WORKING CAPITAL MANAGEMENT AND ITS EFFECT ON FIRM'S PROFITABILITY IN KENYA: A SURVEY OF NON-FINANCIAL INSTITUTIONS LISTED ON THE NAIROBI SECURITIES EXCHANGE.

BY

MARTIN SYANDA MITAU

A MANAGEMENT RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE,

SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

NOVEMBER 2013

DECLARATION

I declare that this management research project is my original work and has never been presented for examination in any other University.

Signed _____ Date _____

Martin Syanda Mitau

D61/72501/2012

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

Signed_____ Date_____

DR LISHENGA

Lecturer, Department of Finance and Accounting

School of Business

University of Nairobi

DEDICATION

This research project is dedicated to my parents Mr. Joshua Mwinzi and Mary Joshua for their love and care, my wife Cate and our daughter Gloria for their encouragement and support towards my educational pursuit.

ACKNOWLEDGEMENTS

I am grateful to the almighty God for his provision of strength and good health during the course of my study.

I extend my special thanks to my supervisor, Dr Lishenga for his patience, guidance and support throughout the project.

Special gratitude to my wonderful family, my loving wife and our angel who provided me with warm support and who have been full of understanding and encouraging throughout the process.

Finally my appreciation to all those who in their own way contributed to making this project a success.

ABSTRACT

Working capital management has a significant influence on both liquidity and profitability of a company. Financial managers all over the world have long been looking for ways of achieving efficient working capital management so as maximize their profits and value. This study aims at establishing the effect of working capital management on firm's profitability in Kenya. The study narrows down to non-financial institutions listed on the Nairobi Securities Exchange and the period of study is five years between 2008 and 2012.The sample of study constituted twenty firms selected from different sectors. Data for the study was obtained from audited financial statements of the sampled companies. Descriptive statistics was used to state the minimum, maximum, mean and standard deviation of the variables. Correlation analysis was used to determine the degree of association between the firm's profitability and return on assets. Regression analysis was used to determine the cause-and-effect relationship between working capital management and firm's profitability. The result of study indicates that there exist a negative relationship between accounts receivables period and firm's profitability among non-financial institutions in Kenya listed on the NSE and a negative relationship between inventory turnover period and firm's profitability among the same institutions. However, the relationship between accounts payables period and firm's profitability is positive. Moreover, regarding control variables; firm size, current ratio and debt ratio have a significant effect on firm's profitability. The study also concludes that non-financial institutions in Kenya are following conservative working capital management policy and the firms need to concentrate and improve their collection and payment policies. Effective policies must be formulated for individual components of working capital so as to obtain optimal levels for each. Efficient financing and managing of working capital can thus increase the operating profitability on non-financial institutions in Kenya.

