THE EFFECT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY OF MANUFACTURING COMPANIES IN KENYA

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DECLARATION

I hereby declare that this is my original work and has not been presented for award for a degree	
at this or any other university.	

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DEDICATION

To my loving mum Grace, my dear wife Rachel and my lovely sons; Mark, Fortune and Timon for their inspiration, love and encouragement.

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LIST OF ABBREVIATIONS

- CCC Cash Conversion Cycle
- CMA Capital Markets Authority
- FMCG Fast Moving Consumer Goods
- NSE Nairobi Securities Exchange
- SEZ Special Economic Zones
- SME Small and Medium size Entities
- SPSS Statistical Package for Social Sciences
- UoN University of Nairobi

ABSTRACT

The objective of the firm is to maximize shareholders' wealth. The structure of working capital and liquidity analysis plays a key role in the process of wealth maximization of shareholders. The concept of working capital management is concerned with managing working capital components to promote a satisfying liquidity, profitability and shareholders' value. The objective of this research is therefore to establish the effect of working capital management on the profitability of manufacturing companies in Kenya. This study employed a descriptive statistical approach to analyze the results. The quantitative methods have been applied on financial data from secondary database. The study used pooled ordinary least square and generalized least square methods for the analysis. The study found that the size of the firm significantly affect the profitability of a company. The larger the company, the more its profitability. However, the other working capital component had less significance on profitability of the manufacturing companies in Kenya. The study therefore recommends for the manufacturing firms to have a policy of increasing the size of the firm through improved sales revenue, while at the same time maintaining a sound working capital management. Firms are capable of gaining sustainable competitive advantage by means of effective and efficient utilization of the resources of the organization through a careful reduction of the cash conversion cycle to its minimum. In so doing, the profitability of the firms is expected to increase. The period covered saw a global economic crunch that started in the year 2007 and its aftermath. This could have affected the result findings due to the general effect of the same on companies' performance as consequence of unpredictable trend of working capital components. Therefore, future studies should cover longer periods and include private companies as well for a more credible results that can be used for policy direction.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The objective of the firm is to maximize shareholders' wealth. The structure of working capital and liquidity analysis plays a key role in the process of wealth maximization of shareholders, Shin and Soenen (1998). This is because most of the cash available to the firm is tied up in working capital. Borrowing additional cash to fund working capital of the firm is costly; in terms of interest charges and other related borrowing costs. The finance manager of the firm is therefore tasked with ensuring that the working capital of the firm is prudently managed in order to have a positive net present value to the shareholders.

Guthmann and Dougall (1948) defined working capital as current assets minus current liabilities. The current refers to a time period of one year or less than one year. (Emery and Finnerty, 1997). The components of working capitals are inventories, trade receivables and trade payables.

According to Rafuse (1996) majority of the business failures are due to poor management of working capital components and the firm's success heavily depends on how frequent they are able to generate more cash.

According to Deloof (2003) majority of the firms invested significant amount of cash in working capital and used trade payable as a key source of financing. So the way cash is handled can have a significant impact on the profitability of the firm. Lazaridis and Tryfonidis (2006) in their research concluded that operating profitability will indicate how the management will respond in terms of managing the working capital components. This is because they identified a negative relationship between the working capital components and the profitability. Raheman and Nasr (2007) suggested that managers can increase the shareholders' value by reducing the receivable days and inventories days to a minimum level. Efficient working capital management is all about managing the working capital components effectively to meet the short term obligations (Eljelly 2004).

1.1.1 Working Capital Management

Guthmann and Dougall (1948) defined working capital as current assets minus current liabilities. This is the capital that is used for day-to-day operation of a business. "Current" is a period of one year, or less than one year (Emery and Finnerty, 1997). The concept of working capital management is concerned with managing working capital to promote a satisfying liquidity, profitability and shareholders' value. Working capital management is the ability to control effectively and efficiently the current assets and current liabilities in a manner that provides the firm with maximum return on its assets and minimizes payments for its liabilities. The short term capital refers to the capital that companies use in their daily operations and it consists of companies' current assets and current liabilities. A well-managed working capital promotes a company's well-being on the market in terms of liquidity and also acts in favors the growth of shareholders' value, Jeng-Reng, Li & Han-Weng (2006).

Working capital is regarded as the result of the time lag between the expenditure for the purchase of raw material and the collection from the sale of the finished goods. Working capital management deals with the management of current assets and current liabilities and directly affects the liquidity and profitability of the firm, Deloof, (2003); Eljelly, (2004); Raheman and Nasr, (2007); Appuhami, (2008); Christopher and Kamalavalli, (2009); Dash and Ravipati, (2009). An optimal working capital management is expected to contribute positively to the creation of a firm's value, Howorth and Weshead, (2003); Deloof, (2003); Afza and Nazir, (2009). Working capital management is important because the current assets of typical manufacturing firms account for over half of their total assets. Excessive levels of current assets can easily result in a firm's realizing a sub-standard return on investment. However, firms with too few current assets may incur shortages and difficulties in maintaining smooth operations, (Horne and Wachowicz, 2000). There must be a balance between current assets and current liabilities in order to eliminate the risk of inability to meet short term obligations on the one hand, and avoid excessive investment in these assets on the other hand, (Eljelly, 2004).

It is important for a firm to maximize profitability, while at the same time, preserve its liquidity. The problem is that, increasing profit at the expense of liquidity may make the firm suffer the consequences of cash flow, (Shin and Soenen, 1998). Therefore, there must be a trade-off between these two objectives of firm since both are important for the firm's performance. Working capital investments and related short-term finances originate from three main business operations - purchasing, producing and selling. However, there could be challenges that may

force the firm to engage factors to collect debt on their behalf. This will lead to additional cost to the firm, while at the same time, may make the firm lose customers, depending on how they are handled by the third party (factor). The other challenge is the duration to convert stock into sales. Therefore, better management of working capital and debts within one year can make purchasing, producing and selling functions cost efficient and flexible. Careful management of working capital can reduce costs and could accrue benefits to organizations (Brealey et al, 2006). If an organization is unable to manage its working capital soundly, then it will be unable to settle its creditor, thus technically insolvent. The portfolio of current assets is large when compared to total assets for trading and manufacturing organizations, so it's crucial that working capital is managed in an optimal way, so as to balance liquidity and profitability.

Firms are eager to utilize internally generated funds because they do not have to pay interest on these funds and there is no maturing period. However, managers can get complacent. Also obtaining debt will increase the debt to equity ratio and make the share price unattractive if the firm is not making profits. Therefore, internally generated funds offer flexibility for a firm. (Brealey et al, 2006). Many surveys have indicated that managers spend considerable time on day-to-day problems involving working capital decisions. One reason for this is that current assets, which are short-lived investments, are continually being converted into other types of assets; for example, inventory into sales and sales into credit sales or debtors (Rao, 1989). When current liabilities are taken into account, the firm is responsible for paying these obligations on a timely basis. Liquidity for the ongoing firm is not reliant on the liquidation value of its assets, but rather on the operating cash flows generated by those assets (Soenen, 1993). Current assets include those assets that in normal course of business have to return into cash within a short period of time under normal conditions, ordinarily within a year.

1.1.2 Profitability

According to Wild, Larson and Chiapetta (2007), profitability refers to a company's ability to generate an adequate return on invested capital. Companies are interested in their ability to use their assets efficiently to produce profits (and positive cash flows). Return is judged by assessing earnings relative to the level and sources of financing. Profitability is also relevant to solvency. The key measures of profitability are the profit margin, return on total assets and return on common stockholders' equity. These are computed as follows:

Profit margin = Net income / Net sales

To evaluate profit margin, we must consider the industry. For instance, an appliance company might require a profit margin between 10% and 15%; whereas a retail supermarket might require a profit margin of 1% or 2%. The second one is the total asset turnover. These ratios reflect on management because managers are ultimately responsible for operating efficiency.

Return on total assets = Net income/Average total assets

The following equation shows the important relation between profit margin, total asset turnover, and return on total assets.

Profit margin x Total asset turnover = Return on total assets
Or

<u>Net income</u>	x <u>Net sales</u>	=	<u>Net income</u>
Net sales	Average total assets		Average total assets

Both profit margin and total asset turnover contribute to overall operating efficiency, as measured by return on total assets.

Return on common stockholders' equity = <u>(Net income – Preferred dividends)</u> Average common stockholders' equity

The most important goal in operating a company is to earn net income for its owners. Return on common stockholders' equity measures a company's success in reaching this goal. A business that is not profitable cannot survive. Conversely, a business that is highly profitable has the ability to reward its owners with a large return on their investment. Increasing profitability is one of the most important tasks of the business managers. Managers constantly look for ways to change the business to improve profitability (Rafuse, 1996).

1.1.3 Effect of Working Capital Management on Profitability

The management of Working capital is important to the financial health of business of all sizes. Working capital meets the short term financial requirements of a business enterprise. It is a trading capital not retained in the business in a particular form for longer than a year. The money invested in it changes form and substance during the normal course of business operations. The need for maintaining an adequate Working capital can hardly be questioned. This is the life blood of any business and must be managed properly to maintain the survival of a business. If it becomes weak, the business can hardly prosper and survive. Working capital starvation is generally credited as the major course if not a major course of small business failure in many developed and developing countries (Rafuse, 1996). The success of a firm depends ultimately, on its ability to generate cash receipts in excess of disbursement. Given these peculiarities, efficient management of working capital and more recently good credit management practice is pivotal to the health and performance of a business, (Peel and Wilson, 1996). The study conducted revealed that 60% enterprises suffer from cash flow problems. From such study there is the need for many industries to improve their return on capital employed (ROCE) by focusing on some critical areas such as cost containment, reducing investment in working capital and improving working capital efficiency.

Based on the information from the above findings, there is a negative relationship between profitability and the cash conversion cycle, inventory receivable days, accounts payable days and accounts receivable days which are the components of working capital management. Therefore it seems that operational profitability dictates how managers or owners will act in terms of managing the working capital of the firm. The negative relationship between accounts receivables and firms' profitability suggests that less profitable firms will pursue a decrease of their accounts receivables in an attempt to reduce their cash gap in the cash conversion cycle. Likewise the negative relationship between number of days in inventory and corporate profitability suggests that in the case of a sudden drop in sales accompanied that mismanage inventory will tie up excess capital at the expense of profitable operations. Therefore managers can create profits for their companies by handling correctly the cash conversion cycle and keeping each different component (accounts receivables, accounts payables, inventory) to an optimum level.

