THE EFFECT OF INVENTORY MANAGEMENT ON FIRM PROFITABILITY AND OPERATING CASH FLOWS OF KENYA BREWERIES LIMITED, BEER DISTRIBUTION FIRMS IN NAIROBI COUNTY

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A Research Project Submitted in Partial Fulfillment of the Requirements for the Award of the Degree of Master of Science in Finance, School of Business, University of Nairobi

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DECLARATION

This research project is my own original work and has never been presented for a degree at any other university for examination.

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This research project has been submitted for examination with my approval as the University supervisor.

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DEDICATION

I dedicate this research project to my family, my employer, friends and colleagues for they encouraged, inspired and prayed for me to make this project a reality.

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LIST OF ABBREVIATIONS

CFO - Cash flow from Operations

EOQ - Economic Order Quantity

FG - Firm Growth

FMCG Fast-Moving Consumer Goods

FS - Firm Size

GDP - Gross Domestic Product

ICP - Inventory Conversion Period

JIT - Just in Time

KBL - Kenya Breweries Limited

OE - Operating Efficiency

ROA - Return on Assets

SMEs - Small and Medium Enterprises

ABSTRACT

The main purpose of management of inventory is basically to try and balance the conflicting economics of not wanting to hold too much inventories or stocks. However, most managers ignore the saving potential that arise from proper management of inventories, trying to treat inventories as a necessary evil and not as an asset that require to be managed. As such, some firms do not or ignore to control their inventory holding, this usually leads to under stocking and causing the firm to stop or slow its production. This finally results to firm's ineffectiveness. This study sought to examine effect of inventory management on firm's profitability and operating cash flows of Kenya Breweries Limited beer distribution firms in Nairobi County. The study employed a descriptive research design. Population of the study involved six Kenya Breweries Limited beer distribution firms in Nairobi County thus the study carried out a census of the six firms in Nairobi County. The study used secondary data, which was collected using a data collection sheet from six firms for a period of 10 years from the years from 2006-2015. The data collected was analyzed using ordinary least squares in form of regression equations via the statistical package for social sciences. The study established a significant relationship between the management of inventory and the operating cash flows of Kenya Breweries Beer distribution firms in Nairobi County. The study concluded that inventory management significantly influences firm profitability and operating cash flows of Kenya Breweries beer distribution firms in Nairobi County, Kenya. The study recommended that the management of Kenya breweries ltd beer distribution firms in Nairobi County should adopt effective inventory management practices like just in time and material requirement planning. This is because such inventory management practices would improve their profitability and operating cash flows.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Stock or Inventory constitutes a substantial proportion of the current asset group. It represents investments made for obtaining a return (Duru, Oleka & Okpe, 2014). Inadequate inventory has an adverse potential effect on the smooth running of the business, while excess inventory involve extra cost, which can reduce the firm's profits (Panigrahi, 2013). Excessive stock is not desirable for longer periods because high inventory levels increase carrying cost and as inventory is increases; the profitability decreases (Priyank & Hemant, 2015). Hence, a suitable inventory control strategy will help in ensuring that the firms always keep an optimal amount of assets. Freeing frozen amounts in the form of stocks or inventories increases the firm's efficiency in the use of its resource (Ziukov, 2015). As such, a well-functioning inventory system has a great effect on total firm's performance as well as that of the firm's managers (Akindipe, 2014).

Inventories are part of current assets, which are convertible to other forms of working capital (cash and other receivables) in less than one year (Milicevic, Davidovic & Stefanovic, 2010). The theory of inventory management involves making decisions that are in line with basic trade off among firm's objectives, costs and other constraint (Mathuva, 2013). The economic order quantity theory, suggests that firms should maintain the quantity of inventory which provides the lowest total holding cost and acquiring cost (Milicevic, Davidovic & Stefanovic, 2010). Thus, inventory management is vital to for an effective and efficient firm. It is also important since it helps the firm in

determination of the optimal amount of materials and goods a firm can hold at any given time (Kumar & Bahl, 2014).

Profit of an organization can easily be maximized with the help of an effective inventory management system in places. Profit maximization is all about cost minimization and revenue maximization. An effective inventory management improves the firm's total performance through matching inventory management practices and a competitive advantages especially now that most organizations operates in a more competitive industries or sectors all over the world (Mahidin et al., 2015). The main goal and objective of inventory management system is to keep at the necessary required inventory at any time so that production runs smoothly without interruption whatsoever (Panigrahi, 2013). Inventory is the second largest assets as shown in the statement of financial position in brewery industry. It's only exceeded by equipment and the physical facilities (Eneje, Nweze, & Udeh, 2012)

1.1.1 Inventory Management

Inventory management refers to keeping or maintaining the firm's stocks at a level that a firm will only incur the least cost consistent with other management's set objectives or targets (Kwadwo, 2016). Inventory management is about ensuring that all input materials of production available to the firm are maintained at a level where production is not interrupted as well as ensuring that operational cost is kept at a minimal level without affecting operation efficiency (Eneje, Nweze, & Udeh, 2012). Inventory management entails planning, organizing, controlling and directing. All these coordinated efforts are meant to ensure achievement of efficiency in all operations of the firm. Such operations

may include procurement, stocking and transportation (Akindipe, 2014). Mismanagement of Inventories may lead to significant financial problems for a firm (Muhayimana, 2015). Inventory management is of high importance in financial management decision. This is because excess or shortage of this may bring danger to the company (Duru, Oleka & Okpe, 2014). The objective of inventory management is to maintain a system that minimizes total cost, while specifically, it establishes that the amount of stock to be ordered is optimal as well as the period between orders (Anene, 2014). Excess inventory consumes a lot of space, can increase possibility of spoilage, leads to a financial burden and loss while insufficient inventory has the potential of interruping business operations (Swaleh & Were, 2014).

Inventory management is vital and needed in various areas within the firm especially in a supply network so as to protect production against any disturbance of running out of production inputs or materials and goods (Ogbo, Onekanma & Ukpere, 2014). Management of Inventory is crucial to a firm since it plays a decisive role to enhance efficiency and improve the firm's competitiveness ability against the firm's competitors. Effective inventory management ia all about holding the right amount of inventory required by the business at any point in time (Swaleh & Were, 2014). Inventory management involve creation of a purchasing plan which will help to ensure that all items or materials are available when needed as well as and tracking the existing inventories and its use (Muhayimana, 2015).

