control; to identify and evaluate the techniques which are being used for controlling and valuing inventory, to identify the procedures that are used by Maltese supermarkets to carry out stock-taking and to determine the internal controls which are used by Maltese supermarkets to prevent theft or fraud.

A qualitative approach was adopted for the research, whereby 14 interviews were carried out with 11 supermarkets to gather in depth information on stock control. The findings were analysed and subsequently discussed as being associated with the literature. The following is a summary of the key findings.

The data gathered from the interviews in relation to stores function showed that in Malta, POs are issued by suppliers’ sales persons and supermarkets’ purchasing managers. Alternatively, in some supermarkets, the IT system suggests an adequate re-order
quantity which is then used by the purchasing managers to place the order. All supermarkets recognised the importance of carrying out quality checks in order to detect any expired or damaged items. However, out of 11 supermarkets, only five supermarkets issued a GRN. On the other hand, the information collected from the interviews in relation to the accounting function revealed that supermarkets: a) make use of management accounts to analyse the performance of each branch on a timely basis, b) exploit various methods to assess the performance of stock, and c) prefer to settle on credit rather on a cash basis. Moreover, with respect to the finance function, the data which was gathered from the interviews showed that where possible, Maltese supermarkets try to finance the purchase of stock from internally generated funds. It was also noted by 10 respondents that the most popular method used to account for inventory is the FIFO method.

With respect to stock control techniques, the above findings demonstrated that Maltese supermarkets only use stock levels, stock turnover, ABC classification, JIT, Barcode and RFID. Conversely, these supermarkets do not make use of EOQ, MRP and VMI. Figure 5 illustrates the usage of these methods by Maltese supermarkets.

![Figure 5: The Usage of Stock Control Systems](image)

Figure 5: The Usage of Stock Control Systems
This study also revealed that Maltese supermarkets use a similar procedure to perform stock-taking. This mainly involves the staff scanning each item using handheld barcode scanners and then they plug the scanners to the computer to transfer the data acquired from the stock-takes. Each supermarket was found to perform this task on the last weekend of the financial year and some supermarkets choose a number of employees to take part in stock-taking while others require all staff to attend the stock-taking.

With regards to the internal controls used by Maltese supermarkets to prevent theft or fraud, it was established from the research that: a) two supermarkets make use of RFID tags on high value items, b) six supermarkets carry out spot checks to ensure that certain items which are issued from the stores are actually placed on the shelves, c) all supermarkets match POs with invoices before proceeding to the payment, d) 10 supermarkets perform cycle counting while carrying out perpetual stock-takes, e) seven supermarkets sign for all stocks which are issued from the stores and sent to another branch, f) every supermarket conducts stock management reports at the end of each month, and g) all supermarkets utilise alarm systems, CCTV cameras and locked doors as physical measures against theft.

5.3: Conclusions

The above findings demonstrated that each technique of stock control has its benefits and aids supermarkets in controlling their inventory in a more efficient and effective way. However, not every supermarket makes use of the same inventory techniques. There are some inventory techniques (e.g. JIT and stock turnover) which are more used than others (e.g. RFID and Use of stock levels). Nonetheless, the use of barcode is used by all supermarkets. This information is reflected in figure 5.
In addition, upon the delivery of goods, quality checks are helping supermarkets from the hassle of having the suppliers’ sales persons come over to the stores to take back any damaged or expired stock and replace it by new stock. Moreover, given that supermarkets issue their stock depending on its expiry helps them avoid having obsolete items in stock. Furthermore, the fact that supermarkets buy the majority of items on a sale or return basis show that supermarkets are saving costs as any expired or slow moving items are sent back to the supplier and the associated inventory costs are refunded back by the supplier.

The above findings also revealed that those supermarkets which have more than one branch in operation are using an appropriate system to deal with the issue of stock-outs. These supermarkets are sending stock to other branches so that they do not lose customers. Nowadays, the use of IT systems helps supermarkets to monitor the stock levels with much ease than before. It was not possible to have a complete stock control when the system was manual. Certain supermarkets are also programming their IT system to determine the re-order quantity so that managers do not waste time and see what items are lacking in the stores, but instead rely on the amount which is provided by the IT system and proceed with the transaction.

5.4: Recommendations

From the findings of chapter 4, several control weaknesses were pointed out by the researcher and in order to improve the current stock control system, the following recommendations should be made.
5.4.1: Restrict the Issuance of POs

At present, POs are being issued by the supermarkets’ personnel as well as by the suppliers’ sales persons. As a suggestion, it would be more appropriate to allow only the purchasing managers of super markets to issue such POs in order to reduce the risk of having excessive items in stock. Moreover, there are still three supermarkets which do not issue a PO for every purchase. These supermarkets should change this approach and start issuing a PO for every purchase so that there would be some form of evidence of the items ordered from suppliers and the storekeepers would have a copy of PO document in hand when they receive new stock from suppliers to match with the GRN.