TABLE OF CONTENTS

Declaration…….ii

Dedication……...…….iii

Acknowledgements……...……iv

Abstract…….…….v

Table of Contents……..vi

List of Tables……...……..ix

Abbreviations…….……x

CHAPTER ONE: INTRODUCTION…….....1

1.1 Background to the study……...…...1

1.1.1 Meaning of Working Capital Management……..……...1

1.1.2 Profitability……..…3

1.1.3 Non-Financial Institutions…….…..…3

1.1.4 Nairobi Securities Exchange.....4

1.2 Statement of the Problem…….....5

1.3 Objectives of the Study……...…....6

1.4 Significance of the Study……...……...……..6

CHAPTER TWO: LITERATURE REVIEW……...7

2.1 Introduction…….7

2.2 Theoretical Review…….…....7

2.2.1 Systematic Approach of Control Phase……..…....7

2.2.2 Optimality Management Phase……...…….7

2.2.3 Value Measurement Phase……...…8

2.3 Role of Working Capital Components……...…8

2.4 Factors Affecting Firm's Profitability……...……....9

2.5 Measurement of Variables……..…..10

2.5.1 Measurement of Working Capital Management……..…….....11

2.5.2 Measurement of Profitability……..…14

2.6 Relationship Between Working Capital Management and Profitability……..……15

2.7 Empirical Studies…….……...….16

CHAPTER THREE: RESEARCH METHODOLOGY…….……..19

3.1 Introduction…….……19

3.2 Research design……19

3.3 The Population……..……19

3.4 The Sample…….....……19

3.4 Data Collection Methods……...……..20

3.5 Data Analysis……...……20

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSIONS……..……22

4.1 Introduction…….……...….22

4.2 Descriptive statistics……....22

4.3 Correlation Analysis……...….28

4.4 Regression Analysis……29

4.4.1 Regression Model for Accounts Collection Period…….....30

4.4.2 Regression Model for Inventory Turnover Period……...……....31

4.4.3 Regression Model for Average Payment Period……...……...33

4.4.4 Regression Model for Cash Conversion Cycle……...…….35

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....37

5.1 Introduction……...…....37

5.2 Summary……...……..37

5.3 Conclusions…….……...37

5.4 Recommendations……...……...…38

5.5 Limitations of the Study……...…….39

5.6 Suggestions for Further Research……..…..……..40

REFERENCES…….……...……..41

APPENDICES……...…….43

Appendix I: List of Non-Financial Institutions Listed on the NSE per Sectors…...….....43

Appendix II: Data Collection Sheet……..…….....46

Appendix III: Individual Company's Variables for the Period of Study……..……....47

LIST OF TABLES

Table 1: Table 1: Annual Averages of Key Statistics…….…22

Table 2: Descriptive statistics for the Averages of Variables…….23

Table 3(a): Descriptive Statistics for Return on Assets (ROA)……..24

Table 3(b): Descriptive Statistics for Average Collection Period (ACP)……..……25

Table 3(c): Descriptive Statistics for Inventory turnover period (ITP)……...25

Table 3(d): Descriptive Statistics for Average Payment Period (APP)……...26

Table 4: Correlations Analysis Matrix…….27

Table 5: Regression Model for Accounts Collection Period……...29

Table 6: Regression Model for Inventory Turnover Period…….……30

Table 7: Regression Model for Average Payment Period……32

Table 8: Regression Model for Cash Conversion Cycle…….....33

LIST OF ABBREVIATIONS

ACP	-	Average Collection Period
APP	-	Average Payment Period
ASE	-	Athens Stock Exchange
CCC	-	Cash Conversion Cycle
CDSC	-	Central Depository and Settlement Corporation
CMA	-	Capital Markets Authority
EOQ	-	Economic Order Quantity
GOP	-	Gross Operating Profit
ISE	-	Istanbul Stock Exchange
ITP	-	Inventory Turnover Period
JIT	-	Just in Time
KSE	-	Karachi Stock Exchange
NFI	-	Non-Financial Institution
NOI	-	Net Operating Income
NSE	-	Nairobi Securities Exchange
WCM	-	Working Capital Management
SPSS	-	Statistical Package for Social Sciences
ROA	-	Return on Assets

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Traditionally corporate finance involves decisions about three fields; capital budgeting, capital structure and working capital management (WCM). Capital budgeting and capital structure involves long-term management and attracts more attention than working capital management in finance literature. However WCM is also a very important field of corporate finance because it has considerable effects on the firm's profitability and liquidity (Nazir and Afza, 2009).

Working capital management is a very important component of corporate finance because it directly affects the liquidity and profitability of the company. A firm's value cannot be maximized in the long run unless it survives the short run. There are no specific set of rules or formulae to determine the working capital requirements of firms. Maximizing profits is said to be the objective of all firms. Efficiency in working capital management is therefore very vital in all firms.

In today's recessionary economic environment all firms regardless of their size and industry need to acquire positive cash flow and liquidity. The way that working capital is managed has noteworthy effects on the firm's profitability. Financial managers have always been faced with a challenge of achieving a desired tradeoff between liquidity and profitability. Liquidity management plays an important role in a firm's profitability, risk as well as its value (Smith, 1980). According to theory of risk and return, investments with more risk will have more return. Thus, firms with high liquidity may have low risk and low profitability. On the other hand a firm that has low liquidity faces high risk although this results to high profitability. Therefore the level of working capital components should be as optimal as possible so that it maximizes profitability as well as cushioning the firm against liquidity problems.

1.1.1 Working Capital Management

WCM is a process that involves planning and controlling current assets and liabilities in a manner that eliminates risk of inability to meet short term obligations and avoid excessive investments in such assets (Lamberson, 1995).WCM is considered a fundamental element of an organization's financial health as it aims at maintaining an optimal balance between each of the working capital components. Harris (2005) elsewhere describes WCM as a simple and

straightforward concept of ensuring firm's ability to fund the difference between the short term assets and short term liabilities. WCM explains the firm's ability to finance changes from cash to inventory then to accounts receivables and finally back to cash.