1.1.2 Firm Profitability

Profitability refers to money that a firm can produce with the resources it has. The goal of most organization is profit maximization (Niresh & Velnampy, 2014). The profitability shows the ability of a firm to generate earnings from the use of its assets for a certain period of time (Farah & Nina, 2016). Profitability involves the capacity to make benefits from all the business operations of an organization, firm or company (Muya & Gathogo, 2016). Profit usually acts as the entrepreneur's reward for his/her investment. As a matter of fact, profit is the main motivator of an entrepreneur for doing business. Profit is also used as an index for performance measuring of a business (Ogbadu, 2009). Profit is the difference between revenue received from sales and total costs which includes material costs, labor and so on (Stierwald, 2010).

Profitability can be expressed either accounting profits or economic profits and it is the main goal of a business venture (Anene, 2014). Profitability portrays the efficiency of the management in converting the firm’s resources to profits (Muya & Gathogo, 2016). Thus, firms are likely to gain a lot of benefits related increased profitability (Niresh & Velnampy, 2014). One important precondition for any long-term survival and success of a firm is profitability. It is profitability that attracts investors and the business is likely to survive for a long period of time (Farah & Nina, 2016). Many firms strive to improve their profitability and they do spend countless hours on meetings trying to come up with a way of reducing operating costs as well as on how to increase their sales (Schreibfeder, 2006).

Profitability is used in measuring performance of the firm. Profitability is one of main aspects of financial reporting for many firms (Farah & Nina, 2016). Profitability is vital to the firm's manager as well as the owners and other stakeholders that are involved or associated to the firm since profitability gives a clear indication of business performance. Profitability ratios are normally used to measure earnings generated by a firm for a certain period of time based on the firm's sales level, capital employed, assets and earnings per share (EPS). Profitability ratios are also used to measure the firm's earning capacity and considered as a firm's growth and success indicator (Majed, Said & Firas, 2012).

1.1.3 Operating Cash Flows

Operating cash flow is the cash made from the operations of the firm. It is usually defined as revenues less operating expenses (Rashvand & Tariverdi, 2015). Operating cash flow comprises of all the activities that leads to net profit determination (Nwanyanwu, 2015). Operating cash flow is the flow of cash that is availed from the core operations of a firm (Amuzu, 2010). Operating cash flows are normally considered as a source of company cash and indicates the efficiency with which a company allocates its accrual cash flow (Aliakbari, 2015).

Cash generated from operating activities is a clear reflection of transactional effect of cash that help in determination of a firm's net income (Amuzu, 2010). Operating activities generally involve production and delivery goods and providing services (Duhovnik, 2008). Operating activities are the main firm's income producing activities.

They involve all transactions and activities or events which are used in computation of the firm's net profit or loss (Nwanyanwu, 2015).

Operating cash flow is a measurement of the amount of funds a firm generates through its core business (Rashvand & Tariverdi, 2015). Operating cash flow is a more objective and a direct measure of firm's liquidity position (Telmoudi, Ziadi & Noubbigh, 2010) and the operating cash flow can be determined either by a direct method or indirect method. Normally, cash flow to sales ratio is used to measure as to proxy for cash flow from operations. The cash flow to sales ratio is usually give cash flow as a percentage of sales ratio. This ratio is computed using the cash flow from operations.

1.1.4 Effect of Inventory Management on Firm Profitability and Operating Cash Flows

Inventory management policies and procedures are normally designed to ensure that a firm or an organization uses its inventory in a way that it is able to maximize its profit from the least inventory investment amount without encroaching or affecting customer's levels of satisfaction (Anene, 2014). Inventory constitutes a large portion of total investment, it is vital that a firm adapts a good inventory management system to enable firm's growth and enhancement of firm's profitability (Anichebe & Agu, 2013). As such, the Economic Order Quantity (EOQ) theory states for a firm to maximize benefits from inventory management it should hold an optimal inventory, which minimizes both ordering cost and holding cost of inventories. The Just in Time (JIT) model proposes that firms should produce or to purchase products or components as they are required by customers or for use rather than holding stock (Sitienei & Memba, 2015).

A study by Koumanakos (2008) on effect of inventory management on performance of some firms established that a rate of returns is significantly affected by the level of inventory held. That is, high inventory level lowers the rate of returns. Khaled & Hayam (2016) studied the relationship that exists between management of inventory and the general firm's performance. The study established that inventory to sales ratio affects organization performance negatively in the initial growth stage and the maturity stage; it exerts a positive and significant coefficient on performance in either the rapid growth stage or the revival stage. Further, Kwadwo (2016) investigated effect of efficient management of inventory on profitability of manufacturing firms. The study revealed that a significantly and positive correlation between raw materials inventory management and profitability of manufacturing firms in Ghana.

In their study, Duru, Oleka and Okpe (2014) analyzed effect of inventory management on profitability and revealed that inventory turnover had significant and negative effect on the profitability. Additionally, Siyanbola (2012) also studied effect of stock valuation on profitability of manufacturing industries. The study established that high stock cost affects profit negatively and stock also affects the company's profitability. Lwiki et al. (2013) also studied effect of inventory management practices on financial performance. The study established a positive and statistically significant correlation between management of inventory and return on sales.

1.1.5 Kenya Breweries Limited Beer Distribution Firms in Nairobi County

In Kenya, beer industry started way back in the year 1922. Thanks to the two brothers. That is, George and Charles Hurst from England who started the business of brewing beer in Kenya. The two brothers incorporated Kenya Breweries Limited (Export Processing Zones Authority, 2005). In Kenya, East African Breweries Limited, a subsidiary of Diageo, is the second largest listed company with a large market (KPMG, 2014). To date, Kenya' beer industry is really flourishing and produces a high quality beer. This is mainly because of availability of production materials, cheap labor, the climate and so on (Export Processing Zones Authority, 2005).

Beer is classified under fast-moving consumer goods (FMCG). These are cheap products that do not stay long on shelf, and purchased on a regular basis by many consumers. These products have low profit margins to retailers. Retailers have to sell large quantities so as to make some good profit margins from such products (KPMG, 2014). A study by Mwangulu (2014) on factors influencing marketing of alcoholic beverages in Kenya established that alcoholic beverages firms should continue to predict its future by keenly and adjust to environmental changes especially the political environment, social environment, economic environment and so on. The major beer distribution firms in Nairobi County are Kamuhaha distributors, Bia Tosha distributors, Leah Africa, Veew Distributors, Ishano distributors and Rwathia distributors.