1.1.4 Manufacturing Companies in Kenya

In Kenya, the industrial sector is the fourth biggest sector after agriculture, transport and communications, and wholesale and retail trades. The sector had 17 firms listed in Nairobi securities exchange (NSE) in 2010, but was split into four sectors in 2011, with the manufacturing sector having nine firms listed in the Securities Exchange (Kenya Association of Manufacturers, 2012)

As an important sector in the overall economic growth, manufacturing sector requires in depth analysis at industry as well as firm level. This is because it contributed about 10.1% of Kenya's GDP, serving both local and East African Market (NSE handbook, 2010, 2011). Manufacturing industries refers to those industries involved in the manufacturing and processing of goods, and

indulge in the creation of new commodities or in value addition. The final products can either be sold as finished product or be used as an intermediate product for further processing of other products, Lawrence and Chad (2012).

Although Kenya's manufacturing industries are very small, they are the most sophisticated in East Africa. The manufacturing sector has been growing since 1990s, into the new century. The manufacturing companies in Kenya are relatively diverse as well. This is because Kenya is a favorite destination for investors willing to put their money in manufacturing, since it has one of the best work-force in Africa, a productive agricultural sector, and hence, a dependable source of raw materials for agro-based manufacturing, a fairly versatile financial services sector, bankable telecommunications and proximity to port facilities. Kenya has also location advantage, by being the gateway and a natural launch pad to the markets of the mostly Landlocked East and Central African countries such as Uganda, Southern Sudan, Rwanda, Burundi, parts of northern Tanzania and Eastern Democratic Republic of Congo. A set of key target areas have been identified and specific goals set to steer industrial growth. These include the development of Special Economic Zones (SEZs), Industrial Parks, Industrial Clusters, promotion of small and medium scale manufacturing firms, development of niche products, iron and steel industries, manufacture of fertiliser, agro-processing, tools and machinery, motor vehicle assembly and manufacture of spare parts (Economic Recovery Strategy for Employment and Wealth Creation Report)

1.2 Research Problem

This study seeks to analyze the "effect of working capital management on profitability of manufacturing companies in Kenya". It will also evaluate whether the debt and size of the firm have effect on the profitability of the firm.

According to the study carried out on working capital management relationship with profitability of the firm, Raheman and Nasr (2007), Ching (2011), Alam et.al (2011), Bagchi and Khamrui (2012), found that there is a negative relationship between the firm's debt and profitability. Further they also identified a positive relationship between the firm's size, logarithm of sale and the profitability. On a controversial note in a similar study, Ganeshan (2007) found out that the relationship is not significant between days of working capital and the profitability. They carried out the research in Telecommunication industry. This industry nature is quite different compared to manufacturing industry. Izadima and Taki (2010)

examined the effects of working capital management on profitability of listed companies on Tehran Stock Exchange for the period of 2001-2008. In this study return on total assets is considered as a measure for capability of profitability. The results indicate a significant negative relationship between cash conversion cycle and return on assets and that a lot of investment in inventories and accounts receivable leads to declining of profitability. Since it's more related with technologies, the way of doing business and the management style will vary according to the rapid changes in the technologies. Frequently changing environment might have led to insignificant relationship between days of working capital and profitability. According to Mathuva (2010) on a similar study done in Kenya, the relationship between the payable days, inventory days and profitability was found to be positive; this is conflicting with other researcher's findings. Mathuva (2010) in his research only used 30 samples which were listed in Nairobi Securities Exchange (NSE), further the market in Nairobi is not developed compared with the western market. These could be the possible reasons for the different conclusion by Mathuva (2010).

The review of the previous studies gives us a clear link between the working capital management and profitability. Further it is evidenced that the total debt and size of the firm also affect the profitability of the firm. The above studies have been carried out for different sizes of sample, time periods, countries and industries. The industries include manufacturing, non-financial firms, fast moving consumer goods and telecommunication. All these give us a clear indication that the working capital components are given higher priorities by the corporate world. Further, there are only a few researches carried out for manufacturing companies listed in Kenya. Besides, the results of the findings are conflicting, making it an area that still requires further study to come up with a workable policy recommendations. This research will address the research question; 'what is the effect of working capital management on profitability of manufacturing companies in Kenya?'

1.3 Objective of the Research

To establish the effect of working capital management on the profitability of manufacturing companies in Kenya. The specific objectives of this study are; to investigate the effect of receivable days; inventory days; payable days; financial leverage; cash conversion cycle; and the size of the company on its profitability.

1.4 Value of the Study

The findings of this study will add to the existing knowledge of working capital management and its effects on profitability. The study will also come up with findings on the relationship between the components of working capital management and how they affect profitability of the firm. These findings will be used to recommend to the managers, the most prudent ways of managing working capital in order to maximize shareholders wealth. Finally, the findings can be generalized in other organizations, other than the manufacturing firms, with an aim of improving their financial performance.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

Literature review is about examining the targeted sources of literature that are relevant to the study. This will reveal what theories are supporting the topic of study as well as the findings of other researchers in the same area. The main objective is to have good theoretical grounding on the topic and to prevent "reinventing of the wheel", thus, leading to the identification of knowledge gaps to be researched. This review will follow a chronological sequence comprising of introduction, theoretical review, empirical review and summary.

2.2. Theoretical Review

Guthmann and Dougall (1948) defined working capital as current assets minus current liabilities. This is the capital that is used for day-to-day operation of a business. "Current" is a period of one year, or less than one year (Emery and Finnerty, 1997). The conceptual model shown in Figure 2.2 illustrates the critical portion of the financial management components for this study. The focus is on the operating cycle and the four main components of Working Capital; cash, debtors (accounts receivable), inventory, and creditors (accounts payable).





Source: Adapted from Gitman, (2009)

According to Gitman (2009) the objective of Working Capital Management (WCM) is to minimize the Cash Conversion Cycle (CCC), that is, the amount of capital tied up in the firm's current assets. It focuses on controlling account receivables and their collection process, and managing the investment in inventory. WCM is vital for all business survival, sustainability and its direct impact on performance. Working capital management deals with the administration of the liquidity components of firms' short-term current assets and current liabilities (Baker & Powell, 2005; Brigham & Ehrhardt, 2005; Gitman, 2009). The most important current assets are cash, debtors or account receivables, stock or inventory and current liabilities consisting of creditors or account payables, accrued expenses, taxation liabilities, short-term debt such as commercial bills, and provisions for current liabilities such as dividends declared but not yet paid (Birt et al., 2011; Gitman, 2009; D. Sharma, 2009).

A decision made on one of the Working Capital components has an impact on the other components. In order to maximize the performance of a business, the Working Capital Management should be integrated into the short-term financial decision making process (Crum, Klingman, & Tavis, 1983). Working Capital or Net Working Capital is "the difference between current assets less current liabilities" (Arnold, 2008). The investment in NWC is so vital and helps the capital budgeting analysis of a given firm. Working Capital (WC) can be invested in short-term sources of finance, such as cash, inventories, account receivables, and notes receivables. Working capital is minimized in terms of payments made to account payables (creditors), notes payable and other accrued liabilities. In order to balance out the optimal levels of costs and benefits, the liquidity components of working capital must be managed with appropriate techniques through raising or lowering the stocks, cash, account receivables and account payables (Arnold, 2008; Gitman, 2009).

2.2.1. Inventory Management Models

The models that discuss inventory management are the Economic Order Quantity (EOQ), also known as Wilson Formula. The model was developed by Ford W. Harris in 1913, but Wilson, a consultant who applied it extensively, is given credit for his in-depth analysis. Economic Order Quantity is the order quantity that minimizes total inventory holding costs and ordering costs. The model only applies when demand for a product is constant over the year and each new order is delivered in full when inventory reaches zero. There is a fixed cost for each order

regardless of the quantity ordered. There is also a holding cost for each unit held in storage. The model also assumes that the lead time is fixed, the purchase price of the item is fixed, there is no discount, the replenishment is made instantaneously, the whole batch is delivered at once and that only one product is involved. The model is given by the formula:

Economic Order Quantity (Q*)

$$Q^* = \sqrt{\frac{2DK}{h}}$$

Where:

- Q^* = optimal order quantity
- D = annual demand quantity
- K = fixed cost per order, setup cost (not per unit, typically cost of ordering and shipping and handling. This is not the cost of goods)
- *h* = annual holding cost per unit, also known as carrying cost or storage cost (capital cost, warehouse space, refrigeration, insurance, etc. usually not related to the unit production cost)

The other model is Newsvendor model, also known as newsboy or single period model. It is used to determine the optimal levels of inventory and is usually characterized by fixed prices and uncertain demand for perishable product. The solution to the optimal stocking quantity of the newsvendor which maximizes expected profit is:

$$q = F^{-1}\left(\frac{p-c}{p}\right)$$

Where

 F^{-1} = denotes the inverse cumulative distribution function.

Intuitively, this ratio, referred to as the critical *fractile*, balances the cost of being understocked, a lost sale worth (p-c) and the total costs of being either overstocked or understocked (where the cost of being overstocked is the inventory cost, or C so total cost is simply p.

The objective of Inventory management is to turn over inventory as quickly as possible without losing sales from stock-outs. It is an important aspect of working capital management because inventories themselves do not earn any revenue. Holding either too little or too much inventory incurs costs. Inventory is generally made up of three elements; raw materials, work-in-progress (WIP) and finished goods (Arnold, 2008; Cinnamon, Helweg-Larsen, & Cinnamon, 2010; Gitman, 2009). Minimizing of the raw materials is ideal in this particular part of working capital. However, this must be offset by the economic order quantities available from suppliers. The costs of carrying too much inventory are opportunity cost of foregone interest, warehousing costs, damage and pilferage, obsolescence and insurance. The costs of carrying too little inventory are stock out (i.e. lost sales, delayed service), and ordering costs (i.e. freight, order administration and loss of quantity discounts).

On the other hand, work in progress concerns are when the product has left the raw material storage area, until it is declared for sale and delivery to customers. In this process the working capital must be considered in terms of reducing the buffer stocks, eliminating the production process, reducing the overall production cycle time. The raw materials and finished goods must be minimized in the production area. WIP must be carefully examined to justify how long it takes for products to be cleared for sale. This stage is normally done by the quality control (QC) procedures (Birt et al., 2011; Cinnamon et al., 2010). Finished goods refer to the stock sitting in the warehouse waiting for sale and delivery to customers. The owner/manager of the business should find what options are available to dispose of the slow moving items. For example, should the stock be repacked or reprocessed, and sold at lower discount prices? JIT system can be used to minimize or eliminate both raw material stock and work in progress, as the stock is now in finished goods (Brealey, Myers, & Allen, 2006; Cinnamon et al., 2010; Van Horne & Wachowicz, 2008). When using the JIT system, goods can be delivered directly to the production area, eliminating raw material storage areas. The purpose of using just-in-time approach is to have the supplier carrying the goods rather than being carried by the purchaser (Cinnamon et al., 2010; Zietlow et al., 2007).