Guthman and Dougall, 1948 defined WCM as current assets minus current liabilities. This definition is known as net working capital whereas current assets are sometimes referred to as gross working capital. The current assets can be divided into four primary components; cash and cash equivalents, marketable securities, accounts receivables and inventories while current liabilities involves accounts payable, notes payable and expenses payable such as accrued wages and taxes(Chang et al, 2005).

The main challenge in WCM is to achieve desired tradeoff between liquidity and profitability. Liquidity management plays an important role in a firm's profitability, risk management and its value (Raheman and Nasr, 2007). The problem is that increasing profitability at the cost of liquidity can lead to serious problems in a firm. As a result, there must be a tradeoff between these two objectives of a firm. One objective should not be at the cost of the other because each has its own role to play. Without profitability, firms cannot survive for long but still without enough liquidity; they may face insolvency or bankruptcy problems. For these reasons, financial managers should appropriately consider WCM as it ultimately affects firm's profitability and liquidity. Indeed firms should have an optimal level of working capital that maximizes their value.

The main goal of WCM is to ensure that a firm is able to continue its operations and that it has sufficient cash flow to satisfy both maturing short-term debt and upcoming operational expenses (Brigham, 2007). The benefits that accrue to organizations from appropriately managing working capital are evidenced in terms of liquidity, solvency, efficiency, profitability, and shareholder wealth maximization (Gitman, 1997). Another goal of WCM is to minimize the cash conversion cycle and the amount of capital tied up in the net current assets (Robert, 2004). The time period between the cash outflow and inflow is minimized, process cost reduced and quality made superior. The goal of maximizing shareholder's wealth can only be fulfilled balancing the accounts receivable, inventory and accounts payable policies.

1.1.2 Profitability

The ultimate objective of any firm is to maximize its profit. Profit refers to gain in business activity which is served for the benefit of business owners and is usually measured for a given period of time such as a financial year. Profitability on the other hand is interpreted as a ratio explaining the rate of some profit amount which is benchmarked against some point of reference such as assets, investment or equity of a company. Percentage is used as the unit measure of those ratios. As decision tools, profitability ratios can be used to assess the financial health of a business (Ildiko and Tamas, 2009).

A business without profitability cannot survive whereas a highly profitable business is fully capable of rewarding shareholders with large investment return. Increasing profitability is the most important task of business managers and thus they are always looking for ways to improve their business profitability. Measuring profitability is the most used measure of business success and so measuring the past and current profitability as well as projecting future profitability is very crucial in any business entity (Ildiko and Tamas, 2009). Firm's profitability depends on so many factors thus it is not possible for the managers to focus on profitability in exclusion of other factors. Previous studies show that working capital management affects both the profitability and liquidity thus a trade-off between the two must be set at optimal level if maximum returns are to be obtained.

1.1.3 Non-Financial Institutions

Financial institution is an institution that provides financial services to its clients. The most important financial service that they provide to their clients is acting as financial intermediaries. Most financial institutions are regulated by the government. Under NSE listing such institutions fall under the following three sectors; banking, insurance, investment and they include: commercial banks, insurance companies, pension funds, savings and loans, mutual funds, investment funds, financial companies, money market funds and credit unions.

Consequently, non-financial institutions (NFIs) will include institutions that are not involved in financial intermediation in any way. These are institutions both in manufacturing and service industries. Such institutions listed in NSE fall under following sectors; agricultural, commercial and services, telecommunication and technology, automobile and accessories, manufacturing and allied, construction and allied, energy and petroleum and growth enterprise market segment.

Financial and non-financial institutions generally have different objectives because it is in financial intermediation where financial institutions make their profits. Due to their nature of operations the financial institutions were excluded from the sample of this study

1.1.4 Nairobi Securities Exchange (NSE)

NSE has the mandate of providing a trading platform for listed securities and overseeing its member firms. It is licensed and regulated by Capital markets authority (CMA). NSE was constituted in 1954 as a voluntary association of stock brokers registered under societies act then known as Nairobi stock exchange. Before then the market was informal and there were no rules and regulations governing shares and stocks exchange but relied on a gentleman's agreement in the dealings. NSE has grown over the period under different aspects to oversee several privatizations of state owned institutions. At some point in 1994, NSE 20-share index recorded an all record highest point and rated by the international finance corporation as the best performing market in the world with a return of 179 % in dollar terms.