1.2 Research Problem

The main goal of management of inventory management is all about balancing the conflicting economics of not wanting to hold less stock or too much stock at any point in time (Kumar & Bahl, 2014). Return maximization on investment of inventories present a considerable proportion of firm's working capital which is a key function of the firm's financial manager (Mathuva, 2013). However, most managers ignore the saving potential that arise from proper management of inventories, trying to treat inventories as a necessary evil and not as an asset that require to be managed. As such, some firms do not or ignore to control their inventory holding, this usually leads to under stocking and causing the firm to stop or slow its production. This finally results to firm's ineffectiveness (Anichebe & Agu, 2013). According to Schreibfeder (2006) many organizations usually fail to examine its investment in inventory. They most focus on maximization of returns.

In Kenya, more and more institutions including small and medium firms are increasingly adopting inventory management systems with the aim of achieving competitive advantage and enhancing their performance (Swaleh & Were, 2014). However, the main challenge today among firms in Kenya is about the need to enhance of efficiency and improving on effectiveness at the same time. Kenyan firms are known to have a poor inventory management techniques which has negatively affected the firm's ability to service and satisfy their customers (Thogori & Gathenya, 2014). Thus, the need to study effect of inventory management on profitability and operating cash flows of beer distribution firms in Nairobi County.

In addition, several studies have been carried out on inventory management across the world and in Kenya too. A study by Folinas & Shen (2014) on effect of inventory turnover and inventory days on performance of the firms in United Kingdom's agricultural machinery industry. The study revealed that inventory days are vital to financial performance of organizations, however to varying degrees. Additionally, Eneje, Nweze, and Udeh (2012) studied the effect of raw materials inventory management on profitability of brewery companies in Nigeria. The study established that efficient management of the raw material inventory significantly affects the profitability of the brewery firms in Nigeria.

In Kenya, Thogori & Gathenya (2014) examined the role of inventory management on the customer satisfaction and established that most firms in Kenya have poor management of inventory systems, which negatively affects the firm's ability to satisfy their customers. Sitienei and Memba (2015) also explored the effects of inventory management on the profitability of the Cement manufacturing firms. The study established a negative relation between inventory turnover, conversion period of inventory and storage cost with firm's profitability. However, most of the inventory management research globally and in Kenya focus on inventory management of large-scale firms and mostly manufacturing entities thus ignoring supply and distribution firms. In addition, most of the studies focus on inventory management and profitability leaving out operating cash flows. Thus, the question: What are the effects of inventory management on firm profitability and operating cash flows of beer distribution firms in Nairobi County?

1.3 Research Objective

To examine effects of inventory management on firm profitability and operating cash flows of Kenya Breweries Limited beer distribution firm in Nairobi County.

1.4 Value of the Study

This study is of great significance to management of beer distribution firms, as it will help them to establish whether inventory management affects their firms' profitability and operating cash flows. The study will also be of significance to various policy-making organizations, which can use the findings to come up with policies on inventory management. Finally, the study will be of significance to researchers, as it will add on to the available empirical evidence on inventory management, firm profitability and operating cash flows.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section review existing literature on inventory management, profitability and operating cash flows as studied by various scholars. The chapter presents the theoretical literature review, the determinants of firm profitability and operating cash flows, the empirical literature review and the summary of literature review.

2.2 Theoretical Literature Review

2.2.1 The Theory of Economic Order Quantity

The economic order quantity (EOQ) theory was proposed by Haris (1913) to determine the optimal inventory level. EOQ refers to an inventory level that can minimize both inventory holding cost and inventory ordering cost (Lwiki et al., 2013). The EOQ model is used to determine an optimal ordering size that will minimize the sum of ordering and carrying costs (Ziukov, 2015). This model was found on the assumption that demand equals annual total quantity ordered by the firm at any point in time (Milicevic, Davidovic & Stefanovic, 2010).

The EOQ model considers a tradeoff between storage cost and ordering cost when making a decision on the quantity to use when replenishing inventory items. Ordering frequency is usually reduced by a larger amount of quantity ordered, hence reduced ordering cost but increases storage costs and requires a larger space for storage too (Schwarz, 2008). Some costs declines with holding inventory, while others holding costs increases and that the total inventory-associated cost curve has a minimum point (Lwiki

et al., 2013). Ordering costs refers to those costs which are incurred when additional inventories are being procured or purchased while carrying costs are the costs incurred for inventory holding. Thus, EOQ is determined by intersection of ordering cost curve and carrying cost line. At this point total carrying cost and total ordering cost are equal to each other (Kumar, 2016).

The EOQ method is used in determining an optimal order quantity which will minimize total inventory cost. The EOQ is very useful tool for inventory control and it can be applied to finished goods inventories, work- in- progress inventories and raw material inventories. It regulate the purchase and storage of inventory in a way to ensure that an even production flow at the same time restricting excess investment on inventories (Kumar, 2016).

2.2.2 Just in Time Model

Just in Time (JIT) is a strategy that is meant to improve the financial performance of a business by reduction of excess inventory together with associated cost (Shin, Ennis & Spurlin, 2015). The JIT model is based on three crucial principles: waste elimination, continuous improvement in product and service quality and involvement of staff/workers in planning and implementation of the firm's strategies (Obiri-Yeboah, Ackah & Makafui, 2015). JIT is a management concept that was invented to specifically help firms in waste avoidance/reduction. JIT encourages waste minimization as well as productivity enhancement.

JIT model is able to identify the value chain challenges and helps in reduction of production waste in the system (Kootanaee, Nagendra & Hamidreza, 2013). Just-In-Time (JIT) is about having right items, right quality and right quantity at the right time and place. If JIT is implemented well, it has the potential of enhancing production quality, increase productivity, improve production efficiency and finally reduces wastes and other avoidable costs associated with production (Kootanaee, Nagendra & Hamidreza, 2013).

JIT help in reduction of inventory levels within a firm. As such, firms end up lowering their investments in inventories. JIT emphasize on having in hand the minimum required quantity of materials for immediate use. As such, inventory holding costs are substantially reduced (Kootanaee, Nagendra & Hamidreza, 2013).