5.4.2: Enter the Expiry Date for Each Product

At the moment, there are five supermarkets which do not enter the expiry date of products when recording stock. These supermarkets rely solely on the storekeeper to ensure that all products held in stock are not expired. If supermarkets start entering the expiry date of the products in the IT system, it would be much easier for them to track the expiry date of the items held in inventory. In addition, supermarkets could issue a stock report listing down all items in the order of expiry date.

5.4.3: Make Sure That a GRN Is Issued for Every Delivery

Currently, there are six supermarkets which do not issue a GRN. Ideally, a GRN should be issued for each delivery to keep record of the quantity and condition of those items which are received from suppliers so that it will make the job of the accountant much easier
later on when matching the invoice with the PO. Furthermore, the details of any discrepancy could easily be identified.

5.4.4: Divide Inventory Kept on Shelves and in Stores into Two Separate Figures

At present, there are six supermarkets which do not divide inventory being held on shelves and in stores into two separate figures. This control helps supermarkets to monitor the number of items which are held on the shelves and in the stores. This assists supermarkets to replenish the shelves on a timely basis and ensures that when the amount of inventory kept in the stores reaches the re-order point, an order is placed on time to minimise any stock-out situation. This also aids supermarkets when carrying out spot checks as managers compare the amount which is issued from the stores to that which is physically counted.

5.4.5: Remove Refrigeration Equipment from the Stores Department

Currently, 10 supermarkets have fridges and freezers in the stores department. From a financial point of view, given that supermarkets spend a considerable amount of money on the maintenance of fridges and freezers, it would be much better for supermarkets to work on a JIT philosophy and remove these refrigeration equipment from the stores department. However, this requires more careful checks by the staff of what is in the display of these refrigeration equipment found in each branch so that when they notice that fresh and frozen items are lacking, the supermarket will contact immediately the suppliers to deliver items to avoid a stock-out situation.
5.4.6: Evaluate Non-Material Discrepancy

At the moment, every supermarket is only carrying out an enquiry when there is a material discrepancy of twenty-five units and five units, for low and high value items, respectively. Non-material discrepancy is not being evaluated. As a suggestion, supermarkets should classify the non-discrepancy items into high and low value items, then add these two amounts separately and if the totals exceeds the materiality thresholds, an enquiry should be carried out as well on these items.

5.4.7: Restrict the Access of the Stores to Staff Only

At present seven supermarkets allow both their employees and suppliers’ sales persons to enter in the stores. As a suggestion, given that the stores are the supermarkets’ property, the level of authorisation of the stores should only be restricted to the members of supermarkets. This would lower the likelihood of having products being stolen or damaged by suppliers’ sales persons.

5.4.8: Keep Management Updated with New Accounting Concepts

While carrying out the interviews, the researcher noted that terms like EOQ, MRP and VMI were new to some respondents. However, the concept behind these terms was very familiar to them. The researcher thinks that if the company teaches its managers and directors these new accounting concepts, they might be able to implement these new concepts and would be more knowledgeable when taking decisions.
5.5: Areas for Further Research

This study was restricted only to large supermarkets. However, stock control is very useful for businesses working in any industry. Having said this, an interesting area for further research would be to do the same study on Maltese pharmacies as they deal with a considerable amount of medicines in stock. An alternative study would be to select a number of companies from two different industries and carry out an evaluation of stock control in these companies by comparing and contrasting the results to illustrate any similarities and differences between these industries. Going back to the retail industry, a similar study to this dissertation could be carried out in five or ten years time and analyse whether the selected supermarkets are implementing the JIT philosophy. This would save inventory costs as supermarkets will not keep excessive items in stock. On the other hand, given that confectionaries and small supermarkets are not large in size, an interesting study would be to select a number of confectionaries and supermarkets and conduct a stock evaluation of these companies.

5.6: Concluding Remarks

From the findings of this study, one can conclude that Maltese supermarkets are using adequate stock control measures which are giving appropriate results. However, regardless of the system which is in place, no matter how much efficient it is, there is always room for further improvement and that makes inventory management interesting. To improve the current situation, Maltese supermarkets need to be more cautious when taking decisions and they should consider the impact that every decision might have on inventory levels especially when accepting a bulk offer. Moreover, the management needs to make sure that there is enough space to hold this stock and that it is possible to sell this
quantity prior to its expiry date, before accepting the offer. Keeth Smart who is an American athlete argued that: “Being properly prepared is one of the biggest assets in business and in athletic competition” (Sailam, 2013, p.39). Competition is always present and like athletes, supermarkets need to keep on improving from day-to-day by investing continuously in adequate equipment to improve their stock control systems.
Appendix 1: The Use of Stock Levels

1.1: Introduction

This appendix takes a look at the formulas of the four types of stock levels. The main source which was referred to in the writing of this appendix is ICSI (2013, pp.46-47).