In 2011, Nairobi stock exchange changed its name to Nairobi securities exchange. This was to reflect its strategic plan to evolve into a full services securities exchange which supports trading, clearing and settlement of equities, debt, derivatives and other instruments. In order to achieve its vision of being a leading securities exchange in Africa with global reach, NSE has set rules and regulation for the market players to ensure fair playing ground for all. Some of these include availing of financial statements by all the listed companies. Every investor would wish to invest for a higher return and therefore all the listed companies are constantly looking for ways of maximizing shareholder's wealth.

To date NSE has more than 50 listed firms categorized into the following sectors; agricultural, commercial and services, telecommunication and technology, automobile and accessories, banking, insurance, investment, manufacturing and allied, construction and allied, energy and petroleum and growth enterprise market segment. NSE 20-share index performance can somehow be used to determine the general economic performance of the country. Similarly a study of the listed companies in NSE can provide generalizable results since all sectors are represented.

1.2 Problem Statement

WCM efficiency can have a significant impact on both the liquidity and profitability of a company (Shin and Soenen, 1998). Over investing in working capital reduces firm's illiquidity but at the same time reduces profitability and shareholder's wealth. Under investing in working capital on the other hand increases the risk of not being able to pay creditors, reduces funds tied to current assets and thus increase profits. Thus too much working capital reduces risk and returns while too little working capital increases risk and return (Westerfield and Jaffe, 1996)

Deloof, 2003 also explains that WCM has significant impact on firm's profitability. A large number of business failures have been attributed to the inability of financial managers to plan and control properly their current assets and liabilities. This therefore requires managers to maintain optimal level of working capital components so as to maximize returns, this is the level of working capital that will balance risk and return and at the same time maximize shareholders wealth.

Most researchers have found a strong negative cause-and-effect relationship between inventory turnover period, average collection period and cash conversion cycle with firm's profitability, for instance (Shin and Soenen, 1998; Deloof 2003 ; Reheman and Nars,2007); and a positive relationship between average payment period with firm's profitability (Lazaridis and Tryfonidis, 2006). In contrast there are few researchers who obtained different results. For example, Nobanee (2009) concludes a positive relationship between cash conversion cycle, average collection period and inventory turnover period with the firm's profitability whereas average payment period has significant negative impact on the firm's profitability.

Several studies related to WCM have also been done in Kenya such as the following:
Odhiambo (2010) did a study on the relationship between WCM and financial performance of deposit taking savings and credit cooperative societies. Muchiri (2011) did a study on the relationship between WCM and profitability of dairy industry in Kenya. Eva (2011) studied the impact of WCM on profitability of the oil industry in Kenya. Nyakundi (2003) did a survey on WCM policy among public companies in Kenya.
All the local studies have solely focused on specific institutions or sectors and none has incorporated all the sectors represented in the economy since different sectors maintain different

levels of working capital and are differently affected by it depending on the nature of business they are involved in. All these studies indicate that there is a significant relationship between WCM and profitability and that WCM is an integral part of financial management. A study of all listed companies in the NSE will thus answer the research question for the case of larger Kenyan economy.

1.3 Objective of the Study.

The study seeks to establish whether working capital management has significant effect on firm's profitability in Kenya.

1.4 Significance of Study.

The study will benefit various stake holders of the firms such as:

1. Finance managers of non-financial institutions, this study will help them understand better the various aspects of WCM discussed here. These include the components, portfolio, policies, challenges and its relationship with profitability and liquidity. This will help them set up optimal levels of working capital components so as to maximize their firm's value.
2. Company advisors and consultants, they will be able to advice their clients on effective WCM according to the findings of the study. By having a clear picture of the relationship between the WCM and profitability they would advise managers from different sectors of the economy accordingly since different sectors are differently affected.
3. Nairobi securities exchange (NSE) and other regulatory bodies such as capital markets authority (CMA), central depository and Settlement Corporation (CDSC). These are responsible for licensing, regulation and supervision of the market players. The study findings will assist them make informed decisions relating to policy formulation, monitoring and evaluation while executing their mandates.
4. Researchers, academicians and the general public, the study will provide important literature related to WCM issues to researchers and academicians. The study findings will also enable various stakeholders to invest in institutions that will maximize their wealth; this can be achieved by studying the firm's financial statements and relating them to the findings of the study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature related to theories on working capital management and previous work on the concept of working capital and how it relates firm's profitability. The chapter explores various aspects of WCM which are related to the objectives of the study such as the theoretical review of WCM, benefits of holding working capital, factors affecting firm's profitability, measurement of WCM and profitability and the relationship between WCM and profitability.