2.2.3 Pareto (ABC) Model

The Pareto principle was proposed by Vilfredo Pareto in 1887. ABC analysis is a categorization technique which is based on Pareto Principle. This principle helps in determination of what items to be given priority in management of a firm's inventory. In ABC analysis inventories are usually categorized to three classes. That is, class A, class B, and finally class C. Management efforts and oversights are expended in management of class A items. Class C items usually get the very least attention from the management while class B items are in-between (Ravinder & Misra, 2014). With the ABC model, products are categorized depending on their importance levels. Importance may be from the amount of cash flows to be generated from a product, stock out cost associated with a product, the products sales volume, profitability and so on. Once categorization is done,

breaking points are also decided for each class (Class A, class B and class C) (Obiri-Yeboah, Ackah & Makafui, 2015).

ABC analysis is a basic critical management tool that allows management to put much of their effort where returns will be greatest or highest. ABC inventory analysis is beneficial to classify materials based on demand of the items. It also holds good control over finance, since costly items are under close observation under A category. Items in-group B have moderate demand and moderate control. Items in-group C are very economic and needs not to be taken care accurately (Priyank & Hemant, 2015).

2.3 Determinants of Firm Profitability and Operating Cash Flows

2.3.1 Management Efficiency

Management efficiency refers to the ability of an organizations management to deliver a specific service with minimum costs. Efficiency in management ensures a more effective use the organizations resources and assets to enhance profitability (Predescu, 2008). Management efficiency measured in terms of total asset growth and earnings flow is a key factor that determines a firm's profitability and cash flows. Profit can easily be controlled through pricing of products as well as through costs (Ogbadu, 2009). The exploitation activities done by managers generate cash inflows, materialized in the shape of depreciation and profit gained from the firm's main activity. Thus, managers should make proper investment decisions to generate enough cash flows (Predescu, 2008).

2.3.2 Firm Growth Levels

Firm growth leads to higher profitability. This is based on the evidence that most of the new firms usually more profitable at the first time they enter the markets quickly on a large scale (Fitzsimmons, Steffens and Douglas, 2005). In addition, a high cash flow levels leads to growth of investments (Predescu, 2008). The growth of the firm promotes the development and survival of not just the firm itself but also that of the national economy. Thus, growth which is a measure of performance of the firm is usually based on a belief that growth is a catalyst for firm's profitability as well as for achievement of sustainable competitive advantages (Fitzsimmons, Steffens and Douglas, 2005). Farah and Nina (2016) posit that the growth rate significantly and positively affect the firm's profitability.

2.3.3 Size of the Enterprise

The firm's size is one of the main factors in determination of the firm's profitability. This is based on economies of scale concept, which is found in traditional neo classical view of the firm (Niresh & Velnampy, 2014). Large firms have a persistence of profitability compared to small firms. This is because, large firms can easily access more resources and are able to adjust to changes in the current dynamic market (Salman & Yazdanfar, 2012). The size of the firm or enterprise also determines the cash flow sensibility to investments (Predescu, 2008). In measuring the size of the firm size, total number of employees of the firm, volume of sales and amount of property are the main factors that are usually measured (Salman & Yazdanfar, 2012).

2.4 Empirical Literature Review

Etale and Bingilar (2016) examined effect of inventory cost management on profitability of listed brewery firms in Nigeria was used. Secondary data from the annual reports and accounts of selected brewery firms from the Nigeria Stock Exchange from 2005 to 2014 was used in the study. Using the multiple regression technique the study found that efficient inventory cost management has a positive effect on profitability of brewery firms in Nigeria. The study recommended that brewery companies should adopt effective and efficient inventory cost management practices; deploy appropriate modern technology for effective inventory cost management; and employ capable and qualified staff who should be trained regularly on proper and efficient inventory cost management.

Naliaka and Namusonge (2015) investigated the role of inventory management on competitive advantage for Kenyan manufacturing firms. A descriptive research design was used in the study. Self-administered questionnaires were used in data collection. The findings of the study revealed that inventory control systems, information technology, inventory lead-time and inventory control practices are vital factors in achievement of a competitive advantage for Kenyan's manufacturing firms.

Sitienei and Kioko (2015) examined the effect of working capital management on the profitability of cement manufacturing firms in Kenya. The study used secondary data for a 15 years period from 2000 to 2014. The study established that inventory conversion period positively and significantly influences profitability while average receivables period had a positive insignificant relationship with profitability. The study also established a positive significant relationship between leverage and profitability while

liquidity and size of the firm had a positive but insignificant relationship with the profitability. The study concluded that inventory days, receivables period, liquidity, advantage and firm size positively influences profitability of cement manufacturing firms in Kenya.

Mwangi and Thogori (2015) explored the role of inventory management on the performance of food processing firms in Kenya. The study used a sample of 110 respondents and a questionnaire for data collection. The study findings established that a unit increases in maintaining production, cost control, record reduced loss and continuous supply will lead to an increase in the scores of the performance of food processing company. The study recommended that inventory management should be well articulated and there should be a good management on cost control such as carrying cost, ordering cost as well and maintain production should be managed to meet demand, increase production turnover and identify opportunity.

Munyao et al. (2015) examined the role of inventory management practices in performance of the production department by manufacturing firms in Mombasa County. The study adopted the descriptive research design and a sample of 45 manufacturing firms while data was collected using questionnaires. The study findings revealed that manufacturing firms use various inventory management techniques such as the action level methods, JIT, EOQ and periodic review technique. The study found that despite the fact that that MRP was most effective in contributing to performance of the production department most organizations in the manufacturing industry used action level methods.

Nwosu (2014) examined the impact of materials management on profitability of Nigeria brewing companies using a sample size of 368 companies. The study used questionnaire and oral interviews to collect data. The study established that materials procurement and storage has significant effect on profitability of brewing companies. The study also found that materials inventory has a significant contribution to profitability of brewing companies; and that interdepartmental collaboration significantly contributed to the profitability of brewing firms. The study concluded that effective materials management is indispensible to brewing firms in making profits.

Anichebe & Agu (2013) assessed impact of proper inventory management on performance of organizations in Nigeria. The study used a sample of 248 respondents and collected data using questionnaire and oral interviews. The study findings established a significant relation between inventory management and effectiveness in an organization. The study also established that inventory management had a significant effect on productivity of an organization and there was a strong positive correlation between inventory management and profitability of an organization. The study concluded that good management of Inventories is key to growth and success of an organization.

Kariuki (2013) examined factors that influence effectiveness of the inventory control at the Ministry of State for Provincial Administration and Internal Security in Kenya. The study established that procurement of goods delays, stock-outs and unpredictable change in prices were the effects of the long bureaucratic procurement procedure. The study also found that untimely funds dispatch has a negative effect on inventory control.

