The Relationship betwen Information Sharing, Inventory Management and Customer Satisfaction in the down stream chain of textile industry

The case of AddissKetema sub city

A Thesis Submitted to Department of management of MBA Addis Ababa University

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ADDIS ABABA UNIVERSITY
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DECLARATION

I, the undersigned, declare that, this study **"The relationship betwen information sharing, inventory management and customer satisfaction in the down stream chain of textile industry the case of AddissKetema sub city"** is my original work and has notbeen presented for a degree in any other university, and that all sources of materials usedfor the study have been duly acknowledged.

Declared by:
Name_____
Sign_____
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Confirmed by Advisor:
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Acknowledgement

First of all I pay my whole hearted gratitude to the Almighty ***ALLAH*** that endowed mewith an innate ability to recognize and acknowledge His existence. Without His grace andwish, I won't be hear where I am now and obviously this work can't be accomplishedsuccessfully. May *ALLAH* send His praises upon the holly and beloved prophet,***Mohammad bin Abdullah,*** who brought the message of peace and happiness to allcreatures.

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ABSTRACT

The purpose of the study was to investigate the relationship between information sharing, inventory management and customer satisfaction in the down stream chain of textile industry in Ethiopia. A quantitative research design was used to establish the relationship between information sharing inventory management and customer satisfaction in the down stream chain of textile industry in Ethiopia. A sample size of 180 respondents consisting of retailers and distributors was taken. The research findings indicated that there was a significant positive relationship between information sharing, inventory management and customer satisfaction.

Information sharing and customer satisfaction had Pearson correlation coefficient of 0.850 ** Information sharing and inventory management had Pearson correlation Coefficient=0.864** and Inventory management and customer satisfaction had Pearson Correlation coefficient of 0.814** Information sharing and inventory management significantly influenced customer satisfaction. In conclusion Channel partners required the installation of information systems and customer collaboration in order to ensure better information sharing and inventory management hence leading to high levels of customer satisfaction.

CHAPTER ONE

1.1 BACK GROUND TO THE PROBLEM

The textile industry of Ethiopia are characterized by elongated or overextended chains of middlemen which include distributors and retailers (buyers/agents) which, in turn, mean long chains of transactions between chain members and consumers.These chains are referred to as the downstream chains (Handfield , BarnHardt and Powel,2004).These in turn have led to poor access to appropriate market information (UNACTAD, 2006).This has been caused by lack of information networks within their downstream chain.

Limited or no access to timely information regarding both domestic and export markets especially with respect to such matters as supply volumes and quantities has led to supply shortages because players are never aware of how many orders a customer has placed and how much should be ordered from suppliers (Kaijuka, 1994-1999; Yorst, etal,2007). This has caused erratic deliveries, late deliveries and inflexibility hence affecting customer satisfaction with in their downstream chain (USAID, 2001: UNlDO, 2005).

Customers are concerned with the availability of the product and the ability of the firms to meet their needs timely (Gunasekaran and Patel; 2001). They make repeat purchases based on the service provided by the chain partner. Unavailability of inventory has affected customer satisfaction with in the downstream chain hence leading to loss of chain profits among the channel members (Verwijmeren, 1996).

In addition access to information in the down stream chain has been hampered by technological impediments such as lack of an information technology that has a greater orientation towards customer service (US AID, 1996). Individuals are unable to make contacts with the appropriate information providers due to some technological problems as well as ineffective collaboration (lack of market information net works) which has affected the better use and sharing of information to reduce uncertainty about future demand. (Mayoni 2005;Okell, 2007)

1.2Statement of the problem

Limited or no access to timely information regarding both domestic and export markets especially with respect to such matters as supply volumes and quantities has led to supply shortages because players are never aware of how many orders a customer has placed and how much should be ordered from suppliers (Kaijuka, 1994-1999; Yorst, etal,2007)

Customers are concerned with the availability of the product and the ability of the firms to meet their needs timely (Gunasekaran and Patel; 2001). They make repeat purchases based on the service provided by the chain partner. Unavailability of inventory has affected customer satisfaction with in the downstream chain hence leading to loss of chain profits among the channel members (Verwijmeren, 1996).

In addition access to information in manufacturing firms and the down stream chain has been hampered by technological impediments such as lack of an information technology that has a greater orientation towards customer service (US AID, 1996). Individuals are unable to make contacts with the appropriate information providers due to some technological problems as well as ineffective collaboration (lack of market information net works) which has affected the better use and sharing of information to reduce uncertainty about future demand, encouraging more responsive manufacturing (Mayoni 2005;Okell, 2007).

Information sharing and inventory management are key important factors for the down stream chain. They enable firms in the chain match demand with supply. How ever firms in the down stream chain of textile industry in Ethiopia face problems of lack of information sharing and poor inventory management which has affected their ability to satisfy their customers.

As far as the knowledge of the researcher is concerned, there is no empirical study that is conducted in the area of the relationship between information sharing, inventory management and custmer satisfaction in the down stream chain of textile industry in Ethiopia.

There is no or very little research conducted on thise topic in Ethiopia this motivates the researcher to study the relationship between information sharing, inventory management and custmer satisfaction in the down stream chain of textile industry in Ethiopia.

1.3 General objectives of the study

The study seeks to investigate the relationship between information sharing, inventory management and customer satisfaction in the down strem chain of textile industry.

1.3.1 Specific objectives

The research objectives were to;

i). Establish the relationship between information sharing and inventory management in the downstream chain.

ii). Establish the relationship between inventory management and customer satisfaction in the downstream chain.

iii). Establish the relationship between information sharing and customer satisfaction in the downstream chain.

1.4 Research questions.

The research questions were;

i).What is the relationship between information sharing and inventory management in downstream chain?

ii).What is the relationship between inventory management and customer satisfaction in downstream?

iii).What is the relationship between information sharing and customer satisfaction in downstream chain?

1.5 Scope of the study

1.5.1 Content Scope

The researche focused on the relation ship between information sharing, inventory management and customer satisfaction on the down stream chain of textille industry in Ethiopia.

1.5.2 Geographical Scope

The study concentrated on the down stream chain in the textile industry of Ethiopia with specific reference to retailers and distributers of Addis ketema sub-city in Addis Ababa.

1.6 Significance of the study

i). The research findings would help current and future firm owners and customers in designing mechanisms that ensure that information is shared hence leading to better inventory management that will improve customer satisfaction.

ii).The study adds to the existing literature on information sharing, inventory management and customer satisfaction in the downstream chain.

iii). Creates knowledge and provide more information to future researchers and academicians.

Iv). The findings avail information that will be useful to academicians in this field.

1.7 Limitations of the study

i). The researcher incurred high costs when conducting the study. The researcher tried to utilize the little money she had in order to finish her research.

ii). Since little research on information sharing, inventory management and customer satisfaction in downstream chains of manufacturing firms had been carried out here in Ethiopia, there was limited literature and scarcity of local secondary data hence foreign data was used. The researcher tried to carry out an internet search on all web sites to find out if there was any research in the area and she managed to get articles from the World Bank website, Google and Yahoo.

iii) Some respondents showed unwillingness and low cooperation in filling question. The researcher secured willingness from them through buying them lunch and meeting them in their free time.

1.8 Structure of the report

Chapter one looks at the back ground, statement of the problem, research objectives, research questions, scope of the study, purpose of the study and limitation of the study.

Chapter two reviews literature concerning the study. Literature on information sharing and inventory management, inventory management and customer satisfaction, information sharing and customer satisfaction and information sharing, inventory management and customer satisfaction was reviewed.

Chapter three looks at the methodology. The chapter looks at the research design,data type and source of data,research approach,data gathering technique and instruments,sampling and sampling techniques, sample design, target population, sample size, and measurement of variables.

Chapter four looks at analysis, discussion and interpretation of findings.

Chapter five looks at the summary, conclusion and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2. Introduction

The chapter focuses on the literature of the study.

2.1 Information sharing and inventory management

Information sharing has been shown to be the key to successful downstream chains (Aviv, 2003).According to Lee and Wang (2000), it provides information regarding inventory levels and position, sales data and forecasts, order status, production and delivery schedules and capacity. It is considered as the most reliable "real time" tool to decrease uncertainty in the chain which leads to the bullwhip effect (Lewis, 2003).This refers to variations in demand and supply which are caused by information uncertainties in the chain (Taylor, 2000). This helps to reduce safety stock at each stage which leads to a reduction in inventory carrying costs (Yao, Evers and Dresner, 2000).

Product and delivery lead times are shortened making products available on time to customers (Tachizawa and Ginemez, 2005).Access to information enables channel members to plan how much to stock for a given period of time (Fasanghari, Roudsari and Kamal, 2008). In order for information sharing to take place, chain partners should have a collaborative potential and IT infrastructure (Shore and Venkatachalam, 2003).