2.2 Theoretical Review of Working Capital Management

Scherr (1989) identifies three main historical stages through which working capital management has passed; systematic approach of control phase, optimality management phase and value measurement phase.

2.2.1 Systematic Approach of Control Phase

Working capital management originally started as a systematic approach of controlling the incoming, outgoing and remaining balances of cash, receivables and inventories. At this stage the main objective was to ensure working capital is not misappropriated for personal benefits of those who are entrusted with its management. To this end both researchers and practitioners developed various control measures over the receipts and collections of cash, receipts and issuance inventories as well as the increase of receivables through credit sales and decrease of receivables through cash collection (Scherr, 1989).

2.2.2 Optimality Management Phase

Under the optimality management phase, the main focus was not only on the physical safety of working capital items but also on the minimization of related costs and maximization of related income. At this stage particular models (e.g. Baumol (1952), miller-Orr (1966), Economic Order quantity (EOQ) (1934) and Just-In-Time (JIT) (1922) among others) were developed to ensure that firms do get problems due to a lack of liquidity or incur too much cost by holding excesses of working capital levels. Under the control and optimality approaches the amount of accounting profit is taken as a main measure of managerial efficiency.

2.2.3 Value Measurement Phase

Under the value measurement approach, working capital management concentrated on how to help managers in the creation and measurement of value without disregarding the above two (control and optimization) objectives. Particularly, the cash flows approach is used as a main tool to measure the value created by firms (Scherr, 1989).

2.3 Role of Working Capital Components

Working capital can be categorized into four main items and each has a role to play in the firm. They include cash, accounts receivables, inventory and accounts payables.

Cash, Cash is the most liquid current asset of a firm. It includes the cash in hand, bank and marketable securities. Cash is the most significant current asset since it directly affects all other assets of an organization; however it is also very sterile in nature in that it does not generate revenue. Cash management in any organization is therefore very important to all financial managers. Financial managers must maintain adequate cash to meet the payment of all company's obligations and any excess be profitably invested. Cash management is one part of WCM and usually concerns different processes and procedures of handling liquidity, monitoring and planning it.

Accounts Receivables, Gentry *et al* (1990) describes accounts receivables as a delay in cash inflow which must be financed by the firm. In another words, if financing sales on credit was not necessary, firms would use these funds in other purposes of business operation. This therefore means that receivables are an opportunity cost to the firms in economic sense. Shim and Siegl (2000) point out that accounts receivable management includes selecting credit worth customers and speeding up the collections from the customers. The period between selling of goods in credit and customers settling the bills is accounts receivable period.

Brealey and Meyers (2006) explains that if firms collect receivables from their customers faster, then the funds invested in these receivables would be used elsewhere. The firm also forgoes interest earnings when it holds idle cash balances rather putting them into use. The firm may also achieve little accounts receivable by not selling on credit, however restricting credit sales may cause the firm to lose customers.

Inventory, Mathur (2003) explains that inventories include raw materials, working-in-process and finished goods. Firms keep raw materials that they use in production of finished goods which

they eventually sell to customers. The period between the investment in the inventories and the selling date is the inventory period. Dimitrios (2008) points out that too much inventory demands more physical space and could lead to a financial distress, increase in risk of damages, deterioration and losses. It could also imply inefficient and careless management. On the other hand, very little inventories might lead to interruptions in production process, increase risk of losing sales and consequently lower the profitability of the firms.

Accounts Payables

Credit purchases create accounts payables. Unlike credit from financial institutions, trade credit does not rely on formal collateral but on trust and reputation (Fachamps, 1997). Creditors are a vital part of effective cash management and should be managed carefully to enhance the performance and the cash position of a firm. A firm should slow-down cash disbursements and pay creditors as late as it is consistent with maintaining its credit standing with suppliers, so that it can make the most efficient use of the money it already has. Some methods that can be used to slow-down disbursements include: control of disbursements and using payable through drafts (Scherr, 1989). As Cote and Latham (1999) argue, the management of accounts receivables, inventory and accounts payable have tremendous impact on cash flows, which in turn affect the profitability of firms.