2.2.2. Cash Management Models

Cash management has been explained by several theories, some of which are; Baumol model and Mille-Orr model. Baumol model of cash management helps in determining a firm's optimum cash balance under uncertainty. According to the model, cash and inventory management are the same. William J. Baumol developed a model called the transaction demand for cash, an inventory theoretic approach. The model trades off between opportunity cost of carrying/holding cost and the transaction costs. The firms attempt to minimize the sum of holding cost and the cost of converting marketable securities to cash. The model enables companies to find out their desirable level of cash balance under certainty.

The model relies on trade-off between the liquidity provided by holding money (the ability to carry out transactions) and the interest foregone by holding one's asset in terms of non-interest bearing money. The assumptions are that, the company should be able to change the securities that they hold into cash keeping transaction costs constant, the company is capable of predicting its cash necessities with certainty, the company is aware of the cash holding cost which should be constant for a given period, the company should make its payments at regular intervals over a certain period regularly. The following equations represent the Baumol cash management model.

Holding Cost	=	k(C/2)
Transaction Cost	=	c(T/C)
Total Cost	=	k(C/2) + c(T/C)

Where:

T is the total fund requirement, C is the cash balance, k is the opportunity cost & c is the cost per transaction

The optimal cash balance is given by: $C^* = (2cT/k)^{1/2}$

The limitations of this model are that it does not allow cash flow to fluctuate, overdraft is not considered and there are uncertainties in the pattern of future cash flows.

The second model is the Miller-Orr model. This model helps companies to manage their cash while taking into consideration the fluctuation in daily cash flow. Here, the companies let their cash balance move within two limits; the upper limit and the lower limit. The companies buy or sell their marketable securities only if the cash balance is equal to any one of these. When the cash balances touches the upper limit, it purchases a certain number of saleable securities

that help them to come back to the desirable level. If the cash balance of the company reaches the lower level, then the company trades its saleable securities and gathers enough cash to fix the problem. It is normally assumed that the average value of the distribution of net cash flow is zero. It is also understood that the distribution of net cash flow has a standard deviation. The model also assumes that the distribution of cash flow is normal. The model is applicable in finding the approximate prices at which the saleable securities could be sold or bought, deciding the minimum possible levels of desired cash balance, checking the rate of interest and calculating the standard deviation of regular cash flows.

2.2.3. Cash Conversion Cycle

Gitman (2009) explains that a cash budget is a forecast of the future cash inflows and outflows of the business and how cash has been used for business operational activities. But the "cash conversion cycle" is the duration of time that cash is tied up in accounts receivables and inventory. In fact, the Cash Conversion Cycle (CCC) is concerned with the amount of time a firm's resources are tied up. It is mathematically represented by the equation below (Dong & Su, 2010; Gill, Biger, & Mathur, 2010; Gitman, 2009).

CCC = <u>Account receivables * 365</u> + <u>Inventories * 365</u> - <u>Account Payable * 365</u> Sales Purchases - Purchases CCC = OC - APP CCC = AAI + ACP - APP

2.2.4. Account Receivables Management Theories

Several theoretical studies attempt to explain why firms extend trade credit to customers. The theories that explain this are the transaction cost theory. Ferris (1981) argues that the existence of trade credit allows flexibility in payment and makes it possible to cumulate payment of several successive supplies to be paid at once, thus leading to saving of transaction costs. Furthermore, trade credits allow buyers to hold smaller cash balances and save money accordingly. Other versions relate to the seasonality in the consumption pattern of the selling firm. The other is the financial model based on capital market imperfections relating to information asymmetries. Schwartz (1974) suggests that firm with better access to institutionalized capital and with lower cost of financing will offer trade credits to customers with high costs when borrowing from financial intermediaries. It may also be argued that trade credit can help to mitigate credit rationing while providing a signal on buyers' good quality to

financial intermediaries, Frank and Maksimovic (1998). Other models suggest that the seller has an advantage over financial intermediaries in information acquisition and controlling of the buyer.

2.2.5. Operating Cycle Theory

Operating Cycle (OC) is the time from the beginning of the production process to collection of cash from the sale of the finished product in a typical business (Gitman, 2009). The OC consists of two major short-term asset categories such 'inventory' and 'account receivable'. It is calculated by adding the average age of inventory (AAI) and the average collection period (ACP). The operating cycle can be algebraically denoted as:

OC = AAI + ACP

The flow time line below shows the interrelationship of WC components in the operating and cash conversion cycle.

Figure 2 2 Operating Cycle

Time
Purchase raw materials
On account
Collect Accounts
Receivable
Average Age of Inventory (AAI)
Pay accounts
payable
Cash Inflow
Average Payment Period (APP)
Cash Conversion Cycle (CCC)

Cash Outflow

Source: Adapted from Gitman, (2009)

2.3. Determinants of Profitability

Determinants of profitability are the components of working capital management. These are described below.

2.3.1. Working Capital Management

When a company sells goods or services on credit, it records this as accounts receivable in its ledgers and the balance sheet. The period of time given to customers to pay for goods and/or services is called the credit period. Companies usually carry out a credit analysis to gauge who are paying on time and who are not. By receiving cash early, companies could improve their life-blood. Collecting the cash too early and not providing generous credit terms might hamper business sales in the long run as customers might turn to competitors to get their goods. Another option to improve working capital and to get cash early is to sell and handover the trade receivables to a factoring company. The factoring company will discount the trade receivables as their commission. However, as mentioned earlier, there might be a risk of engaging factors, as they might treat the credit customers harshly when they don't pay-up on time. This might harm trade relations with the company that gave on credit. (Brealey et al. 2006).

Inventory or stocks are goods held for sale or for processing end products, and are a crucial make-up of current assets. Inventory in manufacturing firms will be in the form of raw materials, works in progress and finished goods. In most cases, it is a balancing act to keep inventory for sales and having less inventory to improve working capital. For example, a company will lose out on sales if customer's demand is not met due to stock-out. On the other hand, holding too much inventory will have an opportunity cost and may give rise to obsolescence. The trend has been to lower inventory levels over the past decades. For example, 30 years ago U.S. companies had approximately 12% of total assets tied up in inventory, whereas today it has reduced to 6%. A concept that has originated from Japan for managing inventory is just-in-time (JIT). The just-in-time keeps suppliers ready to supply goods or stocks when the need arises to satisfy customer demand. By this way, inventories are held at zero or in low levels. (Brealey et al, 2006).

Cash can be used in operational expenses such as buying of stock, paying of salaries, rent and other administrative costs. At the same time, it may be used to purchase fixed assets. Holding cash is important in an organization because it will not have to raise an overdraft, call on shareholders to put in additional capital or raise debt. However, large amount of idle cash results in a lost opportunity to earn returns on it. This cash can be invested in a savings account, fixed deposit or government bonds for example, to earn an interest. Cash forecast should be carefully prepared to analyze the current and short term needs of cash for the firm.

When a company buys good on credit, it becomes an account payable by the buying firm to the selling firm. Most companies, especially retail and manufacturing, buy goods on credit and record it as a liability that has to be paid. A company can extend its credit policy based on the relationship between the suppliers. Accounts payable is a form of short term debt, and should be effectively managed to ensure that payments are made on time and that creditor relationship is well maintained.

Arnold (2008) says that buying good on credit and then selling them on credit to customers is a cheaper form of finance than an organization taking a bank overdraft to finance credit sales. Obtaining trade credit has benefits, such as, debtors does not have to be financed by short term debt, also if the credit period is long, the cash could be used to buy inventory for sales.

2.3.2. Leverage

J. Weston (1989) comments on Miller's propositions which state that Equilibrium in a perfect capital market requires that the market value of a firm should not be changed by its financing decisions, and the required return on equity will raise (linearly) with financial leverage. There is an inverse relationship among profitability change and leverage change in the short run provided with the fixed dividends and investments where the dominant mode of external financing is debt. With the increase in firm size, the negative effect of profitability on leverage should be stronger but if the smaller firms are provide with investment opportunities, it may diminish correlation of profitability and leverage by larger equity issuance (Rajan; Zingales, 1995). The authors persist to elucidate about coverage ratio; that a measure of the risk that shareholders will not be able to make predetermined payments and will have to surrender control, that is, the interest expense and the ratio of earnings before interest, taxes, and depreciation (EBITDA), ratio of earnings before interest and taxes (EBIT) to interest expense. More over Jensen (1989) argue that the implication arising from inability to make fixed payments at high levels of debt may be different from those in low debt levels. The scenario is more likely to lead to liquidation and restructuring respectively. Takeover pressures may force the firm to enhance leverage and the managers may increase their debts to ensure the payment of future cash flows as a result of restructuring. This, in turn, may make the firm unattractive to raiders (Zwiebel, 1992). A general perception is that increased leverage and increased risk of the firm may increase the probability of default and so the bankruptcy costs or the costs of financial distress. Rajan; Zingales (1995) observed that the cost of financial distress are higher in the firm having high market-to-book ratios that's why a negative correlation is expected.

Fama and French (1992) recommended that there is a price of distressed risk as a high discount rate may be used for the contribution of firms with high leverage in financial distress. Mostly the firms with low market to book ratios demonstrate a negative correlation if preceding explanation is true. In fact the firms with high market to book ratio illustrate negative correlation rather than the firms with low market-to-book ratios. Managers may opt for less leverage in order to decrease the level of firm risk to shield their under diversified human resource (Fama, 1980) or their unwillingness to embrace performance pressures related to obligation to expel huge amount of cash (Jensen, 1986).

2.3.3. Size of the Company

The size of a firm is the amount and variety of production capacity and ability a firm possesses or the amount and variety of services a firm can provide concurrently to its customers. The size of a firm is a primary factor in determining the profitability of a firm due to the concept known as economies of scale which can be found in the traditional neo classical view of the firm. It reveals that contradictory to smaller firms, items can be produced on much lower costs by bigger firms. In accordance with this concept, a positive relationship between firm size and profitability is expected. Contrary to this, alternative theories of the firms advise that larger firms come under the control of managers pursuing self-interested goals and therefore managerial utility maximization function may substitute profit maximization of the firms' objective function Amaton and Burson (2007).