2.1.1 Information sharing and Inventory levels

Information sharing plays an important role in inventory management (Sabbath, 2008). This enables chain partners to plan properly, avoid inventory bottlenecks in the chain and avoid safety stocks both for all the channel members (Chandra, 2000; Patel, 2001).Normally, when a buyer needs a product he places an order to a supplier. With information, chain partners are able to know when and how much to order and what to put in the inventory pla`n (Elvander, Sarpola and Mattson, 2007). In order to share information, a partnership is formed between the supplier and buyer in which the supplier takes care of the-orders and replenishing (Ahmed 2004).To accomplish this, the supplier (retailer or distributor) gets regularly information on the inventory

level and sales data of the buyer via the web or Electronic Data Interchange (EDI) (Homburg and Grozdanovic&Klarmann, M, 2007). Thus, when inventory drops below a certain level, orders are generated automatically on behalf of the buyer. In this case, it is the supplier who creates and manages the inventory plan. Continuous replenishment (CR) and vendor managed systems are used to share information that is used to manage inventory levels (Skjoett et al., 2003; Cooke, 1998; Bernstein et al., 2005).

2.1.2 Information sharing and inventory accuracy

According to Fisher (1997), inventory accuracy is the ability to predict the true demand of a product.Trying to control inventory with bad information is futile (Taylor, 2000). All replenishment decisions are based on the status of your inventory (Sahay, 2003).

Information sharing enables chain partners to make reliable delivery promises, keep inventory levels low and inventory records 98 percent accurate every day. Information systems provide real-time information which enables chain partners forecast accurately (Cross, 2000). Use of systems like electronic data interchange, point of sale systems, enterprise resource planning systems enable inventory accuracy through the provision of accurate information (Weber and kantamneni, 2002).

According to Kang and Gershwin (2005), chain partners experience inaccurate inventory records as a result of lack of collaboration while Raman et al. (2001) says that inventory records do not match with physical stock in chain partners' stores due to lack of collaboration.

2.1.3 Information sharing and Inventory costs

Silver et al. (1998) suggest, a partner's fate depends on how it manages its inventory. Much of the chain partners' costs are attributed to the amount it invests in inventory and associated holding, transportation, and management costs (Silver et al, 1998).According to Larry, Mulky and Harrington (1996), inventory has the biggest cost hidden in most chain partners' businesses. In addition, Fleisch and Tellkamp (2005) found out that inadequate information sharing results into inventory inaccuracies which increases the chain partners' holding costs and increases the out-of stock situations. The significant monetary investment in inventory only enhances the importance of better inventory management (Brewer and Speke, 2000).

In response, chain partners seek cost improvements by enhancing the efficiency of their inventory management systems (Verwijmeren, 1996). The use of systems like point of sale systems and collaboration helps chain partners to acquire information which reduces losses from obsolescence, damaged inventory, handling costs, stock outs costs, enables proper demand planning and replenishment (Verwijmeren, 1996; Parks, 1999).Safety stocks are reduced through vendor managed inventory, just in time and consignment inventory (Simatupang and Sridharan, 2008; Keong, 2005). All those can be operated through the use of integrated systems like vendor managed systems and just in time systems (Keong, 2005). The reduction in safety tocks leads to reduced obsolescence and storage (Ahmed et al, 2005). Stock out costs are reduced has a result of parties in the chain sharing information which reduces demand variability (Simatupang and Sridharan, 2008).

2.1.4 Information sharing and inventory turns

Inventory turns refer to the number of times inventory is converted into cash (Koumanakos, 2008). Chain partners boost earnings by addressing our stock issues (Corsen and Gruen, 2003). High levels of inventories mean that there are low levels of inventory turns (Koumanakos, 2008). Non availability of stocks results into losses to all chain partners because customers may decide to buy another brand, buy items from another store or delay purchase. This comes as a result of information inefficiencies where the order information sent up the chain does not reflect the true consumer demand (Corsen and Gruen, 2003). A lack of inventory record accuracy clearly reduces chain profits due to lost sales and inventory carrying costs, which may run as high as 10 percent of existing profits (Raman et al., 2001).

According to Rogers et al. (1992), chain partners utilizing information systems get information which enables them to accommodate selected customer request and provide a greater number of services to customers which will in turn improve chain members' profits. Systems like automatic purchase ordering systems enable chain partners not to evaluate inventories by moving down the stores and making orders based on intuition and also improve inventory turns of component stocks, and uniform the deviation between components (Corsen and Gruen, 2003). Information sharing enables the chain partners to achieve revenue enhancements (Broersox, 1990; Lee et al., 1997). Information sharing through collaborative efforts enables chain partners focus on co-

managed inventory by considering different levels of demand uncertainty which enables them to improve fill rate, increase inventory turnover and enhance sales (Parks, 1999).

They improve fill rates ensuring that all customer orders are delivered on time. This leads to sales enhancement through repeat purchases and increased number of customers (Gunasekeran and Tirtiroglu, 200I).It also leads to increased responsiveness to market demands, customer service and increases market share (Anderson and Lee, 1999; Corbett et al 1999; Mentzer et al, 2000; Mc Laren et al, 2002).customer service and responsiveness are increased through increased flexibility. Information sharing enables chain partners to make products or services available to meet individual demand of customers and also making changes in products or services or deli every dates based on the customer's requirement (Gunasekeran and Tirtiroglu, 200I).

Market share is increased through chain partners being able to have the best service level compared to competitors. To be competitive, chain partners must compare their service to those of their competitors (Gunasekeran and Tirtiroglu, 2001).

2.1.5 Information sharing and order lead time

Information sharing enables the chain partner to compress lead times, improve faster product to market cycle times, higher flexibility in dealing with supply and demand uncertainties (Bowersox, 1990; Lee et aI., 1997; Anderson and Lee, 1999; Corbett et al., 1999; Mentzer et al., 2000; McLaren et al, 2002).With collaboration, customers are able to specify the kind of product they want and in what quantities (McLaren et aI, 2002).

Information sharing enables chain partners to compress lead times know how much they should have in stocks to meet customer demands. These stocks will enable chain partners to provide deliveries on time to their customers (keong et al, 2005). In case of non standardized products, chain partners will be flexible when the amount of time taken to fulfill customer orders is less than the amount of time the customer is willing to wait when the order is placed (Wallin, 2006).

Product to market cycles times are reduced when manufacturing firms collaborate closely with the downstream partners to obtain customer information and seize new market opportunities (Holmstrom, 2006). Information technology systems are used to encourage close collaboration

and intensive information exchange between the down stream partners, thus creating a flexible and efficient down streamnet work (Omara, 2004).

2.2 Inventory management and customer satisfaction

Better inventory management enables better customer satisfaction (Eckert, 2007). Customers are satisfied when suppliers fulfill their orders on time (Wilding ,2003).This makes channel partners keep buffer stocks to fulfill customer orders or enter into long term relationships which require commitment and trust (Wang,2002).Commitment is the desire to continue a relation ship and may be defined in three dimensions; inputs to it, its durability and itson going consistency (Wilson,1995,p.337;Mowen and Minor,1998).Trust is the belief that a party's word or promise is reliable and a party will fulfill its obligations in an exchange relation ship. High levels of trust lead to high levels of customer satisfaction (Andaleeb, 1996).

Trust and commitment can be achieved through the use of vendor managed inventory, consignment inventory and just in time inventory management (Centikaya and Lee,2000).these enable channel partners to satisfy their customers' needs through providing on time deliveries which result into repeat purchases, positive word of mouth and reduced inventory carrying costs on the customers' side (Wang,2000).Malz, Arnold and Elliot (2008) point out that customer satisfaction is obtained through reducing order cycle time which leads to on time deliveries to the customer through reducing the manufacturer's production lead time. Customers are satisfied when suppliers are flexible and responsive (Verwijmeren, Vander and Donselaar, 1996).

2.2.1 Inventory management and flexibility

Flexibility is the extent to which the supplier is willing to make changes to accommodate the customer's changing or unforeseen needs and to making available the products/ services to meet the individual demand of customers (Humphrey and Tucker, 2003; Gunasekaran, 2001). It is particularly valued in case of unforeseen problems or short-term changes in the needs of the customer. Suppliers displaying flexibility will make quick responses to the buying firm's needs (Tachizawa and Ginemezi, 2005). There is need for willingness to modify inventory policies or procedures when this helps a customer (Cheung and Lee, 2002). Being flexible allows a supplier to demonstrate a general readiness to respond to customer needs and this is supported by the use

of information technology which enables integration and information flow within the chain (Romano, 2003).

Such technologies as flexible manufacturing systems (FMS), group technology (GT), and computer-integrated manufacturing (CIM) (Ndubisi et al, 2005).The flexibility of downstream chain is crucial in satisfying customers' changing needs in today's competitive and uncertain environments (Ndubisi et al, 2005).Chain partners keep excess stock in order to be flexible. They want to meet customer orders immediately the customer releases it, that is shortens the lead time (Ayad, 2008).These enable them meet the delivery dates and fill customer orders (Cetinkaya and lee, 2000).Customers may not return after experiencing many negative experiences and this means many lost sales to chain partners (Gruen and Corsten, 2006).Firms with advanced technology as their competitive edge can overcome stiff competition by introducing wide range of products to meet the different market segments and able to deliver quickly to the hands of customers before any of its competitors can do so (Ndubisi et al, 2005).