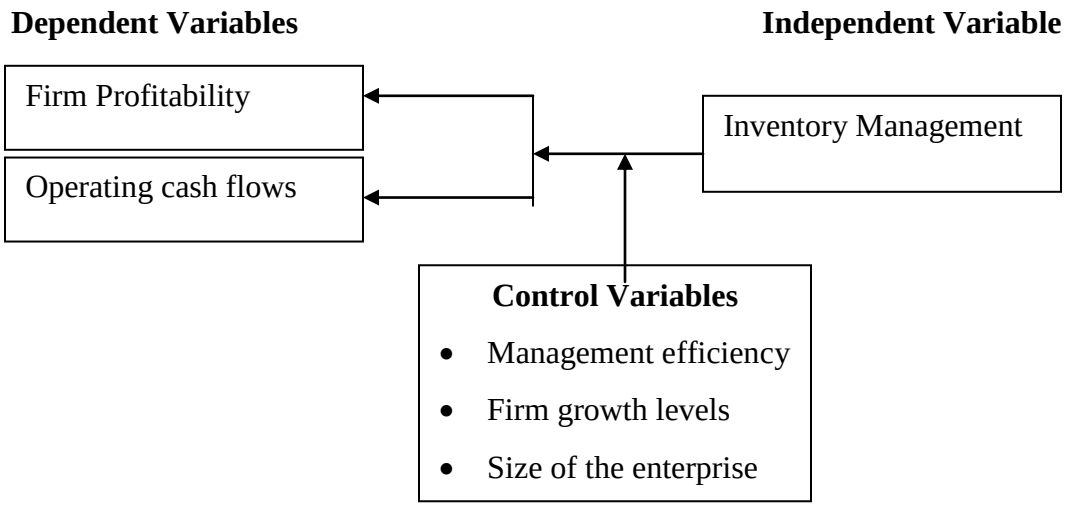
The study further found that inaccessibility stores records, lack of qualified and well-trained employees hinder an effective inventory management and control system.

Panigrahi (2013) examined the relationship between inventory conversion period and profitability of top five cement firms in India from 2001-2010 using regression analysis. The results of the study established a negative significant linear relationship between the inventory conversion period and the profitability. The study also established that the Inventory conversion period has an inverse relation with profitability of the firms.

2.5 Conceptual Framework

Conceptual framework depicts the relationship that exists between study variables. The independent variable for the study was inventory management measured through inventory conversion period while the dependent variables will be firm profitability and operating cash flows. Figure 2.1 shows conceptual framework.

Figure 2.1 Conceptual Framework



Source: Researcher

2.6 Summary of Literature Review

The reviewed studies shows that inventory management has a great effect or impact on all business functions and that an effective and efficient inventory management system ensures profit maximization and survival of a business, which is the main purpose of carrying out a business. Global studies by Etale and Bingilar (2016), Nwosu (2014), Madishetti and Kibona (2013), Anichebe and Agu (2013) and Panigrahi (2013) show that inventory is fundamental to the success and growth of organization. Local studies by Naliaka and Namusonge (2015), Oballah, Waiganjo and Wachiuri (2015), Mwangi and Thogori (2015) and Munyao et al. (2015) show that management and control of inventories is vital to any firm since any attempt of inventory mismanagement threatens the firm's viability. However, most of the studies focus more on inventory management practices with few of them of them investigating the effect of inventory management on profitability and operational cash flows of beer distribution firms in Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on the research design, population of the study, data collection and data analysis.

3.2 Research Design

A research design refers to plan that guide a researcher on how to organize the research activities (Bryman & Bell 2003). A research design presents a framework or arrangement of action for a study. The study adopted a descriptive research design. A descriptive research provides a comprehensive picture of a circumstance or a situation. It is normally done in order to determine and be in a position where one can describe features or characteristics of the given variable of interest for a certain situation.

3.3 Population

Population refers to a set of people or items with similar characteristics that a researcher intends to study and to draw statistical inferences or conclusions (Gall et al., 2006). The population of study comprised of six-beer distribution firms in Nairobi County thus the study carried out a census of the six firms in Nairobi County.

3.4 Data Collection

This study utilized the secondary data, which was collected using a data collection sheet. The data collection sheets were issued to finance managers of all the six firms. Data collection sheet obtained data on inventory management, profitability and operating cash

flows from the beer distribution firms for a period of 10 years from the years from 2006-2015.

3.5 Data Analysis

Collected data was analyzed using ordinary least squares in form of regression equations via the statistical package for social sciences (SPSS). To measure inventory management, this study used inventory conversion period (ICP) while to measure profitability and operating cash flows the study calculated the return on assets (ROA) and the Cash flow to sales ratio (CFO) respectively.

3.5.1 Analytical Model

The regression equations was formulated as follows

$$Model\ 1: ROA = \beta_0 + \beta_1(ICP) + \beta_2(OE) + \beta_3(FG) + \beta_4(FS) + \varepsilon$$

$$Model\ 2: CFO = \beta_0 + \beta_1(ICP) + \beta_2(OE) + \beta_3(FG) + \beta_4(FS) + \varepsilon$$

Where;

$$ROA = Return\ on\ assets = Net\ income/total\ assets$$

$$CFO = Cash\ flows\ from\ operations = Cash\ flow\ to\ sales\ ratio = Net\ operating\ cash\ flows/Net\ sales$$

$$ICP = Inventory\ conversion\ period = ICP = Av.stock/Cost\ of\ sales\ x\ 365$$

$$OE = Operating\ efficiency\ as\ a\ measure\ of\ management\ efficiency = OE = Operating\ expenses/Total\ income$$

$$FG = Firm\ growth = FG = (Sales_t - Sales_{t-1})/Sales_{t-1}$$

$$FS = Firm\ size = FS = Natural\ log\ of\ total\ assets$$

β_0 = Constant

β_1 - β_4 = Regression Coefficients

ε = Error term

Control variables were treated as follows; operating efficiency, weighting operating costs in relation to total income then interpret. Firm growth was dealt with by relating sales at a particular period with same time a previous period then apply a formula. Firm size was relative to the natural log of a company's total assets.

3.5.2 Test of Significance

To test significance of regression model, the study utilized the F-statistics while the t – statistics was used to test significance of regression coefficients. Both the F and t-statistics were tested at 95% confidence level.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

This chapter presents results of the collected data on effect of inventory management on firm profitability and operating cash flows of Kenya Breweries Limited beer distribution firm in Nairobi County. The results of the study are presented in form of tables.