1.2: Stock Levels Formulas

1.2.1: Maximum Stock Level

Re-order level + Re-ordering quantity – (Minimum consumption x Minimum re-order period)

1.2.2: Minimum Stock Level

Re-order level – (Normal consumption x Normal re-order period)

1.2.3: Danger Level or Safety Stock

Ordering level – (Average rate of consumption x Re-order period)

Or

(Minimum rate of consumption – Average rate of consumption) x Lead Time
1.2.4: Re-order Level

Minimum level + Consumption during lead time

Or

Maximum consumption x Maximum re-order period

Or

Maximum consumption x Lead time + Safety stock
Appendix 2: EOQ

2.1: Introduction

This appendix takes a look at the methods used to calculate EOQ. There are several authors who incorporated this model in their writings. However, three main sources were looked at in the writing of this appendix, being Drury (2008), Kumar and Suresh (2008) and Horngren, Datar and Rajan (2012).

2.2: Methods of EOQ

2.2.1: Algebraic Method

The formula used to calculate the EOQ is:

\[ Q = \sqrt{\frac{2DC}{H}} \]

Where

- \( Q \) = order quantity
- \( D \) = annual demand in units
- \( C \) = cost per order
- \( H \) = cost of holding one unit in stock per annum

(Drury, 2008, p.623)
2.2.2: Tabulation Method

This method necessitates the illustration of the ordering cost, carrying cost and total cost on a graph. The point at which the ordering cost and carrying cost cross each other is known as the EOQ. At this point, the total cost is at minimum (Kumar and Suresh, 2008).

2.3: Practical Example

The following is an example of a basic EOQ model given by Horngren, Datar and Rajan (2012, p. 705).

“CD World is an independent electronics store that sells blank compact disks. CD World purchases the CDs from Sontek at $14 a package (each package contains 20 disks). Sontek pays for all incoming freight. No inspection is necessary at CD World because Sontek supplies quality merchandise. CD World’s annual demand is 13,000 packages, at a rate of 250 packages per week. CD World requires a 15% annual rate of return on investment. The purchase-order lead time is two weeks. Relevant ordering cost per purchase order is $200. Relevant carrying cost per package per year is as follows:

Required annual return on investment, 0.15 \times $14 = $2.10
Relevant costs of insurance, materials handling, breakage, shrinkage, and so on, per year = $3.10
Total \hspace{2cm} $5.20

What is the EOQ of packages of disks?”
Using the Algebraic Method:

\[
Q = \sqrt{\frac{2 \times 13,000 \times 200}{5.20}} = 1,000 \text{ packages}
\]

Using the Tabulation Method:

![Figure 6: EOQ Using Tabulation Method](image)

A good observation is to notice that although the two methods differ in how they arrive to the EOQ, both methods lead to the same result. In this example the EOQ was 1,000 units under both methods. This figure shows that the company need to order 1,000 units each time an order is made to minimise the total cost of inventory.
Appendix 3: Interview Questions

Background Information

a) For how long has the supermarket been in operation?
b) What is the number of employees employed by the supermarket?
c) What is the number of store keepers employed in the supermarket?
d) How many branches does the supermarket have?
e) What types of stock are found in the supermarket?
f) Do you have fridges or freezers in the stores?
g) Do you have a generator in case of a power cut or do you close down the supermarket when there is no electricity?

Stores Function

i. Stock Purchasing Control

a) Who is authorised to issue and approve a purchase order?
b) Does this person have a right to authorise any amount of purchases and is authorisation required for every purchase?
c) Are purchase orders used for every purchase?
d) Are purchase orders sorted by suppliers?
e) Are purchase orders and invoices pre-numbered?
ii. **Recording of Purchases**

a) Are purchase orders and goods received notes reviewed on a regular basis to check whether there is any discrepancy between the two?

b) Do you input the expiry date when inputting records in the stock recording system?

c) Are purchase transactions recorded in the accounts when a purchase order is issued or when products are received?

iii. **Receipt and Inspection of Stock**

a) What kind of quality control checks are performed by the supermarket on the receipt of stock?

b) What happens when you notice that damaged goods has been received?

c) What happens when there is a discrepancy between the quantity stated on the purchase order and the actual stock received?

iv. **Issuing of Stock**

a) Are all issues properly recorded to facilitate entries in financial accounting records and stock records?

b) Do you match the stores requisition with the physical stock before being removed from the stores?

c) Do you monitor stocks while being delivered on the shelves to ensure that these items have all been placed on the shelves?