2.2.2 Inventory management and customer loyalty

Chain partners have got to be as efficient as possible (Introna, 1991). Customers have information concerning all products and services provided by chain partners in the market (Blather wick, 1996). They can very easily make a decision of taking their business elsewhere if a retailer, distributor or manufacturer cannot provide first class service in terms of availability of product (Blatherwick, 1996). Similarly, if retailers, distributors and manufacturers cannot compete on price, customers will very quickly be aware of this failing and transfer their loyalty. Customer expectations in terms of service, range, new products and promotions require chain partners to be flexible indeed (Howgego, 2002).

They have to provide pre and post purchase satisfaction to a customer which results into brand loyalty of the customers (Agarwal, 2007).1n order to realize fully the benefits of downstream chain, chain partners have to develop end-to-end integration of systems which will reduce costs, improve distribution and inventory management and thus customer loyalty (Howgego, 2002).Such systems include the digital loyalty network (DLN) which enables chain partners to continuously collect and monitor their customer, product and downstream chain data and more

precisely adjust engineering, production, distribution and sales/marketing activities to meet current, future demand and enhance their partnership with suppliers (Introna, 1991).

2. 2.3 Inventory management and inventory returns

Having the desired products on hand when the customer wants them is critical to satisfy customer needs. More and more chain partners are using inventory-management information to improve their ability to fulfill key customer demand and having the right product at the right time (Anonymous, 1998).Understanding consumer behaviors and market trends can help chain partners to satisfy customer needs and to manage inventory information efficiently (Lee and Kleiner, 200l).Customers will return the product if it does not meet their requirements (Stuart et al, 2005). Products are returned on the sequential consideration of product condition, obsolescence, back-order status and when products are not environmentally compliant (Stuart et al, 2005; Blengini, 2008).

2.2.4 Inventory management and quality

Customers are interested in getting defect free products (Davidson et al, 200I). This means that chain partners have to be flexible and responsive, so that they can be adapted to meet rapidly changing customer expectations (Davidson et al, 2001).There is need for commitment, co operation and integration among manufacturer, distributors and retailers to meet the changing customer expectations (Neave, 1995; Chelsom, 1998). In order to satisfy customers, it is crucial to meet their moment of value which means delivering the right product at the right time and in the right place (Haag et aI, 1998). Chain partners ensure timely delivery of a product that the customer really wants through the use of systems like just in time systems.

2.2.5 Inventory management and on time delivery

Customers are satisfied when suppliers (retailers, distributors and manufacturers) are able to deli ever products or services as and when required. Chain partners maintain high levels of inventories at their stock point (Koumanakos, 2007). These reduce the amount of time it takes to deliver the product to the consumer (David et al, 2001). However having these high levels of inventories only works for standardardised products ((David et al, 2001). They would actually be

counter –productive to meeting customers' needs for non standardized products (Newman and Sridharan, 1995; Johnson and Mattson, 2003; Vollmann et al, 2005)

Efforts would be directed to sell what they have rather than what they have rather than what the customer wants in an attempt to use up inventory. Incase of non standardized products, customers are satisfied when the amount of time it would take to satisfy the customers is less than the amount he customer is willing to wait, once an order has been placed (Wallin,2006).Chain partners have to be flexible in order to satisfy customers' needs immediately (Gunasekaran,2001).In order to be flexible, chain partners may be required to maintain high stock levels or using information technology which helps chain partners to be flexible through providing timely information which leads to better customer service and inventory management (Ellram,1999).

2.2.6 Inventory management and repeat purchases

Chain partners are facing a challenge of retaining loyal customers (Agarwal, 2007). They have to provide pre and post purchase satisfaction to a customer resulting in repeat purchases. Pre-purchase satisfaction takes into consideration quality, provision of transport, fair prices and flexibility while post purchase satisfaction looks at service management activities such as repair services which depend heavily on reverse logistics operations (Amini et al, 2005; Howgego, 2002).

Safety stocks are maintained to reduce the fear chain partners have of loosing a customer due to un availability of a product (Anonymous,1998).Understanding consumer behaviors and market trends can help chain partners to satisfy customer needs and to manage inventory information efficiently (Lee and Kleiner,2001).Customers will return the product if it does not meet their requirements (Stuart et al,2005).Products are returned on the sequential consideration of product condition,obsolelecence,bark order status and when products are not environmentally compliant (Stuart,2005;Blengini,2008).

2.3 Information sharing and customer satisfaction

Chain partners look at information as being power in the downstream chain. This information enables chain partner's gain competitive advantages through increased customer loyalty, repeat purchases, improved quality products and increased flexibility (Fawcett et al, 2007). Connectivity and collaboration enable chain partners to share such information. As a result, chain partners are willing to share information that they perceive may place their organizations at a competitive advantage. A company's willingness to share information that is, its openness to sharing relevant information honestly and frequently ultimately determines the extent of sharing that takes place (Lee et aI., 2000; Mendelson, 2000). Huge investments in technology can be negated by an unwillingness to share needed information.

2.3.1 Information sharing and customer loyalty

Information sharing is conceptualized as the willingness of chain partners to voluntarily provide focused chain-specific information that can be used to help build and maintain customer relationships. Using focused individual customer relationships systems enables chain partners to position their firms toward realizing strategic advantage (Campbell, 2003). Focused customer information can help support the development of customized products and services that is products that meet customer demand (Spekman and Carraway, 2006).Customers are considered as the firm's most valuable asset (Blattberg and Deighton, 1996; Bolton et al., 2004; Peppers and Rogers, 2004).

Firms increase customer lifetime value (CL V) by building and maintaining relationships with its customers. Through information sharing, firms are able to get information on customer behaviors and activities that affect firm profitability from each customer. In order to maintain customer loyalty, chain partners employ business-to-business (B2B) loyalty programs (Capizzi, 2002). Loyalty programs are coordinated, membership-based, marketing activities designed to enhance closer, more cooperative relationships among pre-identified customers toward specific products and services offered by the program sponsor (Lacey and Sneath, 2006). Through targeted communications and customized delivery of goods and services, B2B loyalty programs attempt to build stronger bonds with the customers.

2.3.2 Information sharing and inventory returns

Having the desired products on hand when the customer wants them is critical to satisfy customer needs. More and more chain partners are using inventory-management information to improve their ability to fulfill key customer demand and having the right product at the right time (Anonymous, 1998).Having information on consumer behaviors and market trends can help chain partners to satisfy customer needs and to manage inventory information efficiently (Lee and Kleiner, 2001).Customers will return the product if it does not meet their requirements (Stuart et al, 2005).

2.3.3 Information sharing and quality

Information sharing can lead to improved product quality (Menon et al., 1997).Modern consumers are more demanding than ever and have come to expect to pay the lowest possible cost for the highest possible quality (Avery, 1998; Cole, 1998; Reed et al, 1996; Scully and Fawcett, 1997).Customers are interested in getting defect tree products (Davidson et al, 2001). This means that chain partners have to ensure that they get information as far as the customer requirements are concerned, so that they can adapt their products to meet rapidly changing customer expectations (Davidson et al, 2001).There is need for commitment, co-operation and integration among manufacturer, distributors and retailers to meet the changing customer expectations (Neave, 1995; Chelsom, 1998).

2.3.4 Information sharing and repeat purchases

Customers are concerned when chain partners do not deliver products that meet their specifications (Agarwal, 2007). Chain partners employ strategies that enable customers disclose their product information (Fritiche and Kim, 2003). The chain partner will then be able to provide a product that meets the customers' product specifications and the customer will then feel obligated to buy the product presented to him. In order to ensure that customers purchase more, chain partners have to be committed and consistent with what they have already done (Fritiche and Kim, 2003). Chain partners employ information systems and collaborate with their customers in order to offer the best services to them. These enable chain partners reduce purchase prices, save time and ensure on time availability of the products (Carter etaI, 2004; Dai

and Kauffman, 2002; Emiliani, 2004; Pinker et aI, 2003; Presutti, 2003; Smart and Harrison, 2003; Smeltzer and Carr, 2002, 2003).

2.3.5 Information sharing and flexibility

Flexibility is the extent to which the supplier is willing to make changes to accommodate the Customer's changing or unforeseen needs and to making available the products or services to meet the individual demand of customers (Humphrey and Tucker, 2003; Gunasekaran, 2001).Frequent communication enables chain partners to react to demand changes (Kaipia et al 2002). This provides information on the changing customers' tastes and preferences. Chain partners will respond to such changes through the use of information technology which enables information flow within the chain and customer collaboration which shows the willingness of chain partners to release the information (Romano, 2003). The flexibility of downstream chain is crucial in satisfying customers' changing needs in today's competitive and uncertain environments (Ndubisi et al, 2005).