2.4. Empirical Review

This part analyses the past empirical studies undertaken by researchers in the topic of study. These will cut across different economies in order to get a comparative view of the findings, and hence locate the areas that need further studies.

Lazaridis and Tryfonidis (2006) selected 131 companies listed in the Athens Stock Exchange for the period covering 2001-2004. They studied the effect of cash conversion cycle and payable days on profitability of the companies and observed that cash conversion cycle and payable days are negatively related. Garcia et al. (2007) used 8872 Spanish firms for the period covering 1996-2002 to study the effect of working capital components on profitability. They concluded that profitable firms take less time to collect their receivable, pay their dues early and convert the inventories into finished goods within a short period. Falope and Ajilore (2009) in their study of the same, found a significant negative relationship between the working capital components and net operating profitability for a sample of 50 Nigerian firms. Sebastian Ofumbia (2012) selected Nigerian firms to identify the impact of working capital components on profitability. They identified that the relationship between cash conversion cycle and profitability is significant compared to other variables. Secondly, they found that the inventory conversion period and creditors' payment play a vital role. They recommended that companies should collect the cash from the debtors on time and the cash collected should be reinvested in short term securities. Mohamad and Saad (2010) studied Bloomberg's database of 172 listed firms from Malaysia for the period covering 2003-2007 on the relationship of working capital management and profitability. They concluded that working capital components are negatively related with firm's performance.

Gill, Biger, and Mathur (2010) in their research selected 88 companies from New York. They carried out their research between 2005 and 2007. The independent variables were; receivable days, payable days, inventory days, natural logarithm of sales and gearing. The dependent variable was gross operating income. They used regression analysis to evaluate the variables. They concluded that there is a negative relationship between the profitability and receivable days. Further they also concluded that the relationship between the cash conversion cycle and profitability is positive. Ikram ul Haq, Sohail, Zaman, and Alam (2011) selected 14 firms from cement industry in Pakistan. The period covered for the study was 2004 to 2009. They used receivable days, payable days, inventory days, current ratio, liquid ratio and current assets to total assets ratio to predict the behavior of the return on investment. Regression analysis and correlation analysis were used to measure the relationship between the variables. Finally it was concluded that the relationship between these variables and return on investment was moderate. Nobanee et.al, (2011) used 2,123 Japanese non-financial firms in their study. They concluded that managers can increase the profitability by reducing the Cash Conversion Cycle.

However, there are a few studies with reference to Kenya on working capital management and firm profitability, especially in the manufacturing and construction sectors. For example, Mathuva (2010), in his study in Kenya, concluded that payable days and inventory days are positively related with the profitability whilst receivable days negatively associated with the profitability. Nyabwanga, et al (2012) assessed the effect of working capital management practices on the financial performance of SSEs in Kisii South District, Kenya. A sample of 113 SSEs comprising 72 trading and 41 manufacturing enterprises was used. Pearson's correlation coefficients and multiple regression analysis techniques were used to analyze data.

Consequently, the findings of the study were that, working capital management practices were low amongst SSEs as majority had not adopted formal working capital management routines and their financial performance was on a low average. Gakure, et al (2012) analyzed the relationship between working capital management and performance of 15 manufacturing firms listed at the Nairobi NSE, Kenya, from 2006 to 2010 and for a total 75 firms year observations. They used secondary data from a sample of 18 companies at the NSE. A regression model was used to establish the relationship between the dependent variable and the independent variables. Pearson's correlation and regression analysis were used for the analysis. The results indicated that there is a strong negative relationship between firm's performance and liquidity of the firm. The study found that there is a negative coefficient relationship between accounts collection period, average payment period, inventory holding period and profitability while the cash conversion cycle was found to be positively correlated with profitability. However, the effects of the independent variables, except the average payment period were no statistically significant though the overall model was statistically significant.

Omesa et al. (2013) examined the relationships between Working Capital Management and Corporate Performance of manufacturing firms listed on the Nairobi securities exchange. A sample of 20 companies whose data for 5 years from 2007-2011 was selected. They used the Principal Components Analysis (PCA) and multiple regression to analyze data sets. They found out that, working capital proxies; Cash Conversion Cycle, Average Collection Period and control variables Current Liabilities, Net Working Capital Turnover Ratio and Fixed Financial Ratio were significant at 95% confidence (p values are < 0.05) to performance as measured by Return on Equity (ROE).

2.5. Summary of Literature Review

From the above studies it is evident that the majority of the researchers found similar results. These researchers identified a negative relationship between the trade payables and profitability. This supports the fact that less profitable firms fully utilize the credit period granted by the suppliers. The negative relationship between the trade receivables and firms profitability means that profitable firms take less time to collect trade receivable. Likewise the negative relationship between the inventories and profitability indicates that profitable firms convert inventory in to finished goods within a short period. Further it is very evident that the term profitability is calculated in different ways by the researchers, that is, in terms of return

on sales, return on assets, return on equity, and return on invested capital, gross operating profit and net operating income.

The review of the previous studies gives us a clear link between the working Capital and profitability. Further it is evidenced that the total debt and size of the firm also affect the profitability of the firm. The above studies have been carried out for different sizes of sample, time periods, countries and industries. The industries include manufacturing, non-financial firms, fast moving consumer goods and telecommunication. All these give us a clear indication that the working capital management is given a higher priority by the corporate world.

Although these studies have been carried out, there is still ambiguity on the appropriate variables that might serve as proxies for working capital management. Further examination on these studies reveals that there is very little empirical evidence on the effect of working capital management on firms' profitability. In Kenya, which is the focus country of this study, there are only a few studies done in this area with conflicting results. This is compounded by the fact that only a few companies are listed in the Nairobi Securities exchange. Therefore this study attempts to address the existing gap of the effect of working capital management on profitability.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Introduction

Research methodology chapter explains how this research will be undertaken to achieve the objective of research. This includes the type of our research, sample size, variables used, data and statistical model which will be used to identify the effects of profitability on working capital management.

3.2. Research Design

This study employed a descriptive statistical approach which described the effect of working capital management on profitability of a firm. Further, our research methodology used both the descriptive statistics and quantitative analysis. The quantitative methods are applied to analyze financial data from secondary database.

The study used pooled ordinary least square and generalized least square methods for the analysis. Five year period has been used to observe the behavior of working capital components.

3.3. Population

The Nairobi Securities Exchange has categorized manufacturing companies differently, in terms of their areas of specialization. There are nine (9) companies under the heading of manufacturing and allied companies, although other manufacturing companies categorized under agriculture are seven (7), others categorized under construction and allied sector are four. This brings the total to twenty (20) listed companies. Even though there are other private manufacturing companies, there is the limitation in terms of costs as well as the credibility of the data required. This is because most private companies would not divulge their financial performance to third parties because of skepticism.

3.4. Sample

A sample of twelve (12) companies has been chosen because the other eight either have incomplete statements in terms of years, or has not adequately classified financial statement items to warrant their use in calculating the various working capital components, as designed in the model.

3.5. Data Collection

Data collection can be primary or secondary. This study has used secondary data, which is the data collected from the financial reports of the selected companies. The data is used in computing trade receivable days, payable days and other variables. The results are used as a basis of comparison and conclusion.

3.6. Data Analysis

Data analysis is a body of methods that help to describe facts, detect patterns, develop explanations, and test hypotheses.

The data collected was analyzed statistically and qualitatively by the use of measures of central tendency, that is, the mean, median and mode, and measures of dispersion, that is the range, standard deviation and variances.

The data was subjected to computerized analysis using Microsoft Excel spreadsheet and the Statistical Package for Social Sciences (SPSS). The findings were graphically represented by way of line graphs.

3.6.1. Analytical Model

The research model will be as follows:

$Y=a+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\beta_6X_6+\xi$

Where:

a	=	the intercept (profit available regardless of the working capital
		management.
Y	=	Gross Profit
β1β6	=	Coefficients of the variables
X 1	=	Receivable Days
\mathbf{X}_2	=	Payable Days
X 3	=	Inventory Days
X 4	=	Cash Conversion Cycle
X5	=	Sales
X6	=	Gearing
3	=	Error term

Regression analysis will analyze the linear relationship between the profitability and independent variables such as receivable days, payable days, inventory days, cash conversion cycle, debt and size of the firm.

3.6.2. Operationalization of the Study Variables

The study variables consist of the dependent variable and the independent variables. The calculation of the variables are given by the following formulae. The dependent variable is the gross profit of the firms.

Working Capital Component	Calculation Formula
Gross operating income	= Sales – Cost of goods sold
Receivable days	= (accounts receivable*365) / sales
Payable days	= (accounts payable*365) / purchases
Inventory days	= (inventories*365) / cost of sales
Gearing	= (financial debt / total assets)*100
Size of the firm	= logarithm of sales

Table 3 2 Working Capital Components Formulae

The independent variables are the working capital components, which are accounts receivable, accounts payable, inventories which are in the form of raw materials, work in progress, and finished goods. This is one of the major parts of current assets for manufacturing firms. The capital structure of a company is comprised of both debt/gearing and equity. Size of the firm can influence the firm's performance in several ways. Firstly if a firm is a large player in the market, it gives it the bargaining power to strike good deals with supplier. Further the lenders will be happier to provide the loans. The firm will have strong distribution channel so they can easily reach the end customers very quickly.

3.6.3. Test of Significance

The t – test takes two sets of data and then examines whether the average of the two group are statistically different from each other. For example this can be used to analyze if the increase in profitability is mainly caused by working capital components or size of the firm. The test will be carried out at 5% significance level. The result will be significant if the value of P is 5% or less.

Test of Association

This approach will evaluate the relationship between the two variables for example relationship between the profitability and the debt. The relationship between these two variables means, changes in one variable can affect other variable. Two methods will be used in testing the association and they are given below;

Correlation Analysis

This study measures the strength of the relationship between the profitability and the working capital components. The coefficient lies between the -1 to +1. If the coefficient is 0, it means there is no association between the two variables. The positive sign indicates that an increase in one variable will cause an increase to the other variable. On the other hand a negative sign means increases in one variable will reduce the other variable.

Multiple Regression Analysis

Multiple regression analysis technique will be used to study the linear relationship between the dependent variable and independent variable by calculating the coefficients for a straight line (Hair et al., 2000).

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

Two types of test have been carried out in this research; the descriptive statistics and quantitative analysis. The results of the analysis are discussed below.

4.1. Trend Analysis

The trend analysis compares the averages of profitability variables over the five years.