4.2 Descriptive Statistics

This study carried out a census of Kenya Breweries limited beer distribution firms in Nairobi County and obtained data from all the beer distribution firms hence a 100% response rate. The study also carried out a descriptive summary of the study variables. Table 4.1 shows the results obtained

Table 4.1 Summary Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	60	-.300	.2100	.1583	.202770
CFO	60	.010	.100	.0067	.012910
ICP	60	1.90	51.900	8.010	6.585750
OE	60	.090	.3600	.3250	.222943
FG	60	-.800	3.900	.1865	.696081
FS	60	18.00	20.60	19.078	.700627

Source: Research Findings

Table 4.1 shows the average ROA for the beer distribution firms is 0.153 which indicates average profitability for most of the beer distribution firms in Nairobi County is good. The results also indicate the average operating cash flows (CFO) for the firm is 0.06 and the average inventory conversion period (ICP) is 8 days, which indicates that on average KBL beer distribution firms take an average of 8 days to convert inventory into sales. The mean operating efficient (OE) ratio is 0.325 hence an indication that that expenses account for 32% of the beer distribution firms hence efficient management. The results also indicate the average growth (FG) rate for the firms is 18.65%, which is high and good and the average size (FS) of the beer distribution firms is 19.08 respectively.

4.3 Correlation Analysis

4.3.1 Model I using ROA

This model used return on asset to measure profitability. Table 4.2 shows correlation analysis results.

Table 4.2 Correlation Matrix using ROA

	ROA	ICP	OE	FG	FS
ROA	1				
ICP	-.245	1			
OE	-.089	-.174	1		
FG	.363**	-.143	-.167	1	
FS	.196	-.070	-.597**	.434**	1

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

Source: Research Findings

The results on table 4.2 shows that here is negative correlation between profitability measured using ROA and inventory conversion period (ICP) and operating efficiency (OE). The results also indicate that there is a positive correlation between profitability and firm growth (FG) and firm size (FS).

4.3.2 Model 2 using CFO

This model used return on asset to measure operating cash flows. Table 4.3 shows the correlation analysis results

Table 4.3 Correlation Matrix using CFO

	CFO	ICP	OE	FG	FS
CFO	1				
ICP	.875**	1			
OE	-.132	-.174	1		
FG	-.016	-.143	-.167	1	
FS	.004	-.070	-.597**	.434**	1

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

Source: Research Findings

The results on table 4.3 show a positive correlation between operating cash flows and inventory conversion period (ICP) and (FG) and firm size (FS). The results also show a negative correlation between operating efficiency (OE) and growth of the firm (FG)

4.4 Regression Analysis

4.4.1 Model I using ROA

Table 4.4 shows the regression results obtained using ROA as a proxy for profitability.

Table 4.4 Regression Coefficients using ROA

Model 1: OLS, using observations 1-60 **Dependent variable: ROA** **Heteroskedasticity- robust standard errors, variant HC1**					
	Coefficient	***Std. Error***	***t- ratio***	***p- value***	
const	0.505467	0.563159	0.8976	0.37333	
ICP	-0.00680583	0.00557214	-1.2214	0.22714	
OE	-0.0985351	0.155552	-0.6335	0.52906	
FG	0.0997886	0.0451508	2.2101	0.03128	**
FS	-0.0148488	0.029271	-0.5073	0.61398	
Mean dependent var	0.154431	S.D. dependent var		0.195085	
Sum squared resid	1.806612	S.E. of regression		0.181239	
R- squared	0.195427	Adjusted R- squared		0.136913	
F(4, 55)	3.588359	P-value(F)		0.011379	
Log- likelihood	19.95042	Akaike criterion		-29.90084	
Schwarz criterion	-19.42912	Hannan- Quinn		-25.80477	

Source: Research Findings

From results on table 4.4, the resultant regression equation is as follows

$$ROA = 0.5055 - 0.0068(ICP) - 0.098(OE) + 0.09978(FG) - 0.0148(FS) + \varepsilon$$

The results on table 4.4 show a negative insignificant relationship between inventory conversion period (ICP), Management efficiency (OE), Size of the enterprise (FS) and profitability. The results also indicate a positive significant relationship between the growth of the firm (FG) levels and profitability of beer distribution firms in Nairobi County. The study also shows that, the R- squared value is 0.1954, which indicates that 19.54% of the variation in dependent variable ROA is explained by independent variables; inventory conversion period management efficiency, firm growth levels and

size of the enterprise. The study also shows that the calculated F statistics value (3.558) is significant at 5% level of significance as P-value 0.011<0.05. This indicates a significant relation between the inventory management and the profitability of Kenya Breweries Beer distribution firms in Nairobi County.

4.4.2 Model II using Operating Cash flows (CFO)

Table 4.4 shows the regression results obtained using CFO as a proxy for the operating cash flows

Table 4.5 Regression Coefficients using Operating Cash flows (CFO)

Model 2: OLS, using observations 1-60
Dependent variable: CFO
Heteroskedasticity-robust standard errors, variant HC

	Coefficient	*Std. Error*	*t- ratio*	*p- value*	
const	0.0159914	0.0467409	0.3421	0.73356	
ICP	0.000794731	0.000219056	3.6280	0.00063	***
OE	-0.00477891	0.00920247	-0.5193	0.60563	
FG	0.00327401	0.00201171	1.6275	0.10935	
FS	-0.000542095	0.00237559	-0.2282	0.82034	

Mean dependent var	0.011088	S.D. dependent var	0.011323
Sum squared resid	0.005642	S.E. of regression	0.010128
R- squared	0.254154	Adjusted R- squared	0.199910
F(4, 55)	4.171314	P-value(F)	0.005069
Log- likelihood	193.0211	Akaike criterion	-376.0421
Schwarz criterion	-365.5704	Hannan- Quinn	-371.9461

Source: Research findings

From results on table 4.5, the resultant regression equation is as follows

$$CFO = 0.0159 + 0.00079(ICP) - 0.0047(OE) + 0.0032(FG) - 0.00054(FS) + \varepsilon$$

The results on table 4.5 show a positive significant relationship between the inventory conversion period (ICP) and the operating cash flows of KBL beer distribution firms in

Nairobi County. The results also show indicate a negative insignificant relation between the management efficiency (OE), Firm Size (FS) and operating cash flows of KBL beer distribution firms in Nairobi County. Further, the study established found a positive but insignificant relationship between the firm growth (FG) and the operating cash flows of KBL beer distribution firms in Nairobi County.