2.3.6 Information sharing and on time delivery

Chain partners require information in order to make on time deliveries to their customers (Koumanakos, 2007).Customers are satisfied when suppliers (retailers and distributors) are able to deli ever products or services as and when required. Chain partners maintain high levels of collaboration and information technology in order to receive information concerning their customer needs .This reduces the amount of time it takes to deliver the product to the consumers (Davidson et al, 200I). Customers are satisfied when the amount of time taken to satisfy them is less than the amount of time they willing to wait, once an order has been placed (Wallin, 2006).Chain partners have to be flexible in order to beat the customer deli every dead lines (Gunasekara, 2001). In order to be flexible, chain partners may be required to share information which helps them deli ever with the customers specified deli every dates (Ellram, 1999).

2.4 Empirical reviews

This sub part of the literature review help to see what exist in reality beside the theoretical Aspects (Thogori M. & Dr. Jane Gathenya) conduct a study on Role of Inventory Management on Customer Satisfaction among the Manufacturing Firms in Kenya. The study sought to carry

out an investigation on the role of inventory management on customer satisfaction among the manufacturing firms in Kenya. Customer satisfaction is crucial since manufacturing firms contribute greatly to the economic development of a country. The study applied a case study research design, The population for the study was all the 1,200 food manufacturing firms in Kenya (Kenya Asociation of Manufacturers, 2013). The target population comprised of 50 employees working at Delmonte. The case study used a census because the population was not large (Kothari, 2006). Data collection methods were classified as, observation guides, interviews guides (for the management), questionnaire (for both management and the customers) as well as the use of available records in the organization. Descriptive statistics in the form of frequencies, percentages and inferential statistics were used for analysis in the study (Mugenda and Mugenda (1999)). Statistical Package for Social sciences (SPSS) computer software (version 18) was used to present the data in the form of frequency, tables and percentages. A census was carried out on all the 50 employees at Delomonte Kenya who were directly and indirectly involved in the supply chain management activities. A questionnaire, interview guide and observation guide were used to collect the data. A response rate of 90% was obtained. Based on the research findings, all the respondents (100%) indicated that the company experienced shortages in inventory. 73% of the respondents indicated that the company did not determine the inventory levels to hold. This meant that the company was not able to determine how much stocks the company had to meet demand variations. The study concluded that manufacturing firms have poor inventory management systems and this has greatly impacted on their ability to satisfy the customer.

Another study conducted by (Sheila Namagembe, J.C.Munene, Moses Muhwezi and Sarah Eyaa) on information sharing inventory management and customer satisfaction the case of monufacturing firms in Uganda

Information sharing and inventory management have emerged as key factors for manufacturing firms wanting to meet their customer demand in the downstream chain. Downstream chains of manufacturing firms in Uganda face a number of challenges that affect customer satisfaction. Information sharing and poor inventory management are some of the challenges that affect customer satisfaction in the downstream chain. This study attempts to study the relationship between information sharing, inventory management and

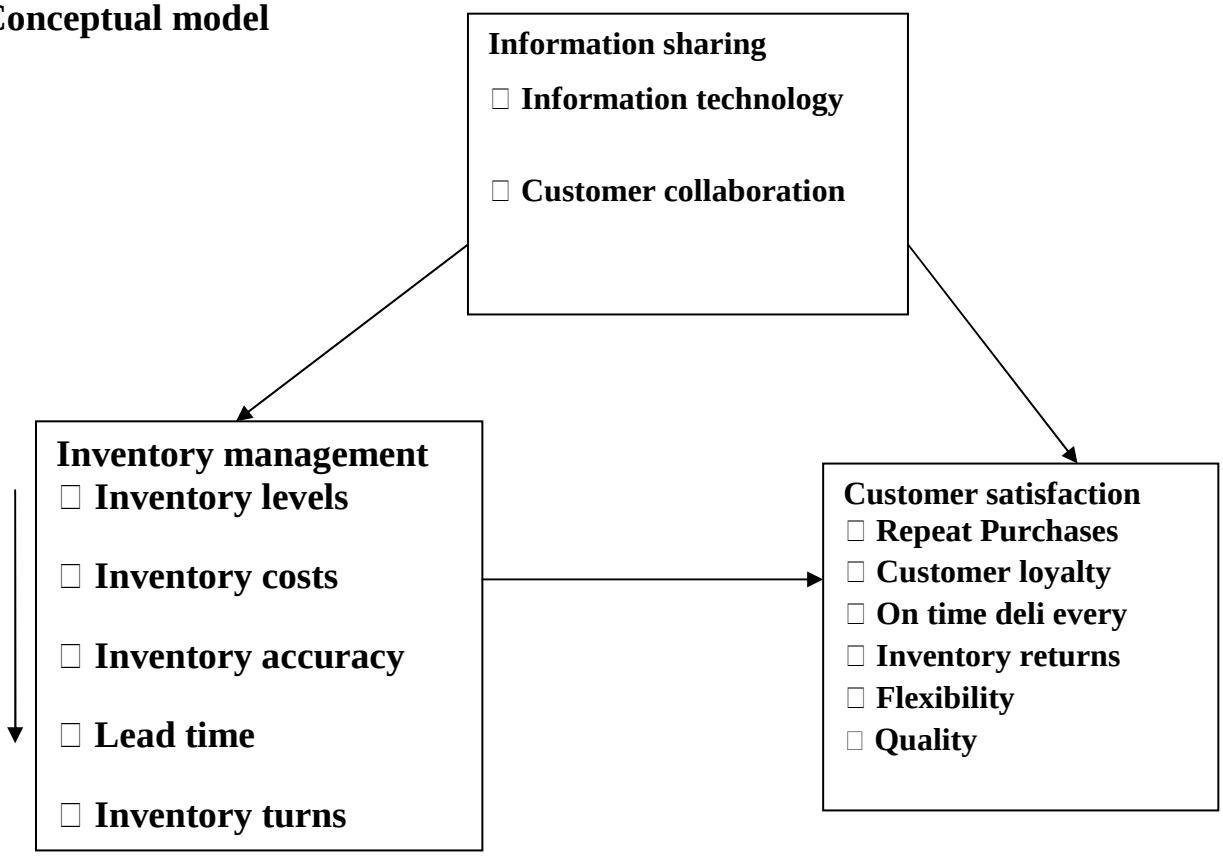
customer satisfaction in the downstream chain of manufacturing firms in Uganda. Customer satisfaction in the downstream chain is important because Manufacturing firms contribute a large percentage to the GDP of the country. The research was based on registered distributors and retailers who sell products of manufacturing firms in Uganda. A Sample of 523 was taken composed of registered retailers and distributors. A survey questionnaire was used which was adopted from those used by previous scholars and was modified to suit the local setting. A response rate of 69% was achieved. The study established that information sharing explained 47.1% of the variation in customer satisfaction and inventory management explained 39.4% of the variation in customer satisfaction. According to the results, information sharing affects customer satisfaction more than inventory management. This is consistent with what previous scholars have found out. These results raise implications to the owners manufacturing firms in Uganda and to the theory as well. This is the first study to document the effect of information sharing, inventory management on customer satisfaction in the downstream chain of manufacturing firms in Uganda. Manufacturing firms in Uganda have neglected the issues of information sharing and inventory management which has affected their ability to meet customer needs. The results indicate that the firm's ability to share information and ensure proper inventory management has implications on customer satisfaction. The fact that manufacturing firms are not willing to share information with their downstream chain partners also has important implications, demonstrating the practical value of information sharing and inventory management.

2.5 Conceptual model

The following conceptual framework in which this specific study governed was developed as follows:

Figure: 1

Conceptual model



Source: Cheung and Lee, 2002, Kwon and Suh 2004, Ratinasingam, Hau Tan and Pavlou 2002; Warketinetal, 2000 and Cachon and Fisher, 2000.

Description of the model

The Literature review is based on the conceptual frame work**.**The essence of the research framework for this study is that successful customer satisfaction requires information sharing among the downstream chain partners'. Information sharing is required for better inventory management. Information sharing involves sharing information about customer and inventory decisions made by different chain members. Better inventory management reduces excess inventory, better product forecasts, sufficient capacities and good customer service due to availability of products, certainty in production planning (Cheung and Lee, 2002).

Due to better inventory management, channel partners can satisfy customers' orders in better way with increased responsiveness and flexibility which lead to customer satisfaction (Kwon and suh 2004; Ratinasingam, Hau Tan and Pavlou 2002; Warketin et al, 2000). Information sharing among the channel partners leads to better inventory management which leads to customer satisfaction. It enables channel partners to match supply with the customer's demand requirements. Through the use of information technology and customer collaborations, channel partners are able to achieve a high degree of flexibility and responsiveness in meeting customer needs (Cachon and Fisher, 2000).

CHAPTER THREE

3. Research Methodology

3.1 Introduction

This part describes the methodologies that were used in this study: the choice of particular research designs, data type and source of data, research approach, data gathering technique and instruments, sampling and sampling techniques and data analysis techniques along with an appropriate justification associated with each approach.