Figure 4 1 Gross Profit



Source: Research Findings

The gross profit, on average, shows an upward trend over the years as indicated by the graph above. There is a relatively higher growth between the years 2008 and 2009, almost constant between 2009 and 2010, again a higher growth between 2010 and 2011 and comparatively slower growth between 2011 and 2012.





Source: Research Findings

There is a sharper decline in the number of days it takes to collect outstanding accounts between the years 2008 and 2009, with a less steep decline between 2009 and 2010. Conversely, between the years 2010 and 2011, it took the firms more time to collect the outstanding accounts, probably due to economic crunch worldwide during that period. There was however significant improvement in collecting the outstanding accounts between the years 2011 and 2012.



Figure 4 3 Payable Days

Source: Research Findings

On average, the companies recorded a near constant performance in terms paying their suppliers between 2008 and 2009. Thereafter, between 2009 and 2010, the companies took shorter time to settle their suppliers, while between 2010 and 2011, they took longer to settle their suppliers. This could be explained by the economic crunch world-over during that period. However, this did not improve between 2011 and 2012, although it remained almost constant.





Source: Research Findings

This trend shows a steady decline in the number of days to convert inventory into sales between 2008 and 2009. Between 200 and 2010, there was a further decline in the number of days, but at a declining rate. There was a near constant level of the number of days to convert inventory to sales between 2010 and 2011, and between 2011 and 2012, the number of days increase from about 103 to 108. The latter two intervals' performance could have been low due to economic depression experienced around that time.





Source: Research Findings

Between the years 2008 and 2009, the average number of days that the firms used between paying creditors and receiving cash from debtors declined steadily. Between 2009 and 2010, it

was a bit constant with a slight increase, 2010 and 2011, almost constant with a slight decrease, while between 2011 and 2012, the days were constant. The trend shows an improvement by firms in the number of days required between paying suppliers and receiving cash from credit customers.



Figure 4 6 Size of the Firm (logarithm of sales)

Source: Research Findings

The trend shows an overall increase in the size of companies over the years. This is an indication of positive performance of firms, which translates to profitability. From our correlation analysis, the size of the company as measured by sales, significantly influences profitability of the firms positively.



Figure 47 Gearing

Source: Research Findings

From the trend analysis, companies used debt constantly between 2008 and 2009 and 2011 and 2012. However, between 2009 and 2010, there was a sharp increase in the use of debt, while between 2010 and 2011, there was a sharp decline in the use of debt. This could be due to the economic depression at that time.

4.2. Descriptive Statistics

Descriptive statistics shows the mean value and standard deviation of the selected manufacturing companies. In addition, it also provides the maximum and minimum values of the variables.

Variables	Ν	Mean	Std.	Max	Min
			Deviation		
Logarithm of gross profit	12	6.2667	.61085	7.43	5.36
Receivable days	12	64.8508	25.69975	115.73	14.90
Payable days	12	110.4208	66.40948	318.73	17.58
Inventory days	12	107.4267	38.03594	204.01	27.14
Cash conversion cycle	12	70.8967	62.59733	242.57	(104.73)
Logarithm of sales	12	6.6758	.60451	7.74	5.59
Gearing	12	19.1842	23.21557	259.12	-
Valid N (list wise)	12				

Table 4.1 Descriptive Statistics

Source: Research Findings

Logarithm of gross profit and sales has been used in order to be consistent with the magnitude of the other variables. Logarithm of gross profit shows a mean of 6.2667, with a variation of 0.61085 on either side. On average, the manufacturing companies are able to receive payments form debtors in 64.8508 days', pay their suppliers in 110.4208 days', clear their inventory in 107.4267 days', and take an average of 70.8967 days between paying cash to suppliers and receiving cash from credit customers. There is a negative as the minimum number of days, which is not realistic, since all companies have accounts receivable data. However, this is possible for computational reasons, when companies take a longer period to pay their suppliers than receiving payment from debtors. The logarithm of sales at 6.6758 shows the average size of companies under study. The gearing of 19.1842% indicates the average percentage of financial borrowing by these companies. However, one company did not have financial borrowing, thereby putting the minimum value of gearing at zero.

4.3. Inferential Statistics

4.3.1. Correlation Analysis

The correlation studies measure the relationship between the variables used in this study. The result of the study is discussed below.

Table 4. 2 Correlations	5
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		Logarithm of gross profit	Receivable days	Payable days	Inventory days	Logarithm of sales	Gearing	Cash conversion cycle
Logarithm of gross	Correlation Coefficient	1.000	363	.159	374	.959**	.125	389
profit	Sig. (2- tailed)		.246	.622	.231	.000	.698	.212
	N	12	12	12	12	12	12	12
Receivable days	Correlation Coefficient	363	1.000	203	014	364	137	.382
	Sig. (2- tailed)	.246		.527	.966	.245	.672	.221
	Ν	12	12	12	12	12	12	12
Payable days	Correlation Coefficient	.159	203	1.000	.028	.098	.081	697*
	Sig. (2- tailed)	.622	.527		.931	.762	.803	.012
	Ν	12	12	12	12	12	12	12
Inventory days	Correlation Coefficient	374	014	.028	1.000	315	.515	.364
	Sig. (2- tailed)	.231	.966	.931		.319	.087	.244
	N	12	12	12	12	12	12	12
Logarithm of sales	Correlation Coefficient	.959**	364	.098	315	1.000	.186	329
	Sig. (2- tailed)	.000	.245	.762	.319		.564	.296
	Ν	12	12	12	12	12	12	12
Gearing	Correlation Coefficient	.125	137	.081	.515	.186	1.000	.461
	Sig. (2- tailed)	.698	.672	.803	.087	.564		.131
	N	12	12	12	12	12	12	12
	Correlation Coefficient	389	.382	697*	.364	329	.461	1.000

Cash	Sig. (2-	.212	.221	.012	.244	.296	.131	
conversion	tailed)							
cycle	Ν	12	12	12	12	12	12	12
**. Correl	ation is sigr	nificant at	the 0.01 lev	el (2-taile	ed).			
*. Correlation is significant at the 0.05 level (2-tailed).								

Source: Research Findings

The results of Spearman correlation indicate the correlation between the independent variables and between the dependent and independent variables. The results show that there is a negative coefficient of -0.363 on receivables. This indicates that a unit increase in receivable days, reduces the grass profit by a factor of 0.363. From the analysis, it shows that there is no significant relationship between the two variables. Payable days show a positive relationship of 0.159 with the dependent variable, with a p-value of 0.622, which is higher than the significance level of both 0.05 and 0.01, hence it is statistically insignificant. The inventory days have a negative correlation of -0.374 with no significant impact on the gross profit. However, the correlation between the size of the firm as measured by the logarithm of sales, and the gross profit has a p-value of 0.000, which is less than both 0.05 and 0.01, thus it is statistically significant. The gearing level is related with the gross profit at a value of 0.125 while the cash conversion cycle is at -0.389, which are both statistically insignificant.

However, it is interesting to note that, among the independent variables, there is significant correlation between the payable days and the cash conversion cycle. The p-value is 0.012, which is less than the standard significance level of 0.05 (2-tailed). This shows that the number of payable days have an effect on the cash conversion cycle.

From the results, there is a strong positive relationship between sales and the profitability of the firms. This indicates that as the companies grow, there is a corresponding growth in profitability as well. Although their effect is statistically insignificant, results confirm the theory that an increase in the number of receivable days, inventory days and cash conversion cycle has a negative effect on the firms' profitability. This could be due to prolonged credit period by debtors, prolonged period of converting inventory into sales and prolonged period between payment to suppliers and receipt of cash from debtors. As a result, the firms may be forced to finance the working capital components from more expensive source. This will lead to paying of higher interest, hiring of factors to collect debts on behalf of the firms, legal suits due to breaching of contracts, loss of customers and bankruptcy among other costs.

4.3.2. Multiple Regression Analysis

The regression equation is of the form below. The variables are explained in the table of correlations.

Gross profit = 0.585 - 0.004X₁+ 0.002X₂- 0.003X₃+ 0.002X₄+ 0.891X₅ - 0.002X₆+ 0.13241

Table 4. 3 Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.989 ^a	.979	.953	.13241
		1 '		C 1 D 11

a. Predictors: (Constant), Cash conversion cycle, Gearing, Logarithm of sales, Receivable days, Inventory days, Payable days

Source: Research Findings

Table 4. 4 Analysis of variance (ANOVA)

	Model	Sum of	df	Mean Square	F	Sig.			
		Squares							
1	Regression	4.017	6	.669	38.185	.001 ^a			
	Residual	.088	5	.018					
	Total	4.104	11						
a. Predi	a. Predictors: (Constant), Cash conversion cycle, Gearing, Logarithm of sales, Receivable								

days, Inventory days, Payable days

b. Dependent Variable: Logarithm of gross profit

Source: Research Findings

Model	l	Unstanda	rdized	Standardized	t	Sig.	95.0% Confidence		
		Coeffici	ents	Coefficients			Interva	al for B	
		В	Std.	Beta			Lower	Upper	
			Error				Bound	Bound	
1	(Constant)	.585	.777		.752	.486	-1.413	2.582	
	Receivable	004	.005	180	881	.419	017	.008	
	days (X1)								
	Payable days	.002	.003	.241	.730	.498	006	.010	
	(X ₂)								
	Inventory days	003	.004	191	688	.522	015	.008	
	(X ₃)								
	Cash	.002	.004	.202	.492	.643	008	.012	
	conversion								
	cycle (X ₄)								
	Logarithm of	.891	.091	.882	9.745	.000	.656	1.126	
	sales (X ₅)								
	Gearing (X ₆)	002	.002	088	-1.003	.362	008	.004	
a.	Dependent var	iable: Logari	thm of g	ross profit					

Table 4. 5 Coefficients of Variation

Source: Research Findings

4.4. Interpretation of the Findings

Multiple Regression Model Interpretation

Multiple regression analysis, like regression analysis evaluates the relationship between the multiple variables. R square means how much percentage is explained by the benchmark index. R square can vary from 0% to 100%. An R square of 100% means that the entire index is explained by the variable.

The value of R-square in this study is 97.9% means that the proportion of gross profitability (dependent variable) is explained by the independent variables at 97.9%. This indicates that the model is strong, as the independent variables highly explain the dependent variable. The adjusted R-square is used to compensate for additional variable in the model. In this case, the adjusted R-square is 95.5%. It is assumed that if the p-value is less than 0.05, then there is a significant relationship between the independent variable and the dependent variable. When

the value is higher than 0.05, then it is considered that there is no significant relationship between variables.