2.4 Factors Affecting Firm's Profitability

According to Deloof (2003) the way working capital is managed has a significant impact on profitability and liquidity of firms. This implies that there is a certain level of working capital requirement which potentially maximizes returns. The amounts invested in working capital are often too high in proportion to the total assets employed and so it is vital that these funds are used in efficient and effective way. A firm can be very profitable but if this is not translated into cash from operations within the same operating cycle, the firm may have to borrow to support its continued working capital needs.

The two objectives of profitability and liquidity must be traded off. Investment in current assets is inevitable to ensure delivery of goods and services to the final consumers and proper management of the same should give the desired impact either on profitability or liquidity. If resources are blocked at different stages of supply chain, this will prolong the cash operating cycle. Although this might increase profitability by raising sales, it may also adversely affect the

profitability if costs tied up in working capital exceed the benefits of holding more inventories and granting more trade credit to customers (Padachi, 2006)

Efficient WCM will ensure that a firm is able to continue its operations and that it has sufficient cash flow to satisfy both maturing short-term debts and upcoming operational expenses. The benefits of efficient WCM are seen in terms of liquidity, solvency, efficiency, profitability and shareholder wealth maximization (Gitman, 1997). Efficient WCM also seeks to minimize the cash conversion cycle and the amount of capital tied up in the net current assets. The time between the capital outflow cash inflow is minimized and process cost reduced at the same time. (Robert, 2004). Lastly, WCM is particularly important to small businesses with limited access to long-term capital markets, those firms tend to rely heavily on owner financing, trade credit and short-term bank loans to finance their needed investment in cash, accounts receivable and inventory.

Eljelly (2004) explains that efficient working capital management involves planning and controlling current assets and current liabilities in such a manner that eliminates the risk of inability to meet due short-term obligations and avoids excessive investment in these assets so as to enhance profitability. The problem is that increasing profitability at the cost of liquidity can lead to serious problems in a firm. As a result, there must be a tradeoff between these two objectives of a firm. One objective should not be at the cost of the other because each has its own role to play. Without profitability, firms cannot survive for long but still without enough liquidity; they may face insolvency or bankruptcy problems

2.5 Measurement of Variables

The study used three types of variables to achieve its objective. These included the dependent variable, explanatory variables and the control variables. The choice of the variables was guided by the previous studies related to working capital management.

The explanatory variable in this study was WCM and was measured using its three components which include; accounts receivables management, inventory management and accounts payables management. Firm’s profitability was the dependent variable here and was measured by return on assets as this enabled the gross operating income to be benchmarked against the total assets

the firm has invested on. The choice of control variables depended on variables found to have had a significant impact on firm's profitability in previous studies.

2.5.1 Measurement of Working Capital Management Components

Accounts Receivables Management

A company's credit management policy should help it maximize expected profits. It must take into account its current and desired cash receivable position, as well as its ability to satisfy the expected demand. Key variables affecting level of receivables will be the terms prevailing in a company's area of business and the ability of the company to match and service comparable terms of sale. There is also a relationship between the level of receivables and a company's pricing policy. (Gitman, 2007)

The effectiveness of trade receivables management policy will influence the overall level of receivables and the likelihood of bad debts arising. The policy formulated should take into account the administrative costs of debt collection, the ways in which the policy could be implemented effectively, cost and effects of easing credit. It should thus balance the benefits gained from offering credit to customers against the costs of the same. Longer credit period may increase turnover, but will also increase the risk of bad debts. The cost of increased bad debts and the cost of any additional working capital required should be less than the increased profits generated by the turnover margin.