3.2 Research design

Designing a study helps the researcher to plan and implement the study in a way that will help the researcher to obtain intended results, thus increasing the chances of obtaining information that could be associated with the real situation (Burns & Grove 2001). This study is an applied research which follows a correlational research approach in order to address the aforementioned objectives. It is conducted on retailers and distributers of Addis Ketema sub city in Addis Ababa, Ethiopia. The data used in the study are quantitative in nature which is collected from primary sources. The researcher used the Cross-sectiona field survey method to assess the relationship between information sharing and inventory management on one hand and inventory management with customer satisfaction, and finally the relationship between information sharing and customer satisfaction. In the cross sectionalfield survey, independent and dependent variables were measured at the samepoint in time by using a single questionnaire. In addition the study is also said to beassociational in design because there is the intent to establish the relationship betweendependent and independent variable of the study. The researcher selected the samplefrom the target population by using probability sampling particularly stratified samplingtechnique.

Correlational research aims to ascertain if there is a significant association between twovariables (Reid, 1987). Hence, after the data were collected, the researcher analyzed thedata by using correlation, particularly Pearson's coefficient of correlation, and regressionanalysis technique to show the effect of independent variables on the dependent variable.

3.3 Data Type and Source of Data

The researcher used primary data for the entire analysis of this study. The information was gathered through questionnaire from the selected sample of respondents of retailers and ditributers of Addis Ketema sub city. The data collected from the respondents through questionnaireswas used as primary data. According to Biggam (2008), primary data is the informationthat the researcher finds out by him/herself regarding a specific topic. The mainadvantage with this type of data is that it is collected with the research's purpose in mind.It implies that the information resulting from it is more consistent with the researchquestions and objectives.

3.4Research approach

The approach of this study consists of combining reaserch in to primary and secondary data. Secondary data, that is, the litrature phase of the research has essentialy been provided in the previos chapters. The theoretical part or the litrature of the study is represented by the debate of various parameteers relative to information sharing, inventory management and customer satisfaction.this is of vital importance in the sence that it provides measured explanation concerning information sharing, inventory management and customer satisfaction in the down stream chain.

The primary data analysis are in the form of an empirical study.in this phase, distributers and retailers in Addis Ababa (especialy in Addis ketema sub city) are included in the study. In light of the above, it is indicated that the respondents in this population (distributers and retailers of Addis ketema sub city) are precisely those dealing with textile market.

3.5 Data Gathering Technique and Instruments

The primary data was gathered particularly using survey questionnaire. The researcher distributed the questionnaire to sampled respondents. For the purpose of this study a quantitative methodology involving a close-ended questionnaire was used as the measuring instrument. The close-ended questionnaires can be administered to groups of people simultaneously, since they are less costly and less time consuming than other measuring instruments. The standard

questionnaire used to collect the necessary information regarding the study was adopted from the work of Li et al. (2006), Lenny *etal.* (2007), and Priscila and Luiz (2011). The Likert-type scale method used a range of responses: 'Strongly Disagree', 'Disagree', 'Neutral', 'Agree', and 'Strongly Agree', with a numeric value of 1-5, respectively. The usage of this particular scaling method ensured that the research study illustrated the ability to assess the responses and measure the responses quantifiably so that a pattern or trend may be produced in order to assessresearch hypotheses. As Neuman (2003) hypothesize, it is a process of asking many people the same questions and examining their answers.

3.6 Sampling and Sampling Techniques

3.6.1Target Population

According to Hair *et al.* (2010), target population is said to be a specified group of people or object for which questions can be asked or observed made to develop required data structures and information. Therefore, for this study,the target population of this study is distributers and retailers located in Addis ketema sub city.

3.6.2 Sampling Techniques

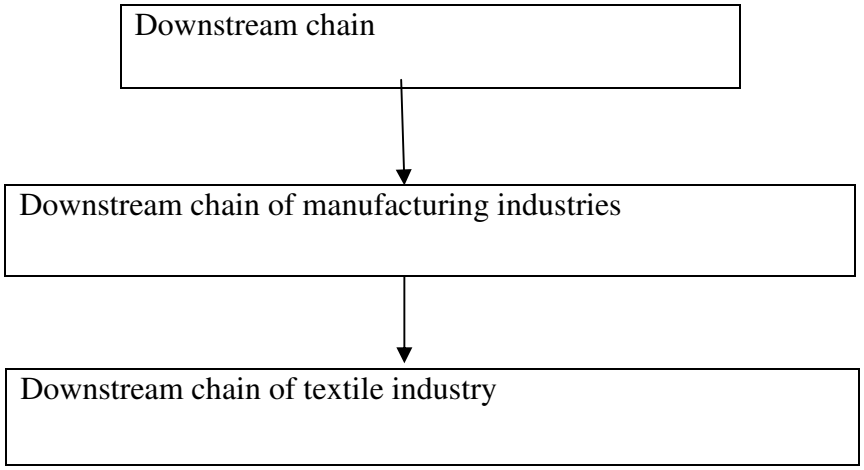
For the purpose of this study, the researcher used probability sampling particularlystratified sampling technique. The target population for the study was classified into two strata based on the size of their business.Then the samples were selected from each stratum according to theirproportion to the total population. Since the information required for the study needsdifferent people who have knowledge and awareness about different inventory management practices/dimensions, information sharing and customer satisfaction, stratified sampling technique were used to have the rightproportion of people from every concerned section. The sectionconsidered as strata, from which data were collected, are: retailers and distributers of Addis Ketema sub city because most of the manufacturing firms have agents in Addis Ketema and it's a strategic business area where information technology is more developed compared to other area.

3.6.3 Sample Size

In order to make the study among retailers and distributers of textile products more practical, a sample of the above mentioned target population must be taken the sample method followed is illustrated in the figure bellow.

Figue 3.1 sampling model

Level 1.



Source: own design/research

Level 1: represents respondentsforming part of the entire downstream chain.

Level 2: excludes a number of service industries or organizations like banks, post, transportation and other in a manner to make a sample more valid as far as the downstream chian of manufacturing industries are concerned.

Level 3: focuses on the downstream chain of textile industry. This level is of great usefulness to the sample model in terms of validity and then enables this research to attain its objectives. In concrete terms, more emphases are placed on level 3 because this made responses possible for the elaboration of the statements in the questionnaire.

The following formula is used to identify the sample size for the study.

$s = X\,2NP\,(1-P) \div d\,2\,(N-1) + X\,2\,P\,(1-P)$.

s = required sample size.

$X2$ = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841).

N = the population size.

P = the population proportion (assumed to be .50 since this would provide the maximum sample size).

d = the degree of accuracy expressed as a proportion (.05).

Numericaly or quantitavely seaking, the sample table is represented in the table as follows:

TABLE 1
Table for Determining Sample Size from a Given Population

N	S	N	S	N	S	N	S	N	S	N	S
10	10	220	140	1200	291	85	70	440	205	4000	351
15	14	230	144	1300	297	90	73	460	210	4500	354
20	19	240	148	1400	302	95	76	480	214	5000	357
25	24	250	152	1500	306	100	80	500	217	6000	361
30	28	260	155	1600	310	110	86	550	226	7000	364
35	32	270	159	1700	313	120	92	600	234	8000	367
40	36	280	162	1800	317	130	97	650	242	9000	368
45	40	290	165	1900	320	140	103	700	248	10000	370
50	44	300	169	2000	322	150	108	750	254	15000	375
55	48	320	175	2200	327	160	113	800	260	20000	377
60	52	340	181	2400	331	170	118	850	265	30000	379
65	56	360	186	2600	335	180	123	900	269	40000	380
70	59	380	191	2800	338	190	127	950	274	50000	381
75	63	400	196	3000	341	200	132	1000	278	75000	382
80	66	420	201	3500	346	210	136	1100	285	1000000	384

Note.—N is population size.

S is sample size.

Table 3.1 sampling table

Category	**Population sample**	**Planned Sample**
Distributors	30	28
Retailers	278	162
Total	308	180

From table 3.1 it is shown that the population sample included30 distributors and 278 retailers and the population sample were308.The planned samples drown based on Morgan and Krejecie (1970).The sample drawn from a population sample of 308. The planned sample 180 composed of 28 retailers and 162 distributors. The researcher used a quantitative research design.

3.7 Data Analysis

After the data was collected, inferential statistical technique was employed to analyze theinformation, as this study is quantitative in nature. The data is analyzed using SPSSversion 20. The statistical tools were aligned with the objectives of the research.Inferential statistics is particularly the Pearson's correlation was used to show therelationship and the strength/degree as well as direction of associations betweenvariables. The other inferential statistics used is regression analysis so that to showinterdependence of independent variables and dependent variable. Thus, both the strengthof the relationship between variables and the influence of independent on dependentvariable and statistical significance were assessed.