In this case, from the ANOVA table, p-value is 0.001 which is less than the 0.05 and 0.01, set as standard significance levels. This means that we reject the null hypothesis and go by the alternative hypothesis, which states that the independent variables affect profitability of the firms.

The regression equation shows that the gross profit will always depend on a constant factor of 0.585 regardless of the existence of other profit determinants. The other variables explain that; every unit increase in receivable days will reduce the gross profit by a factor of 0.004, while every unit increase of payable days will increase gross profit by a factor of 0.002. On the other hand, every unit increase of inventory holding days will reduce profitability by 0.003, while every unit increase of cash conversion cycle will increase profitability by 0.002. A unit increase in financial debt will reduce profitability by 0.002. The size of the firm, as given by the logarithm of sales, shows that every unit increase in sales increases profitability by 0.891.

From the correlation table, the results show that there is a very strong correlation between sales and profitability. The p-value is 0.000, which is less than both standard significance levels of 0.05 and 0.01. However, the other variables show that there is no significant relationship between the independent variables and the dependent variables. This indicates that, out of the considered determinants of profitability, only the size of the firm as measured by sales has significant effect on its profitability.

Compared to the previous studies, the findings relate closely to the work of Mathuva (2010), in his study in Kenya, concluded that payable days and inventory days are positively related with the profitability whilst receivable days negatively associated with the profitability. Nyabwanga, et al (2012) assessed the effect of working capital management practices on the financial performance of SSEs in Kisii South District, Kenya. A sample of 113 SSEs comprising 72 trading and 41 manufacturing enterprises was used. Pearson's correlation coefficients and multiple regression analysis techniques were used to analyze data. Consequently, the findings of the study were that, working capital management practices were low amongst SSEs as majority had not adopted formal working capital management routines and their financial performance was on a low average. Gakure, et al (2012) analyzed the relationship between working capital management and performance of 15 manufacturing firms listed at the Nairobi NSE, Kenya, from 2006 to 2010 and for a total 75 firms year observations.

They used secondary data from a sample of 18 companies at the NSE. A regression model was used to establish the relationship between the dependent variable and the independent variables. Pearson's correlation and regression analysis were used for the analysis. The results indicated that there is a strong negative relationship between firm's performance and liquidity of the firm. The study found that there is a negative coefficient relationship between accounts collection period, average payment period, inventory holding period and profitability while the cash conversion cycle was found to be positively correlated with profitability. However, the effects of the independent variables, except the average payment period were no statistically significant though the overall model was statistically significant.

Omesa et al. (2013) examined the relationships between Working Capital Management and Corporate Performance of manufacturing firms listed on the Nairobi securities exchange. A sample of 20 companies whose data for 5 years from 2007-2011 was selected. They used the Principal Components Analysis (PCA) and multiple regression to analyze data sets. They found out that, working capital proxies; Cash Conversion Cycle, Average Collection Period and control variables Current Liabilities, Net Working Capital Turnover Ratio and Fixed Financial Ratio were significant at 95% confidence (p values are < 0.05) to performance as measured by Return on Equity (ROE).

CHAPTER FIVE:

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

This chapter gives the summary of findings as analyzed in chapter four using the relevant statistical tools. It also highlights the limitations and suggests areas for further research. The chapter further gives policy recommendations and conclusions of the findings.

5.2. Summary

Generally, it is expected that there should be a negative relationship between working capital components and profitability of a company (shin and soenan (1998), Deloof (2003), Eljelly (2004), and Raheman, A; Nasr, M (2007). However, based on the findings of this study, there is no significant relationship between the working capital components and profitability, apart from the size of the firm. The study confirms that there is a significant positive effect of the size of the firm on profitability, as measured by logarithm of sales whose p-value is 0.000 against the standard significance levels of 0.05 and 0.01. However, the other components are less significant compared to the standard significance levels of 0.05 and 0.01, although they confirm the theoretical relationship with the dependent variable. On average, companies took longer time to pay their suppliers, which resulted in the overall reduction of cash conversion cycle. This translated into a positive effect of cash conversion cycle on profitability of the companies.

The trend analysis graphs show that manufacturing companies improved on their performance over the years. This is indicated by a positive trend in gross profit, sales and cash conversion cycles, while a negative trend is seen on receivable days, payable days, inventory days and gearing. However, there was unpredictable trend over the years on financial debts taken up by companies to supplement the working capital. At one point there was a sharp increase in the use of this debt, while at another point, there was a sharp decline in use of the same.

5.3. Conclusion

This study seeks to find out the effect of working capital on profitability of manufacturing companies in Kenya. This is because most companies experience working capital related challenges, which could lead to poor performance or failure of companies. Therefore, there is need to create a perfect system to effectively manage working capital components. Managers need to forecast on their short-term and medium-term cash expenditure in order to effectively predict or control the usage of cash on various working capital components, while at the same time, taking calculated decisions on long-term or capital expenditure. However, due to different nature of businesses, some companies may find it difficult to optimize working capital. Therefore, it is important to identify key drivers of profitability in working capital in line with the industry under study.

The managers (owners) of these companies should therefore work on improving or growing their sales revenue so as to cover for other costs through economies of scale. This will ensure maximization of shareholders' wealth and the creation of value for the companies. However, the managers should also pay attention to proper management of other working capital components as the results show that they have an effect of profitability, although to a lesser degree of significance.

5.4. Recommendations for Policy

According to these findings, the companies should concentrate on growing their sales revenue as a matter of policy. At the same time, they should pay attention to sound management of other working capital management components since the results show that they do affect profitability, although to a lesser significance.

5.5. Limitations of the Study

There were some limitations encountered during this research. Although there is a rich literature on the topic, the studies of similar topics have conflicting results within and across different economies. In Kenya, there is only a handful of manufacturing companies listed in Nairobi Securities Exchange and the Capital Markets Authority, which are the legitimate regulating authorities charged with the responsibility of authenticating the credibility of the financial data. Other companies are private in nature and are vastly dispersed throughout the country. There is also skepticism in releasing data to third party because of competition and other legal reasons. These make it difficult, expensive and time consuming to obtain credible data from private companies.

It was not possible to obtain all the financial statements required, a challenge that led to a smaller sample of manufacturing companies, and shorter period of only five years for the study. On the international front, the economic recession that was experienced from the year 2007-2008 and its effects on the subsequent years (U.S. Bureau of Labor and Statistics, 2012), could have had confounding effect on the companies' performance and hence the data used in this research.

5.6. Suggestions for Further Research

One of the suggested areas of further research is the inclusion of private manufacturing companies in a similar study. This may lead to a more generalized conclusion on findings and policy recommendation across the industry. The second area of study should target small and medium size companies which form between 35% - 50% of the economy, (Institute of Economic Affairs, Kenya 2012). This can lead to a better policy recommendation on working capital management. This sector also consists of a majority of people with low and middle level of education, yet it constitute a very high percentage of the economy, hence the need for a workable policy. The third area of research should be conducted in the service industry to ascertain how working capital management affect their profitability.

REFERENCES

- Afza T and Nazir M.S. (2007). *Is it Better to be Aggressive or Conservative in Managing Working Capital?* Journal of Quality and Technology Management, 3 (2)
- Afza T and Nazir M S. (2007). Is it Better to be Aggressive or Conservative in Managing

Working Capital, Journal of Quality and Technology Management, 3 (2)

Arnold, G. (2008). Corporate Financial Management. 3rd Ed. England: Pearson Education Limited.

Bagchi, B. and Khamrui, B. (2012).*Influence of Working Capital Management on Profitability*: A Study on Indian FMCG Companies, 7 (22). [Online] http://www.ccsenet.org/journal

Brealey, R.Myers, S&Allen (2006). *Working capital management*, corporate finance, Newyork:Mcgraw Hill.

- Ching HY, Novazzi A, Gerab F. (2011).*Relationship between Working Capital Management* and Profitability in Brazilian Listed Companies. Journal of Global Business and Economics, 3 (1)
- Cote, J.M. and C.K. Latham, 1999. *The merchandising ratio*: A comprehensive measure of working capital strategy. Issues Account. Educ., 14(2)
- Deloof, M. (2003).*Does Working Capital Management affect Profitability of Belgian Firms?* Journal of Business Finance and Accounting
- Danuletiu (2010), "Working Capital Management and Profitability: A case study of Alba Country." Annales universities.Vol.1 Issue.12

Dong H. P. (2010), "*The Relationship between Working Capital Management and Profitability*". International Research Journal of Finance and Economic. Issue-49. <u>www.eurojournals.com</u>

Eljelly, A. (2004).*Liquidity- Profitability Tradeoffs:* an Empirical Investigation in an Emerging Market. International Journal of Commerce& Management

Emery DR, Finnerty JD. (1997). *Corporate financial management*, 2nd ed. Upper Saddle River, Prentice Hall Inc,

Falope OI, Ajilore OT. (2009). Working Capital Management and Corporate Profitability:

Evidence from panel data analysis of selected quoted companies in Nigeria. Research Journal of Business Management

Ganeshan, V. (2007). An Analysis of Working Capital Management Efficiency in

Telecommunication Equipment Industry. Rivier academic journal, 3 (2). [Online] Available from: <u>http://www.rivier.edu/journal/ROAJ-Fall-2007/J119-Ganesan.pdf</u>

- Guthman, H.G. & Dougall, H.E. (1948). *Corporate financial policy*, 2nd ed. New York, Prentice-Hall Inc.
- Garcia.T, Pedro.J and Pedro. M.S (2007).*Effects of Working Capital Management on SME Profitability*", International Journal of Managerial Finance
- Gill, A., Biger, N., Mathur, N. (2010). The relationship between Working Capital Management and Profitability: Evidence from the United States. Business and Economics Journal
- Hutchision, P.D., Farris II, M. T. And Anders, S.B., (2007). Cash to Cash Analysis and Management, The CPA journal
- Ikram ul Haq, Sohail, Zaman, and Alam (2011).*The Relationship between Working Capital Management and Profitability:* A Case Study of Cement Industry in Pakistan,
- Hair, J.F., Bush, R.P. and Ortinau, D.J. (2000), Marketing Research a practical Approach for the New Millennium, Singapore: McGraw-Hill Higher Education.
- Jordan, R. W., (2003).*Fundamentals of corporate finance*,6th ed. Boston, McGraw-Hill Companies,
- Jose, M. L., C. Lancaster, and J. L. Stevens, (2003). *Corporate Returns and Cash Conversion Cycles*. Journal of Economics and Finance
- Kieschnick, R., LaPlante, M., & Moussawi, R. (2011). Working Capital Management, Access to Financing, and Firm Value. [Online] Available from: http://www.ssrn.com/abstract

Lyroudi, K.; Mc Carty D.; Lazaridis, J.; and T. Chatzigagios (1999). "An Empirical

Investigation of Liquidity": The Case of UK Firms.Presented at the Annual Financial Management Association Meeting in Orlando, October 1999.