The results also indicate that the R- squared value is 0.2541, which indicates that 25.41% of variation in dependent variable CFO is explained by independent variables; inventory conversion period management efficiency, firm growth levels and size of the enterprise. The study also shows that the calculated F statistics value (4.171) is significant at 5% level of significance as P- value 0.005<0.05. This indicates a significant relationship between the inventory management and the operating cash flows of Kenya Breweries Beer distribution firms in Nairobi County.

4.5 Interpretation of the Findings

The study findings established that inventory conversion period, management efficiency and firm size negatively influence profitability of KBL Beer distribution firms in Nairobi County. This indicates that an increase in inventory days, poor management and small size negatively affects and reduces profitability Beer distribution firms. According to Sitienei and Memba (2015) there is a negative relation between the inventory turnover, inventory conversion period and the firm's profitability.

The findings also established that firm growth levels positively influence profitability hence an indication that high growth firms have high levels of profitability and low growth firms have lower profitability. In concurrence, Farah and Nina (2016) found that the growth rate significantly and positively effects to profitability.

This study findings also found that inventory conversion period positively and significantly influences operating cash flows of KBL beer distribution firms in Nairobi County which indicates that the number of inventory days have a positive impact on operating cash flows. Additionally, the findings of the study revealed that management efficiency, firm size negatively influences operating cash flows of KBL beer distribution firms in Nairobi County hence an indication that ineffective management and firm size adversely firms operating cash flows. According to Predescu (2008), efficiency in management ensures a more effective use the organizations resources and assets to enhance profitability and that the size of the firm is among the factors that determine cash flow sensibility to investments. The study found that firm growth positively influences operating cash flows of KBL beer distribution firms in Nairobi County, which indicates that high growth firms have high operating cash flows level while low growth firm have low operating cash flows level.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Chapter five presents the summary of findings of this research, conclusions and recommendations based on research findings, the limitations of the study and suggestion of areas which may require further consideration as far as future research is concerned.

5.2 Summary

The aim of the study was to explore the effect of management of inventory on firm's profitability and the operating cash flows of Kenya Breweries Limited beer distribution firms in Nairobi County. Inventory management measured through inventory conversion period was used as the independent variable whereas firm profitability and operating cash flows formed the dependent variable while management efficiency, firm growth and size formed the control variables. Complete data was obtained from all six the Kenya breweries beer distribution firms in Nairobi County using a data collection sheet.

The results of descriptive statistics established that the average ROA for the beer distribution firms is 0.153 and average operating cash flows (CFO) for the firms was 0.06 while average inventory conversion period (ICP) was 8 days. The average operating efficient (OE) ratio was 0.325 while the average growth (FG) rate and size was 0.18 and 19.08 respectively. Correlation analysis results found a negative correlation between profitability measured using ROA and the period of inventory conversion and the operating efficiency and a positive correlation between profitability and firm growth.

The study further revealed a positive correlation between operating cash flows and inventory conversion period and the firm size and a negative correlation between operating efficiency and growth of the firm.

The results of the first regression model using ROA to proxy profitability found an insignificant negative relationship between inventory conversion period, management efficiency, size of the enterprise and profitability and a significant positive relation between the growth of the firm level and the profitability of beer distribution firm in Nairobi County. This study found that the independent variable (inventory conversion period) and control variables (management efficiency, size and growth levels) influence 15.94% of the dependent variable (profitability). The study established a significant relation between the inventory management and the profitability of Kenya Breweries Beer distribution firms in Nairobi County.

The results on the second regression model using Operating cash flows (CFO) established a significant positive relation between the period of inventory conversion and the operating cash flows of KBL beer distribution firms in Nairobi County. The findings also found a negative insignificant relationship between the management efficiency, the size of the firm and operating cash flows and a positive but insignificant relation between the growth of the firm and the operating cash flows of KBL beer distribution firms in Nairobi County. The study found that the independent variable (inventory conversion period) and control variables (management efficiency, size and growth levels) influence 25.41% of the dependent variable (operating cash flows).

The study further established a significant relation between the inventory management and the operating cash flows of Breweries Beer distribution firms in Nairobi County.

5.3 Conclusions

The findings of the study found that inventory conversion period, management efficiency and firm size negatively influence profitability of KBL Beer distribution firms in Nairobi County. The study thus concludes that increase in inventory days, poor management and small size negatively affects and reduces profitability of KBL beer distribution firms in Nairobi County. The findings of the study also established that firm growth levels positively influence profitability and operating cash flows thus the conclusion that high growth firms have high levels of profitability and operating cash flows and low growth firms have lower profitability and low levels of operating cash flows.

The study finding also found that inventory conversion period positively and significantly influences operating cash flows hence the conclusion the number of inventory days positively impacts operating cash flows KBL beer distribution firms in Nairobi County. Further, the study found that management efficiency and firm size negatively influences operating cash flows hence the conclusion that ineffective management and firm size adversely firms operating cash flows. The study concludes that inventory management significantly influences firm profitability and operating cash flows of Kenya Breweries beer distribution firms in Nairobi County.

5.4 Recommendations

This study recommends to the management of Kenya breweries ltd beer distribution firms in Nairobi County should adopt effective inventory management practices like just in time and material requirement planning. This is because such inventory management practices would improve their profitability and operating cash flows.

This study recommends the management of the beer distribution firms to develop effective strategic policies and guidelines on inventory management to guide the staff to ensure they hold optimal inventory levels. Holding optimal inventory would help the firms to minimize costs and maximize their profitability and operating cash flows.

The study recommends that the management of Kenya breweries ltd beer distribution firms in Nairobi County should focus on growing their firms since high growing firms are able to grow their profitability, operating cash flows and increase their size. This would ensure the firms are able to withstand any negative shocks and benefit from economies of scale associated with large size.

5.5 Limitations of the Study

This study sought to investigate effects of inventory management on firm's profitability and operating cash flows of Kenya Breweries Limited beer distribution firms in Nairobi County. The study focused on Kenya Breweries beet distribution firms and thus its findings reflect the operations of those firms and may not be effective to beer distributors of other companies in within Nairobi County and in Kenya in general. In addition, the context of the study is Kenya hence the findings may not be applicable in other countries.