3.8Measurement of variables

According to Bryman and Bell (2007), reliability analysis is concerned with the internalconsistency of the research instrument. Information sharing was measured using Morgan and Hunt (1994), Doney and cannon (1997) for trust, Morgan and Hunt (1994) and McDonald and Gandz (1992) for commitment and Sabbath (1998) for technology. The measurements looked at the retailer and vendor's benevolence, vendor and retailer's long term orientation, vendor and retailer's credibility. Measures for information technology basically looked at the systems used in information sharing. Information sharing retailer had a reliability coefficient of 0. 73 and Information sharing -distributor had a reliability coefficient of 0.70

Customer satisfaction was measured using Vazquez et al (2004), Walter, Mentzer and Croxton (2002) and Berry and Parasuraman (1991) .The measures included Customer loyalty, repeated purchases, inventory returns, quality and flexibility. Customer satisfaction -retailer had a reliability coefficient of 0. 76 and customer satisfaction -distributor had a reliability coefficient of 0.77. Inventory management was measured using Gunasekaran and Patel (2001) .Inventory management measures included order lead time, inventory accuracy, inventory turns, inventory costs and inventory levels. Inventory management -retailer had a reliability coefficient of 0.80

and inventory management -distributor had a reliability coefficient of 0.60.As multiple items in all constructs were used, theinternal consistency/reliabilities of inventory management practices, information sharing, andcustomer satisfaction were assessed with Cronbach's Alpha and the reliabilityvalues for all constructs are confirmed as greater than 0.7, which are consideredacceptable (Nunnally, 1978).

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF FINDINGS

4.1 Introduction

This chapter is comprised of the presentation and analysis of findings. It includes correlation analysis, and regression analysis. The above statistical thecniques were used to test the objective of the study which are: to establish the relationship between information sharing and inventory management on the downstream chain of textile industry, to establish the relationship between inventory management and customer satisfaction in the downstream chain of textile industry, to establish the relationship between information sharing and customer satisfaction on downstream chain of textile industry.

4.2 Inferential Statistics for the relationship among information sharing,inventory management and customer satisfaction.

4.2.1 Correlation Analysis

Correlations are the measure of the linear relationship between two variables. A correlation coefficient has a value ranging from -1 to 1. Values that are closer to the absolute value of 1 indicate that there is a strong relationship between the variables being correlated whereas values closer to 0 indicates that there is little or no linear relationship.

As described by Andy (2006), the correlation is a commonly used measure of the size of an effect: values of ± 0.1represent a small effect, ± 0.3 is a medium effect and ± 0.5 is a large effect. In this section, correlation analysis conducted in the light of each research objectives and hypotheses developed. The relationship among information sharing, inventory management and customer satisfaction was investigated using correlation analysis. This provided correlation Coefficients which indicated the strength and direction of relationship. The p-value also indicated the probability of this relationship's significance.

4.2.1.1 Correlation Analysis between Information sharing and customer satisfaction.

Table 4.1: Correlation matrix between constructs of IS and CS

		IT	CC	CS
IT	Pearson Correlation	1	.687**	.752**
	Sig. (2-tailed)		.000	.000
	N	150	150	150
CC	Pearson Correlation	.687**	1	.642**
	Sig. (2-tailed)	.000		.000
	N	150	150	150
CS	Pearson Correlation	.752**	.642**	1
	Sig. (2-tailed)	.000	.000	
	N	150	150	150
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Source: survey 2014

The constructs of information sharing which their relation with customer satisfaction seen in the above table are information technology (IT) and customer collaboration (CC).

The correlation between constructs of information sharing with customer satisfaction was run as seen in the above table. The result of correlation matrix between each constructs and customer satisfactin are analyzed as follow:

As it is indicated in the table, there is significant positive correlation between information thechnology (IT) and customer satisfaction with correlation coefficient of 0.752 (r=0.752) and significance less than 0.001. Therefore, information thecnologyand operational performance are genuinely correlated.

Table 4.1 also depict that as there is strong positive relationship between customer collaboration (CC) and customer satisfaction with a Pearson correlation coefficient of 0.642(r=0.642) and significance value is less than 0.001. This significance tells that there isgenuine relationship between customer collaboration and customer satisfaction.

4.2.1.2 Correlation between information sharing and customer satisfaction

Pearson correlation test was conducted between Information sharing (collective representative

Of the two constructs of information sharing) and customer satisfaction, the results are shown in table 4.2. As it is shownin the table, there is significantly strong correlation between constructs of information sharing and customer satisfaction. In other words information sharing and customer satisfaction have strong positive relationship with correlation coefficient of 0.850 (r=0.850) and significance value less than 0.01.

Table 4.2 Correlation between constructs of IS and CS

		IS	CS
IS	Pearson Correlation	1	.850**
	Sig. (2-tailed)		.000
	N	150	150
CS	Pearson Correlation	.850**	1
	Sig. (2-tailed)	.000	
	N	150	150
**. Correlation is significant at the 0.01 level (2-tailed).			

4.2.1.3 Correlation Analysis between Constructs of information sharing and inventory management

Table 4.3 Correlation Matrix between Construct of IS and inventory management

		IT	**CC**	**IM**
IT	Pearson Correlation	**1**	.687**	.800**
	Sig. (2-tailed)		.000	.000
	N	**150**	**150**	**150**
CC	Pearson Correlation	.687**	**1**	.763**
	Sig. (2-tailed)	.000		.000
	N	**150**	**150**	**150**

IM	Pearson Correlation	.652**	.642**	**1**
	Sig. (2-tailed)	.000	.000	
	N	**150**	**150**	**150**
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Source: survey 2014

The correlation between constructs of information sharing with inventory management was run as seen in the above table. The result of correlation matrix between eachconstructs and inventory management are analyzed as follow:

As it is shown in the table 4.3 above, information thechnology (IT) positively related toinventory management with a Pearson correlation coefficient of 0.800 (r=0.800) and significance value is less than 0.001. This significance tells that there is genuine relationship between information thechnology and inventory management.

Table 4.3 also depict that as there is strong positive relationship between customer collaboration (CC) and inventory management with a Pearson correlation coefficient of0.763 (r=0.763) and significance value is less than 0.001. This significance tells that thereis genuine relationship between customer collaboration and inventory management.

4.2.1.4 Correlation between information sharing and inventory management (IM)

Table 4.4: Correlation Matrix between IS and IM

		IS	**IM**
IS	Pearson Correlation	**1**	**.864****
	Sig. (2-Tailed)		**.000**
	N	**150**	**150**
IM	Pearson Correlation	**.864****	**1**

	Sig. (2-Tailed)	**.000**	
	N	**150**	**150**
**. Correlation Is Significant At The 0.01 Level (2-Tailed).			

Source: survey 2014

Pearson correlation test was conducted between constructs of IS (collective representative of the two constructs of IS) and inventory management. As it is shown in the table 4.4 above there is strong positive relationship between constructs of information sharing and inventory management with a Pearson correlation coefficient of 0.864 (r=0.864) and significance value is less than 0.001. This significance tells that there is genuine relationship between information sharing and inventory management.

4.2.1.5 Correlation Analysis between IM Measures and CS

Table 4.5: Correlations Matrix between IM measures and CS

		Inventory level	Invntory cost	Inventory accuracy	Lead time	Inventory turns	Customer satisfaction
Inventory level	Pearson Correlation	1	.633**	.582**	.475	.615**	.747
	Sig. (2-tailed)		.000	.000	.001	.000	.000
	N	150	150	150	150	150	150
Invntory cost	Pearson Correlation	.633**	1	.510**	.363*	.656**	.704**
	Sig. (2-tailed)	.000		.001	.018	.000	.000
	N	150	150	150	150	150	150
Inventory accuracy	Pearson Correlation	.582**	.510**	1	.677**	.683**	.721**
	Sig. (2-tailed)	.000	.001		.000	.000	.000

	N	150	150	150	150	150	150
Lead time	Pearson Correlation	.475**	.363*	.677**	1	.797**	.583**
	Sig. (2-tailed)	.001	.018	.000		.000	.000
	N	150	150	150	150	150	150
Inventory turns	Pearson Correlation	.615**	.656**	.683**	.797**	1	.797**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	150	150	150	150	150	150
Customer satisfaction	Pearson Correlation	.747**	.704**	.721**	.583**	.520	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	150	150	150	150	150	150
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

Source: survey 2014

The above table shows the matrix of correlation between inventory management measures (i.e., inventory level, inventory cost, inventory accuracy, lead time and inventory turns) and customer satisfaction. The analysis of correlation matrix between each measures of inventory management and customer satisfaction is given as follows:

As shown in table 4.5 above, Pearson correlation test was conducted for inventory level and customer satisfaction the results indicates as there is strong positive significant correlation between inventory level and customer satisfaction. In other words inventory leve and customer satisfaction have genuine relationship with correlation coefficient of0.747 (r=0.747) and significance value less than 0.001.

On the other hand, as it is shown in the table 4.5 above there is strong positive relationship between inventory cost and customer satisfaction with a Pearson correlationcoefficient of 0.704

(0.704) and significance value is less than 0.001. This significancetells that there is genuine relationship between inventory cost and customer satisfaction.