Lamberson M. (1995). Changes in Working Capital of Small Firms in Relation to Changes in Economic Activity. Mid-American Journal of Business

- Lawrence.J.G and Chad.J.Z, (2012).*Principles of Managerial Finance*, 13th ed. United States of America: Pearson education Inc.
- Lazaridis, J; Tryfonidis, D (2006).*Relationship between Working Capital Management and Profitability of Listed Companies in the Athens Stock Exchange*. Journal of Financial Management and Analysis

Mathuva D, (2010). The Influence of Working Capital Management Components on

Corporate Profitability: A Survey on Kenyan Listed Firms". Research Journal of Business Management

Mohamad, N.E.A.B, Saad, N.B.M (2010). Working Capital Management: The Effect of

Market Valuation and Profitability in Malaysia. International Journal of Business and Management

Mobeen.A,H., Ali.L., Abdu.R., and Akram, M. (2011). Impact of Working Capital

Management on Profitability and Market Valuation of Pakistani Firms. European Journal of Economics, Finance and Administrative Sciences

Maryam Garajafary (2012). Studying the Relationship between Working Capital Management

and Profitability at Tehran Stock Exchange: A Case Study of Food Industry, Research Journal of Applied Sciences, Engineering and Technology

Moyer, R.C., J.R. Mcguigan and W.J. Kretlow, (2003). Contemporary Financial

Management. 9th ed., United States of America: Thomson Press.

- Mohammad Morshedur Rahman (2011). *Working Capital Management and Profitability:* A Study on Textiles Industry, ASA University Review
- Nobanee, H., Abdullatif, M., & AslHajjar, M. (2011). Cash Conversion Cycle and Firm's

Performance of Japanese Firms. Asian Review of Accounting

PWC (2012). Working capital management in Europe has never been better, and UK remains

top (online). Available from: <u>http://press.pwc.com/GLOBAL/working-capital-</u>management-in-europe-has-never-been-better-and-uk-remains-top--pwc- study

Padachi, K. (2006). Trends in Working Capital Management and its Impact on Firms'

Performance: An Analysis of Mauritian Small Manufacturing Firms. International Review of Business Research Papers

- Rafuse, M. E. (1996). *Working Capital Management:* An Urgent Need to Refocus, Journal of Management Decision
- Raheman, A; Nasr, M (2007). Working Capital Management and Profitability: Case of Pakistani firms, International Review of Business Research Papers.
- Rezazadeh, J. and J. Heidarian (2010). *The Effect of Working Capital Management on Profitability of Iranian Companies*. Accounting Research
- Ryan, B., Scapens, R.W. and Theobold, M. (2002).*Research Method and Methodology in Finance and Accounting*, 2nd ed. Thomson, UK.

Samiloglo, F., & Demirgunes, K. (2008). The Effect of Working Capital Management on

Firm Profitability: Evidence from Turkey. The International Journal of Applied Economics and Finance

Sebastian Ofumbia (2012). Working Capital Management, Liquidity and Corporate

Profitability among quoted Firms in Nigeria Evidence from the Productive Sector, International Journal of Academic Research in Accounting, Finance and Management Sciences

- Sen M. and Eda ORUC. (2009). "Relationship between Efficiency, Level of Working Capital Management and Return on Total Assets is ISE." International Journal of Business and Management
- Shah A. And A.Sana. (2006). *Impact of Working Capital Management on the Profitability of Oil and Gas Sector of Pakistan*. European Journal of Applied Economics and Finance
- Sharma, A. K. and Satish.K (2011). *Effect of Working Capital Management on Firm Profitability*: Empirical Evidence from India. "Global Business Review"
- Shin, H.H and Soenen, L. (1998). *Efficiency of Working Capital Management and Corporate Profitability*. Financial Practice and Education.
- Smith, K. (1980). *Profitability versus Liquidity Trade off in Working Capital Management*, Reading on the *Management of Working Capital*, West Publishing Company.
- Uyar A. (2009). The Relationship of Cash Conversion Cycle with Firm Size and Profitability:

An empirical investigation in Turkey. International Research Journal of Finance and Economics

Vishnani, S. and Shah, B.K. (2007). *Impact of Working Capital Management Policies on Corporate Performance:* An Empirical Study [Online]. Available from: http://gbr.sagepub.com/cgi/content/abstract

Vijayakumar, A. (2011). *Cash Conversion Cycle and Corporate Profitability:* An empirical enquiry in Indian automobile firms. International Journal of Research in Commerce, IT &Management

- Van, H.J.C. & Wachowicz, J. M. (2000). *Fundamentals of financial management*, 11th ed. New York, Prentice Hall Inc.
- Zariyawati, M. A., M. N. Annuar, H. Taufiq and A. S. Abdul Rahim (2009). Working Capital Management and Corporate Performance: Case of Malaysia: Journal of Modern Accounting and Auditing

APPENDIX 1: LIST OF MANUFACTURING COMPANIES IN KENYA

S/No	Company	Yea r	Gross profit (Kshs. '000')	Logarith m of gross profit	Receivable days	Payable days	Inventory days	Logarithm of sales	Gearing	Cash conversion cycle
		2008	695,990.00	5.84	101.1	318.7	162.9	6.1085	0.0000	(54.8)
		2009	630,545.00	5.80	103.0	217.7	124.7	6.1090	0.0000	9.9
1	BOC KENYA LIMITED	2010	571,366.00	5.76	83.1	247.5	145.3	6.0627	0.0000	(19.1)
1		2011	565,055.00	5.75	106.1	274.1	109.2	6.0811	0.0000	(58.8)
		2012	708,666.00	5.85	69.7	301.7	127.3	6.1121	0.0000	(104.7)
	AVERAGE		634,324.40	5.80	92.59	271.95	133.86	6.09	-	(45.49)
	BRITISH AMERICAN TOBACCO KENYA LTD.	2008	1,915,550.80	6.28	36.3	122.1	96.9	7.2414	20.9802	11.1
		2009	9,940,311.00	7.00	29.8	105.8	95.6	7.2723	31.7066	19.6
2		2010	12,026,931.00	7.08	25.9	78.1	102.6	7.3542	21.6881	50.3
2		2011	16,943,668.00	7.23	20.9	110.6	134.5	7.4597	12.4338	44.7
		2012	18,920,380.00	7.28	24.3	156.5	138.4	7.4844	7.9680	6.3
	AVERAGE		11,949,368.16	7.08	27.41	114.61	113.60	7.36	18.96	26.40
		2008	17,481,103.00	7.24	46.2	222.8	94.1	7.5117	0.0000	(82.5)
		2009	16,846,229.00	7.23	44.1	186.9	82.2	7.5367	0.0000	(60.6)
3	EAST AFRICAN BREWERIES LTD.	2010	19,142,272.00	7.28	52.8	190.1	64.7	7.5875	0.0000	(72.6)
		2011	22,066,893.00	7.34	57.4	208.6	70.3	7.6522	10.3952	(80.8)
		2012	26,865,119.00	7.43	53.8	173.7	101.4	7.7445	47.6891	(18.5)
	AVERAGE		20,480,323.20	7.31	50.88	196.42	82.55	7.61	11.62	(62.99)

		2008	1,674,670.00	6.22	75.2	90.3	97.6	6.6646	42.0421	82.4
		2009	1,854,831.00	6.27	97.8	114.3	120.3	6.7114	42.9344	103.7
4	ATHI RIVER COMPANY	2010	2,098,688.00	6.32	109.4	114.9	106.7	6.7756	52.6343	101.1
4		2011	2,630,539.00	6.42	82.7	119.0	93.4	6.9128	51.7077	57.1
		2012	3,229,173.00	6.51	61.8	92.7	148.1	7.0569	55.6203	117.2
	AVERAGE		2,297,580.20	6.36	85.37	106.27	113.20	6.82	48.99	92.31
		2008	12.552.000.00	7.10	37.4	75.1	122.4	7.4388	4.1255	84.7
	BAMBURI CEMENT COMPANY LTD.	2009	13.547.000.00	7.13	24.3	92.2	96.3	7.4770	1.8965	28.4
		2010	9.618.000.00	6.98	21.9	107.9	69.7	7,4483	8.8663	(16.3)
5		2011	9.964.000.00	7.00	14.9	55.8	60.6	7.5549	4.1520	19.8
		2012	9.856.000.00	6.99	16.7	78.1	74.0	7.5739	2.0099	12.6
	AVERAGE		11.107.400.00	7.05	23.04	81.81	84.60	7.50	4.21	25.83
	CARBACID INVESTMENTS LTD.	2008	229.289.00	5.36	100.2	81.8	61.4	5.5878	0.0000	79.8
		2009	366.244.00	5.56	90.2	68.3	68.1	5.7426	0.0000	90.0
		2010	407.093.00	5.61	63.1	63.7	99.9	5.7924	0.0000	99.3
6		2011	345.686.00	5.54	93.5	51.1	50.4	5.7605	0.0000	92.8
7		2012	555.840.00	5.74	73.0	44.7	27.1	5.9646	0.0000	55.5
	AVERAGE		380.830.40	5.58	84.01	61.92	61.39	5.77	_	83.47
		2008	4 281 664 00	6.63	80.2	81.3	51.6	7 0781	7.2609	50.5
		2009	3 364 455 00	6.53	101.0	112.5	34.5	7.0716	18,7701	22.9
	MUMIAS SUGAR COMPANY LTD.	2010	4 934 675 00	6.69	77.8	86.4	32.6	7 1936	13 7982	24.0
		2010	5 453 175.00	6.74	89.4	69.9	42.0	7 1985	12 9694	61.6
		2012	4 482 029 00	6.65	107.7	92.6	55.3	7 1915	19 6677	70.4
			.,,,,	0.05	10/11	/2.0	00.5		1,0011	7011