The study also used secondary data from the six KBL beer distribution firm in Nairobi County, which was obtained from the finance managers of such firms. However, the validity and reliability of the data cannot be relied upon since the firms did not have audited financial statements and no proof that data was prepared based on internationally accepted accounting standards. The study also covered the quantitative aspects in terms of figures that influence profitability and operating cash flows of the KBL bear distribution firms in Nairobi County.

5.6 Suggestions for Further Research

The study focused on management of inventory which a great part of the working capital management, which also covers receivables, cash management and payables management. An additional study on the effect of the working capital management on the profitability is recommended to establish effect of working capital components on profitability and operating cash flows of beer distribution firms. The study also found that the variables explain only 15.94% & 25.41% of the variation in firm profitability and operating cash flows. This indicates that the are other variables which influence profitability and operating cash flows of beer distribution firms hence a study on such factors is worth.

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APPENDICES

Appendix I: Data Collection Sheet

Company Name ……..										
Year	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Net profit										
Total Assets										
Opening Inventory										
Closing Inventory										
Sales										
Net operating cash flows										
Cost of sales										
Operating expenses										

Appendix II: Kenya Breweries Limited, Beer Distribution Firms in Nairobi County

1. Kamuhaha Distributors
2. Bia Tosha Distributors
3. Leah Africa
4. Veew Distributors
5. Ishano Distributors
6. Rwathia Distributors

Appendix III: Regression Data

Firm	Year	ROA	CFO	ICP	OE	FG	FS
Firm 1	2015	0.26	0.02	3.75	0.19	0.12	20.07
Firm 1	2014	0.13	0.01	3.85	0.25	0.16	19.41
Firm 1	2013	0.18	0.01	4.47	0.04	0.21	18.95
Firm 1	2012	0.06	0.01	4.82	0.24	0.07	19.02
Firm 1	2011	0.01	0.01	4.58	0.26	0.12	19.02
Firm 1	2010	0.02	0.01	6.23	0.32	0.05	18.73
Firm 1	2009	0.05	0.01	8.70	0.32	0.09	18.59
Firm 1	2008	0.04	0.00	9.20	0.29	0.25	18.67
Firm 1	2007	(0.04)	0.00	10.84	0.36	0.12	18.49
Firm 1	2006	(0.06)	0.00	13.22	0.14	(0.77)	18.48
Firm 2	2015	0.08	0.00	9.91	0.29	(0.06)	19.97
Firm 2	2014	0.09	0.00	7.40	0.31	0.21	19.90
Firm 2	2013	0.10	0.02	6.90	0.31	0.25	19.78
Firm 2	2012	0.12	0.01	4.76	0.44	0.57	19.28
Firm 2	2011	0.26	0.01	6.54	0.52	0.18	18.55
Firm 2	2010	0.18	0.02	6.35	0.52	0.60	18.59
Firm 2	2009	0.22	0.01	7.42	0.47	(0.31)	18.16
Firm 2	2008	0.28	0.02	6.62	0.72	0.19	18.22
Firm 2	2007	0.28	0.01	6.35	0.68	0.42	18.19
Firm 2	2006	(0.31)	(0.02)	5.40	0.10	(0.81)	18.01

Firm 3	2015	0.65	0.02	2.61	0.12	3.94	20.61
Firm 3	2014	0.95	0.04	2.47	0.08	(0.46)	19.55
Firm 3	2013	0.09	0.01	2.09	0.01	(0.39)	19.12
Firm 3	2012	0.16	0.01	9.46	0.09	0.40	19.13
Firm 3	2011	0.06	0.04	19.01	0.18	(0.26)	18.83
Firm 3	2010	0.08	0.01	13.20	0.06	(0.10)	19.72
Firm 3	2009	0.11	0.00	8.92	0.12	0.20	19.25
Firm 3	2008	0.03	0.00	8.62	0.27	0.25	18.83
Firm 3	2007	0.08	0.00	9.93	0.34	0.05	18.49
Firm 3	2006	0.05	0.00	11.82	0.18	(0.76)	18.52
Firm 4	2015	0.08	0.00	9.66	0.27	(0.04)	20.05
Firm 4	2014	0.08	0.01	6.90	0.28	0.29	20.03
Firm 4	2013	0.10	0.02	6.93	0.30	0.26	19.81
Firm 4	2012	0.11	0.01	4.76	0.54	0.46	19.30
Firm 4	2011	0.26	0.01	6.94	0.51	0.23	18.59
Firm 4	2010	0.20	0.02	6.35	0.51	(0.12)	18.61
Firm 4	2009	0.22	0.01	7.59	0.53	0.34	18.16
Firm 4	2008	0.25	0.02	6.07	0.72	0.15	18.26
Firm 4	2007	0.03	0.01	6.94	0.07	0.31	20.52
Firm 4	2006	0.29	0.01	5.01	0.83	(0.78)	18.09
Firm 5	2015	0.65	0.02	2.73	0.12	2.33	20.50
Firm 5	2014	0.81	0.02	2.43	0.06	(0.24)	19.53
Firm 5	2013	0.11	0.01	1.91	0.01	(0.40)	19.09

Firm 5	2012	0.15	0.01	9.88	0.09	0.93	19.10
Firm 5	2011	0.06	0.03	14.05	0.16	(0.03)	18.78
Firm 5	2010	0.08	0.01	11.41	0.06	0.09	19.52
Firm 5	2009	0.10	0.06	51.94	0.11	0.13	19.11
Firm 5	2008	0.02	0.00	8.11	0.27	(0.19)	18.80
Firm 5	2007	0.04	0.00	7.13	0.16	0.55	19.11
Firm 5	2006	0.05	0.00	9.81	0.17	(0.78)	18.50
Firm 6	2015	0.08	0.00	10.73	0.25	(0.08)	20.03
Firm 6	2014	0.09	0.01	6.69	0.33	0.18	19.84
Firm 6	2013	0.08	0.02	6.51	0.32	0.31	19.81
Firm 6	2012	0.09	0.01	4.01	0.52	0.44	19.26
Firm 6	2011	0.21	0.01	6.45	0.45	0.42	18.61
Firm 6	2010	0.18	0.02	7.26	0.45	0.26	18.59
Firm 6	2009	0.21	0.01	7.49	0.57	(0.23)	18.06
Firm 6	2008	0.16	0.02	6.95	0.68	0.19	18.39
Firm 6	2007	0.02	0.01	7.67	0.08	0.38	20.50
Firm 6	2006	0.25	0.01	5.20	0.84	0.29	18.14