Also for inventory accuracy and customer satisfaction Pearson correlation testwas conducted and the results are shown in above table 4.5. As it is shown in the table,there is strong positive significant correlation between inventory accuracy and customer satisfaction. In other words inventory accuracy and customer satisfaction have genuine relationship (r=0.721) at significance value less than 0.001.correlation test between lead time and customer satisfaction was alsoconducted as seen in table 4.5 above, the result shows that lead time positivelyrelated to customer satisfaction with a Pearson correlation coefficient of 0.583(r=0.583) and significance value is less than 0.001. This significance tells that there isgenuine relationship lead time and customer satisfaction.

For Pearson correlation test conducted to know whether there is significant correlation or not between Level of Inventory turns and customer satisfaction, table 4.5 clearly indicates that there is strong and positive relation between level of Inventory turns and customer satisfaction. The result of correlation analysis between Level of Inventory turns and customer satisfaction is correlation coefficient of 0.797 (r=0.797) and significance value less than 0.001 which indicates as there is genuine relation between them.

4.2.1.6 Correlation between IM and CS.

As it is shown in the table 4.6 below there is strong positive relationship between Inventory management and customer satisfaction with a Pearson correlationcoefficient of 0.814 (r=0.814) significance value is less than 0.001. This significance tellsthat there is genuine relationship between inventory managemet and customer satisfaction.

Table 4.6: Correlation between IM and CS

		IM	CS
IM	Pearson	1	.814
	Sig. (2-tailed)		.000
	N	150	150
CS	Pearson	.814	1
	Sig. (2-tailed)	.000	

	N	150	150
**. Correlation is significant at the 0.01 level (2-tailed).			

4.3 Regression Analysis

This regression analysis is conducted to know by how much the independent variableexplains the dependent variable. The regression was conducted between information sharing (independent variable) and customer satisfaction (dependentvariable) in the first regression. The second regression was made between information sharing (independent variable) and inventory management (dependentvariable). Finally, the third regression was made between inventory management (independent variable) and customer satisfaction (dependent variable). The resultsof the regression analysis are presented as follows.

4.3.1 Multi Collinearity Test

Table 4.7:Multi collinearity test of independent variable

Model	**Collinearity Statistics**	
	Tolerance	VIF
Information thechnology	.111	9.021
Customer collaboration	.184	8.942

Dependent Variable: customer satisfaction

Source: survey 2014

The result in table 4.3 show that the collinearity between independent variables has no series problem Since the value of tolerance for all independent variable is greater than 0.1 and all VIF is less than ten (VIF<10).

4.3.2 Regression Analysis between constructs of information sharing and customer satisfacton

Table 4.8: Regression Analysis between constructs ofIS and CS

Model	B	Std.Error	t-stat	P-value	Adjusted R square
1	.850	.804	10.200	.000	.715

a. Predictor: constructs of information sharing

b. Dependent variab: customer satisfaction

Source: survey 2014

As shown in the table 4.8, there is causal relationship between constructs of information sharing andcustomer satisfaction. The value of r^2 is .715, which implies that constructs of information sharing canaccount for 71.5% of the variation in customer satisfaction. Although there might bemany factors that can explain the variable on customer satisfaction, nearly 71.5% of it is explained by constructs of information sharing. This means that the remaining 28.5% of the variation in customer satisfaction cannot be explained by those dimensions of information sharing. Thesignificant and positive β coefficient also implies that constructs of information sharing have a positive andsignificant influence on customer satisfaction.

4.3.3 Regression Analysis between IS and IM

Table 4.9: Regression Analysis between constructs of IS and IM

Model	B	Std.Error	t-stat	p-value	Adjusted R square
2	.864	.090	10.874	.000	.777

Predictor: constructs of information sharing.

Dependent variable: inventory management

Source: survey 2014

As shown in the table 4.9, there is causal relationship between constructs of IS and Inventory management. There might be many factors that can explain this variable, but our model, which includes constructs of IS, can explain approximately 77.7% of it.

This suggests that the remaining 22.3% of the variation in inventory management cannot be explained by those dimensions of constructs of IS. The significant and positive β coefficient also implies that constructs of IS have a positive influence on inventory management.

4.3.4 Regression Analysis between IM and CS

Table 4.10: Regression Analysis between IM and CS

Model	B	Std.Error	t-stat	p-value	Adjusted Rsquare
3	.814	.102	8.878	.000	.655

Predictor: inventory management

Dependent variable: customer satisfaction

Source: survey 2014

As shown in the table 4.10, there is causal relationship between inventory management and customer satisfaction. The value of r^2 in this model is .655, which implies that inventory management can account for 65.5% of the variation in customer satisfaction. Although there might be many factors that can explain the variable on customer satisfaction approximately 65.5% of it is explained by inventory management. This indicates that the remaining 34.5% of the variation in customer satisfaction cannot be explained by inventory management. The P value and positive β coefficient also implies that inventory management have a positive and significant influence on customer satisfaction.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS OF FINDINGS

5. Introduction

The study focused on the relationship among information sharing, inventory management and customer satisfaction. The study was carried out to find out whether customer satisfaction in the downstream chain could be attributed to information sharing and inventory management levels.

This chapter is divided into four sections, .discussion of findings, conclusions, recommendations and areas for further research. These sections are guided by the study objectives.

5.1 Discussion of findings

The discussion of the findings is in relation with the objectives of the study.

5.1.1 Objective one; - The relationship between information sharing and inventory management.

The Pearson correlation coefficient showed that there was a significant positive relationship between information sharing and inventory management. This means that high levels of information sharing lead to better inventory management.

Findings were supported by (Fasanghari, Roudsari and Kamal, 2008) who said that for better inventory management, chain partners were required to share information among themselves. High levels of information sharing were enhanced by high levels of information technology and customer collaboration (Shore and Venkatachalam, 2003).

These led to better inventory management. They enabled chain partners to get information as far as the inventory status was concerned, lead to inventory accuracy through better forecasting, reduced order time and reduced inventory costs (Lee and Wang, 2000).

This is attributed to the fact that the chain partners are willing to give out the required information to each other, implementation of information technologies like electronic data interchange (EDI),mobile phones and many others as well as collaboration among chain partners.

5.1.2 Objective two: The relationship between inventory management and customer satisfaction

The Pearson correlation coefficient showed that there was a significant positive relationship between inventory management and customer satisfaction. This implies that better inventory management within the downstream chain would lead to high levels of customer satisfaction. Findings were supported by Eckert (2007) who asserts that better inventory management leads to high levels of customer satisfaction. Customers were satisfied when suppliers fulfilled their orders on time.

This made channel partners to keep buffer stocks to full fill customer orders or enter into long term relationships which require commitment and trust (Wang, 2002).Better inventory management enhanced chain partner flexibility, repeat purchases, customer loyalty, reduced inventory returns due to improved quality (Wang, 2002). Without better inventory management customer requirements cannot be met on time. Implementation of information technologies and existence of collaboration among chain partners led to better inventory management which enhanced customer satisfaction through on time availability of information concerning customer need. This is showed by the significant positive relationship between inventory management and customer satisfaction.

5.1.3 Objective three: - The relationship between information sharing and customer satisfaction.

Pearson correlation coefficients indicated that there was a significant positive relationship between information sharing and customer satisfaction. This means that if information sharing increases, customer satisfaction is improved. According to Fawcett etal, 2007 information sharing enables chain partner's gain competitive advantages through increased customer loyalty, repeat purchases, improved quality products and increased flexibility.

This enables them get information on the kind and type of products required by customers and hence they will transfer that information up the chain such that manufacturers produce such items.

5.2 Conclusion

It was established from the study that there was a significant positive relationship between information sharing and inventory management, a significant strong positive relationship between inventory management and customer satisfaction, a significant strong positive relationship between information sharing and customer satisfaction.

The study findings revealed that a significant positive relationship between information sharing and inventory management meant that if chain partners implement information technologies and collaborate among each other, then inventory management could improve.

The research findings also revealed a significant positive relationship between inventory management and customer satisfaction. This implies that in order to obtain high levels of customer satisfaction, there is need for better inventory management. The research findings further showed significant positive relationship between information sharing and customer satisfaction. This implies that increased levels of information sharing among chain partners lead to improved levels in customer satisfaction.

5.3 Recommendations

The study focused on information sharing, inventory management and customer satisfaction in the downstream chain. since there were significant positive relationships between information sharing and inventory management, inventory management and customer satisfaction,inventory management and customer satisfaction; the following recommendations were made,

It is recommended that chain partners should implement information systems. systems like EDI (electronic data interchange),ERP systems (enterprise resource planning systems),POS (point of sale systems and many others should be installed to provide information that will then be used to manage inventories very well among chain partners hence leading to customer satisfaction. These systems will be used to manage inventory levels, reduce inventory costs, lead time, increase inventory turns and customer service. They will promote flexibility, on time delivery hence leading to customer satisfaction.

Chain partners should collaborate amongst themselves which will facilitate information sharing, lead to better inventory management hence leading to high levels of customer satisfaction. This enables chain partners to develop willingness amongst them which will increase the level of information sharing.