	AVERAGE		4,503,199.60	6.65	91.21	88.53	43.21	7.15	14.49	45.88
		2008	622,449.00	5.79	70.1	53.5	174.1	6.1324	27.4997	190.6
		2009	676,515.00	5.83	45.8	65.8	147.4	6.1371	9.3168	127.4
0	REA VIPINGO	2010	543,341.00	5.74	57.0	56.5	131.2	6.1589	17.3964	131.7
0		2011	1,066,831.00	6.03	54.3	48.9	185.0	6.3254	12.0442	190.4
		2012	1,177,517.00	6.07	52.1	42.9	120.7	6.4102	6.3579	129.9
	AVERAGE		817,330.60	5.91	55.86	53.52	151.68	6.23	14.52	154.03
	SASINI LIMITED	2008	394,474.00	5.60	68.4	99.7	114.9	6.1590	9.0035	83.7
		2009	710,597.00	5.85	45.4	71.9	54.4	6.3389	7.6080	27.9
0		2010	921,477.00	5.96	50.7	93.4	73.9	6.3613	6.0149	31.2
y		2011	1,085,394.00	6.04	47.6	92.9	89.1	6.4258	1.9924	43.7
		2012	910,360.00	5.96	53.8	87.7	84.1	6.4440	0.6243	50.1
	AVERAGE		804,460.40	5.91	53.15	89.13	83.27	6.35	5.05	47.29
		2008	830,682.00	5.92	88.9	85.4	144.8	6.3783	29.6557	148.2
		2009	923,854.00	5.97	67.0	99.7	117.0	6.4055	18.5003	84.3
10	CROWN-BERGER KENYA LTD.	2010	1,178,847.00	6.07	65.5	78.9	86.1	6.4869	11.2407	72.7
		2011	1,329,045.00	6.12	60.0	71.4	100.5	6.5859	15.5566	89.1
		2012	1,463,831.00	6.17	58.1	75.9	84.9	6.6467	10.0648	67.1
	AVERAGE		1,145,251.80	6.06	67.92	82.30	106.66	6.50	17.00	92.28

		2008	438,085.00	5.64	38.9	71.1	109.2	6.2491	23.3465	77.0
		2009	459.663.00	5.66	49.5	170.2	153.1	6.2162	36.3569	32.4
	EVEREADY EAST AFRICA LTD.	2010	400,000,00	5.60	54.4	112.7	202.6	6 0125	250 1167	142.2
11		2010	400,000.00	5.00	54.4	115./	202.0	0.2135	259.1107	145.5
		2011	268,436.00	5.43	50.0	207.7	168.0	6.1383	43.4548	10.2
		2012	314,568.00	5.50	46.9	156.8	204.0	6.1382	40.0638	94.1
	AVERAGE		376,150.40	5.58	47.94	143.91	167.39	6.19	80.47	71.41
		2008	743,965.00	5.87	103.4	38.9	178.0	6.4810	18.2161	242.6
	SAMMEER AFRICA	2009	863.736.00	5.94	79.9	34.8	171.4	6.5156	12.3470	216.6
12			,							
	SAMUELEN IN RICH	2010	661,907.00	5.82	93.5	17.6	118.6	6.5244	15.2308	194.6
		2011	801,446.00	5.90	101.5	29.0	138.6	6.5653	14.5256	211.2
		2012	953,780.00	5.98	115.7	53.2	131.8	6.5978	14.1930	194.4
	AVERAGE		904 044 90	5.01	00.02	24.69	147 71	6.54	14.00	211.96
			004,900.00	5.91	90.03	34.00	14/./1	0.54	14.90	211.00
			C	OMBINED A	VERAGES PE	R YEAR				
	ALL COMPANIES AVERAGE	2008	3,488,326,82	6.54	70.53	111.73	117.31	6.59	15.18	76.12
			.,,							
	ALL COMPANIES AVERAGE	2009	4,181,998.33	6.62	64.82	111.68	105.41	6.63	14.95	58.55
	ALL COMPANIES AVERAGE	2010	4,375,383.08	6.64	62.91	104.07	102.84	6.66	33.83	61.68
	ALL COMPANIES AVERAGE	2011	5,210,014.00	6.72	64.87	111.59	103.46	6.72	14.94	56.74
	ALL COMPANIES AVERAGE	2012	5,786,438.58	6.76	61.13	113.04	108.10	6.78	17.02	56.19

Source: Nairobi Securities Exchange 2012 - 2013 Hand Book and www.africanfinancials.com

	COMPANY AVERAGES OVER THE FIVE YEARS								
1	BOC KENYA LIMITED	634,324.40	5.80	92.59	271.95	133.86	6.09	-	(45.49)
2	BRITISH AMERICAN TOBACCO	11,949,368.16	7.08	27.41	114.61	113.60	7.36	18.96	26.40
3	EAST AFRICAN BREWERIES LTD	20,480,323.20	7.31	50.88	196.42	82.55	7.61	11.62	(62.99)
4	ATHI RIVER COMPANY	2,297,580.20	6.36	85.37	106.27	113.20	6.82	48.99	92.31
5	BAMBURI CEMENT COMPANY LTD.	11,107,400.00	7.05	23.04	81.81	84.60	7.50	4.21	25.83
6	CARBACID INVESTMENT LTD.	380,830.40	5.58	84.01	61.92	61.39	5.77	-	83.47
7	MUMIAS SUGAR COMPANY LTD.	4,503,199.60	6.65	91.21	88.53	43.21	7.15	14.49	45.88
8	REA VIPINGO	817,330.60	5.91	55.86	53.52	151.68	6.23	14.52	154.03
9	SASINI LTD.	804,460.40	5.91	53.15	89.13	83.27	6.35	5.05	47.29
10	CROWN-BERGER LIMITED	1,145,251.80	6.06	67.92	82.30	106.66	6.50	17.00	92.28
11	EVEREADY EAST AFRICA LTD.	376,150.40	5.58	47.94	143.91	167.39	6.19	80.47	71.41
12	SAMEER AFRICA	804,966.80	5.91	98.83	34.68	147.71	6.54	14.90	211.86

Source: Nairobi Securities Exchange 2012 - 2013 Hand Book and www.africanfinancials.com

FINANCIAL HIGHLIGHTS APPENDIX 2:





APPENDIX 3: SAMPLE OF FINANCIAL STATEMENTS USED



STATEMENT OF COMPREHENSIVE INCOME

For the year ended 31 December 2012

	Note	2012 Sh'000	2011 Sh'000
OPERATING INCOME	3	329,961	301,946
INTEREST INCOME	6	21,758	20,488
OTHER INCOME	7	33,184	16,540
		384,903	338,974
ADMINISTRATIVE EXPENSES		(258,800)	(239,465)
FINANCE COSTS	8	(2,095)	-
SHARE OF PROFIT OF ASSOCIATE COMPANY	13	3,479	6,190
PROVISIONS FOR DOUBTFUL DEBTS	17(b)	(100)	(675)
PROFIT BEFORE TAXATION		127,387	105,024
TAXATION CHARGE	9(a)	(42,606)	(19,401)
PROFIT FOR THE YEAR		84,781	85,623
OTHER COMPREHENSIVE INCOME		-	-
TOTAL COMPREHENSIVE INCOME FOR THE YEAR		84,781	85,623
		Sh	Sh
-Basicand diluted	24	3.46	-

STATEMENT OF FINANCIAL POSITION

As at 31 December 2012

	Note	2012	2011
ASSETS		Sh'000	Sh'000
Non current assets			
Property and equipment	10	161,054	26,597
Investmentproperty	11	242,485	-
Intangible assets	12	79,947	61,783
Investment in associate company	13	46,688	43,209
Corporate bonds neid to maturity	14	35,509	35,507
Government securities neid to maturity	10	157,445	107,037
	10	10,221	19,575
		739,349	344,206
Current assets			
Trade and other receivables	17	49,284	45,658
Tax recoverable	9(c)	14,485	11,978
Short term deposits	18	35,026	60,994
Bank and cash balances	18	44,546	12,483
		143,341	131,113
TOTAL ASSETS		882,690	475,319
Equity Chara conital	10	04 500	0
Share capital Members'fund	19	24,500	22 240
Retained earnings		468.018	407.495
Shareholders' funds		492,518	429,737
Non current liabilities			
Borrowings	20	285,982	-
Current liabilities			
Borrowings	20	15.539	_
Trade and other payables	2 1	66,651	45,582
Dividends payable	22	22,000	-
		104,190	45,582
TOTAL SHAREHOLDERS' FUNDS AND LIABILITIES		882,690	475,319

APPENDIX 4: AUTHORIZATION FOR DATA COLLECTION



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APPENDIX 5: T-STATISTICS TABLE

<u>t-table</u>

	one-					
	tailed	0.05	0.025	0.01	0.005	0.001
	two-		0.05	0.00	0.04	0.000
	talled	0.1	0.05	0.02	0.01	0.002
df						
1		6.314	12.706	31.821	63.657	318.310
2		2.920	4.303	6.965	9.925	22.326
3		2.353	3.182	4.541	5.841	10.213
4		2.132	2.776	3.747	4.604	7.173
5		2.015	2.571	3.365	4.032	5.893
6		1.943	2.447	3.143	3.707	5.208
7		1.895	2.365	2.998	3.499	4.785
8		1.86	2.306	2.896	3.355	4.501
9		1.833	2.262	2.821	3.250	4.297
10		1.812	2.228	2.764	3.169	4.144
11		1.796	2.201	2.718	3.106	4.025
12		1.782	2.179	2.681	3.055	3.930
13		1.771	2.160	2.650	3.012	3.852
14		1.761	2.145	2.624	2.977	3.787
15		1.753	2.131	2.602	2.947	3.733
16		1.746	2.120	2.583	2.921	3.686
17		1.74	2.110	2.567	2.898	3.646
18		1.734	2.101	2.552	2.878	3.610
19		1.729	2.093	2.539	2.861	3.579
20		1.725	2.086	2.528	2.845	3.552
21		1.721	2.080	2.518	2.831	3.527
22		1.717	2.074	2.508	2.819	3.505
23		1.714	2.069	2.500	2.807	3.485
24		1.711	2.064	2.492	2.797	3.467
25		1.708	2.060	2.485	2.787	3.450
26		1.706	2.056	2.479	2.779	3.435
27		1.703	2.052	2.473	2.771	3.421
28		1.701	2.048	2.467	2.763	3.408
29		1.699	2.045	2.462	2.756	3.396
30		1.697	2.042	2.457	2.750	3.385
40		1.684	2.021	2.423	2.704	3.307
60		1.671	2.000	2.390	2.660	3.232
120		1.658	1.980	2.358	2.617	3.160
inf		1.645	1.960	2.326	2.576	3.090