The Role of the Accounts and Finance Function

a) Is the accounts function carried out in-house or outsourced?
b) What is the role of the accountant in your firm?
c) What types of reports are prepared by the accountant?
d) How often are stock management reports provided?
e) Who is responsible to prepare management accounts?
f) What types of stock control reports are prepared by the company and how often are these prepared? Who is responsible to carry out these reports?
g) Which of the following methods is used for stock valuation:
   - FIFO Method
   - LIFO Method
   - Weighted Average Cost Method
   - Other (please specify the name of the method)
h) How often does the management meet to discuss management accounts?
i) Is the accountant present in these meetings?
j) What type of information do you discuss in this meeting?
k) What is the average payment period of the supermarket?
l) Do you make use of internally generated funds to provide for the purchases of stock?
m) Do you make use of bank overdraft to provide for the purchase of stock?
n) If a bank overdraft is used:

- How much is the amount of bank overdraft right now of the firm? (Tick X next to amount)

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<th>Current Amount Range</th>
</tr>
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<tr>
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<td>More than €2,500,000</td>
</tr>
</tbody>
</table>

- What is the current interest rate which is charged by banks to provide you a bank overdraft?

- Can you provide a detailed description about the difficulty that you encounter in getting the overdraft?

o) What other sources of finance do you make use to provide for the purchase of stock? (e.g. debentures/bank loans/others)

p) What is the current interest rate which is charged by banks to provide you this source of finance?
Techniques of Stock Control

a) Can you describe the stock control methods used to manage and control stock?

<table>
<thead>
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<th>Method Name</th>
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<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of stock levels</td>
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<td></td>
</tr>
<tr>
<td>Stock turnover</td>
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b) If the Minimum stock level and maximum stock level are used:

- Do you make use of these stock levels for each item?
- Is the Minimum stock level and maximum stock level for each item entered in the IT system?
- Is this adjusted from time to time to reflect seasonality items? How often?
- Who is responsible to adjust these stock levels?
- Which of the following methods is adopted in determining the following stock levels?
c) If the Stock Turnover is used:

- Do you calculate the stock turnover formula for each item or do you calculate this ratio on all inventory?

  (Stock turnover formula = cost of sales / average inventory value)

d) Do you make use of the EOQ formula?

\[
EOQ = \sqrt{\frac{2DC}{H}}
\]

e) Do you calculate the carrying and the ordering costs?

f) How often the supermarket does experiences stock-outs?
Relationship with the Main Suppliers

a) Can you walk me through the process of placing an order?

b) How much is the lead time?

c) Do you buy in bulk?

d) What percentage of orders is received on time and what percentage of orders are returned to your key suppliers?

Stock-Take

a) How often are carried out?

b) How many people are involved in the annual stock-take?

c) Does the supermarket perform any continuous checks on items to verify whether the amounts shown in stock records agree with the amount found on the shelves?

d) How is it carried out?

e) What happens when there is a discrepancy between the quantity of physical stock take and that shown on stock records?

Stock Recording System

a) Is the actual level of inventory maintained through the use of the periodic inventory system or the perpetual inventory system?
b) Is there a manual or computerised system for recording of stock?

If it is computerised:

- What is the name of the software and how much time has passed since you start utilising this system?
- Is the software tailor-made, off-the-shelf or in-house developed software?

c) Are stock records updated in real time?

d) How frequently are stock records checked against physical inventories?

e) Do you come across any issues or need for improvement relating to ICT when dealing with stock control?

**Stock Security**

a) What measures are used to safeguard stock?

b) Who is authorised to enter in stores?

c) How do you monitor the expiry of products? Do you have specific staff assigned for this job?

d) Do you perform any tests to see which items are fast moving and slow moving? How often?

e) How often are fridges and freezers checked to ensure these are working properly?
Appendix 4: Covering Letter

14\textsuperscript{th} October 2014

Dear Madam/Sir,

Darren Agius is a Master in Accountancy student reading through the last year of the degree programme. In the course of his academic studies and assessment he is preparing a dissertation titled “An Evaluation of Stock Control in Maltese Supermarkets”.

As part of the dissertation project he is required to collect data via interviews. In this context you are kindly being asked to assist Mr. Agius by providing him with any information that you can offer.

Mr. Agius and the Department of Accountancy of the University of Malta would be very grateful for your collaboration. All responses will be used by the student for research purposes only. Furthermore such responses will be treated with the confidentiality that is applicable in the writing of the research project.

Yours sincerely,

Mr Francis Debono
Dissertation Supervisor
References


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