The ministry of trade should give loans to the retailers and distributors to invest more in information technology which will then lead to improved information sharing and inventory management.

5.4 Areas for further research

The study concentrated on information sharing, inventory management and customer Satisfaction. There is need for research in the following areas.

- Collaborative Inventory management and customer satisfaction
- Information accessibility, Customer responsiveness and enhanced performance
- Supply chain environment and customer satisfaction
- Relationship between qualifications and customer satisfaction in the down stream chain
- Relation ship between qualifications and inventory management in the down stream chain

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Questionnaire

Dear respondent your company has been selected to participate in a study information sharing, inventory management and customer satisfaction .This study is intended for academic purposes only.(confidentiality) guaranteed. Thank you for your cooperation.

Highest qualification of respondent

High school	Diploma	Degree	Masters	Others (specify)

Age of respondent

Below25 yrs	25-35yrs	36-45yrs	46+yrs

Sex of respondent

Male	Female

Type of business

Retailer	Distributor

Information sharing

The table below shows the alternative responses and the number assigned in each response.please evaluates the statement by ticking in the box with the number that best suits you.

Customer collaboration

Trust

I strongly disagree	I disagree	neutral	I agree	I stronglyagree

Retailer's trust in the vendor (vendor's credibility)

1	The resource representative has been frank in dealing with us	1	2	3	4	5
2	Promises made by the resource representative are reliable					
3	This resource representative is knowledgeable regarding his or her products					
4	This resource representative does not make false claims					
5	The resource representative is not open in dealing with us					
6	If problems such as shipment delays arise, the resource representative is honest about the problems					
7	This resource representative has problems in answering our questions					

Adapted from Morgan and Hunt (1994),Doney and Cannon (1997)

Vendor's trust in the retailer (retailer's credibility)

1	The buyer representing this retailer has been frank in dealing with us	1	2	3	4	5
2	Promises made by the buyer representing this retailer are reliable					
3	The buyer representing this retailer is knowledgeable about the					

	product					
4	The buyer representing this retailer is has problems understanding our position					

Adapted from Morgan and Hunt (1994), Doney and Cannon (1997)

Retailer's trust in the vendor (vendor's benevolence)

1	This resource's representative has made for sacrifices for us in the past	1	2	3	4	5
2	This resource's representative cares about us					
3	In times of shortages ,this resource representative has gone out of limb for us					
4	We feel the this resource's representative has been on our side					
5	This resource's representative is like a friend					

Adapted from Morgan and Hunt (1994), Doney and Cannon (1997)

Vendor's trust in the retailer (retailer's benevolence)

1	The buyer representing the retailer has made sacrifices for us in the past	1	2	3	4	5
2	The buyer representing this retailer cares for my welfare					
3	In times of deli every problems, the buyer representing this retailer has been very understanding					

Adapted from Morgan and Hunt (1994), Doney and Cannon (1997)

Relationship commitment

The relationship that my firm has with the vendor

1	Is some thing we are very committed to	1	2	3	4	5
2	Is something my firm intends to maintain indefinitely					
3	Deserves our firm's maximum effort to maintain					

4	Is very important to my firm					
5	Is of very little significance to my firm					
6	Is very much like being a family					
7	Is some thing my firm really cares about					

Adapted from Morgan and Hunt (1994), McDonald and Ganz (1997)

Retailer's long term orientation

1	We belief that over the long run our relationship with the vendor will be profitable	1	2	3	4	5
2	Maintaining along term relationship with this vendor is important to us					
3	We focus on long term goals in this relationship					
4	We are willing to make sacrifices to help this vendor from time to time					
5	We are only concerned with our out comes in the relationship					
6	We expect this resource to be working with us for along time					
7	Any concessions we make to help out this resource will even help us out in the long run.					

Adapted from Morgan and Hunt (1994), McDonald and Ganz (1997)

Vendor's long term orientation

1	We believe that over the long run our relationship with the retailer will be profitable					
2	Maintaining along term relation ship with this retailer is important to us					
3	We focus on long term goals in this relationship					
4	We share our long term goals with this retailer					
5	We would like to develop along term relationship with this retailer					

6	We are willing to make sacrifices to help this retailer from time to time					

Information technology

Istrongly disagree	I disagree	neutral	I agree	Istrongly agree
1	2	3	4	5

To be filled by the distributor

		1	2	3	4	5
1	We use computer to computer communication with our customers					
2	We use EDI (electronic data interchange) when dealing with our customers					
3	We use EPOS(electronic point of sale systems) in our communication with our customers					
4	We bar coding systems when dealing with our customers					
5	Our customers communicate to us using mobile phones					

Adapted from Sabbath (1998)

To be filled by the retailer

		1	**2**	**3**	**4**	**5**
1	We use computer to computer communication with our vendors					
2	We use EDI (electronic data interchange) when dealing with our vendors					
3	We use EPOS(electronic point of sale systems) in our communication with our vendors					
4	We bar coding systems when dealing with our vendors					

5	We communicate with our vendors using mobile phones					

Adapted from Sabbath (1998)

Inventory management

The table below shows the alternative responses and the number assigned in each response .please evaluate the statement by ticking in the box with the number that best suits you.

To be filled by distributor

		1	2	3	4	5
1	We keep inventory buffers in order to meet our customers' needs					
2	We always have high inventory turns because customers are satisfied with our products					
3	We deli ever according to the deli every lead times of our customers					
4	We face stock out periods which affect our ability to meet customer needs					
5	We offer high service levels to our customers					
6	we use inventory management systems to manage our inventories					
7	collaboration with our customers enables us make accurate forecasts					
8	we make accurate forecasts for our inventories which match with our customer demand					

Adapted from Gunasekaran and Patel (2001)

To be filled by the retailer

		1	2	3	4	5
1	We always have inventory buffers to cater for uncertainties					
2	We always have high inventory turns because customers are satisfied with our products					
3	our vendors deli ever according to the deli every lead times					
4	We face stock out periods due to delays in deli every					
5	We get high service levels from our suppliers					
6	we manage our inventories through the use of information systems which enable us manage the inventory levels					
7	we always make accurate forecasts for our inventories due to our collaboration with suppliers					

Adapted from Gunasekaran and Patel (2001)

Customer satisfaction

The table below shows the alternative responses and the number assigned in each response.Pleaseevaluat the statement by ticking in the box with the number that best suits you.

Istrongly disagree	disagree	neutral	I agree	I strongly agree
1	2	3	4	5

1	Over all we are satisfied with this supplier					
2	Our firm is not completely happy with this supplier					
3	If we had to do it all over again, we would still choose to use this supplier					
4	We are very pleased with what this supplier does for us					
5	Our experience with this supplier has not been good					
6	We are very pleased with what this supplier does for us					

7	We are pleased with the services of this distributor					
8	We are satisfied with our day to day dealings with this distributor					
9	We are satisfied with the personal relationships with this distributor					
10	We are satisfied over all with the relationship we have with this distributor					
11	A large number of profits has been obtained which would not have other wise occurred working in isolation					
12	Thanks to the cooperation between our company and this distributor ,both parties have obtained strategic advantages over their competitors that would not have been realized individually					
13	Both parties have obtained performances that allow them to compete more efficiently in the market place as a consequence of cooperation					
14	This suppliers product are of high quality					
15	This supplier often fails to meet our quality requirements					
16	We often complain about this supplier's products					
17	This supplier exceeds our expectation					
18	This supplier is flexible enough to handle un foreseen problems					
19	This supplier handles changes well					
20	This supplier can readily adjust its inventories to meet changes in our needs					
21	This supplier is flexible in response to requests we make					

1	**2**	**3**	**4**	**5**

To be filled by the Retailer

Adapted from Vazquez etal (2004), Walter.Mentzer and Croxton (2002), and Berry and Parasuraman (1991)

To be filled by the distributor

		1	2	3	4	5
1	Over all our customers are satisfied with this supplier					
2	Our customers are completely happy with this supplier					
3	If we had to do it all over again, they would still choose our firm					
4	Our customers are very pleased with what we do for them					
5	Our experience with this customer has not been good					
6	Our customers are very pleased with what we do for them					
7	Our customer are pleased with our services					
8	Our customers are satisfied with our day to day dealings with them					
9	Our customers are satisfied with the personal relationships with us					
10	Over all our customers are satisfied with the relationship they have with us					
11	A large number of profits has been obtained which would not have other wise occurred working in isolation					
12	Both parties have obtained performances that allow them to compete more efficiently in the market place as a consequence of cooperation					
13	Thanks to the cooperation between our company and this customer ,both parties have obtained strategic advantages over their competitors that would not have been realized individually					
14	Our products are of high quality					
15	We meet quality requirements of our customer					
16	Our customer often complain about this supplier's products					
17	We exceed our customer's expectation					
18	We are flexible enough to handle un foreseen problems					
19	We handle changes well					
20	We readily adjust our inventories to meet changes in our needs					

21	We are flexible in response to requests we make					

Adapted from Vazquez etal (2004), Walter.Menter and Croxton (2002), and Berry and Parasuraman (1991)