The goal of collection management policy is to ensure that payments are received according to schedule, otherwise a greater investment in accounts receivable will be needed. If receipts from accounts receivable can be fast enough, without prejudicing sales or customer goodwill, less capital will be needed to fund accounts receivable, and less money will be spent on recovery, because of administration, investigation, collection and bad debt costs, (Gitman 1997)

Average collection period (ACP) was used here to measure how many days it takes to collect the cash from credit sales. Generally, the longer the ACP, the higher the probability of delinquencies in accounts receivable.

$$\text{Average collection period (ACP)} = \frac{\text{Accounts receivables}}{\text{Sales}} \times 365 \text{ days}$$

Inventory Management

This involves maintaining inventory levels at such a point that production is not interrupted and at the same time too much money is not tied in raw materials. The optimum level of inventory should be determined on the basis of a trade-off between costs and benefits associated with the levels of inventory. (Bolten, 1976).

Significant amounts of working capital can be invested in inventories of raw materials, work-in-progress and finished goods. Inventories of raw materials and work in progress can act as a buffer between different stages of the production process, ensuring smooth operation. Inventories of finished goods allow the sales department to satisfy customer demand without unreasonable delay and potential loss of sales. The benefits of holding inventory must be weighed against any costs resulting from the same. Costs which may be incurred by holding inventory include: the opportunity cost of cash tied up in inventory, the cost of the inventory itself, holding costs, such as insurance, rent and utility charges and replacement costs.

Various models are used in inventory management:

Economic order quantity (EOQ) model, this classical model calculates an optimum order size by balancing inventory holding costs against ordering costs of fresh supplies. The optimum order size is the basis of a minimum cost procurement policy. The model assumes that for the period under consideration, costs and demand are constant and known with certainty. If we assume a constant demand for inventory, holding costs will increase as average inventory levels and order quantity increase, while ordering costs will decrease as order quantity increases and the number of orders falls. The total cost is the sum of the annual holding cost and the annual ordering cost.

The activity based accounting (ABC) system; this is extensively used to identify various parts of inventory for purposes of inventory control. This technique is based on the assumption that firm should not exercise the same level of control on all item included inventory. It pays much attention to items that are costly while paying less attention to cheaper items.

Just-in-time (JIT) production, this is described as an approach with the objective of producing the right portion at the right place and time hence the term “just in time”. Wastage results from any activity that increases cost without adding value, this may involve things like the

accumulation of excess inventory, use of defective machinery and processes that create defective products and unnecessary movement of materials. JIT should improve profits and return on investment by reducing inventory levels, reducing variability, improving product quality, reducing production and delivery lead periods, and reducing other costs such as machine setup and equipment breakdown costs.

The Inventory turnover period (ITP) was used here to measure how quickly inventory flows through the company from purchase to sale. It's one of the efficiency ratios since it excellently measures how efficient a company's inventory management policy is.

$$\text{Inventory turnover period (ITP)} = \frac{\text{Inventory}}{\text{Cost of goods sold}} \times 365 \text{ days}$$

Accounts Payables Management

According to Mclaney, (2009) accounts payable is money owed for goods and services purchased on credit by the business and is part of the cash conversion cycle (CCC). Accounts payable management policy aims at achieving the following; provide reliable data to management, ensure efficient and effective management of disbursements to maximize disbursement levels, minimize unnecessary expenditures, and ensure the accurate recording and reporting of accounts payables.

Trade payables can be managed in such a way as to shorten the cash conversion cycle. This can be done by extending average payment period (APP), this should however be done in such a way that the relationship between the firm and the creditors does not get strained otherwise it may have a negative effect on the firm.

Average payment period (APP) was used to measure the average number of days it takes a company to pay its invoices. The longer the APP, the more cash a company keeps on hand, but the less happy its vendors are likely to be.

$$\text{Average payment period (APP)} = \frac{\text{Accounts payables}}{\text{Cost of goods sold}} \times 365 \text{ days}$$

Cash Management

Cash levels should be maintained at an optimal level so that the day to day expenses can be met and cash holding cost is low. Firms maintain cash balances for four primary purposes: transactions needs, precautionary purposes, speculative purposes and compensating balance purposes.

Gitman, (1974) developed Cash Conversion Cycle (CCC) as part of operating cycle which is calculated by adding Inventory turnover period(ITP) to Average collection period (ACP) and then subtracting Average payment period (APP). Its focus is on the length of time period between the acquisition of raw materials and other inputs, and cash inflows from the sale of finished goods. It represents the number of days of operation for which financing is needed. The cash conversion cycle represents the interface between the components of working capital and the flow of cash within a company and can be used to determine the amount of cash needed for any sales level.

CCC = Inventory turnover period + Average collection period – Average payment period

2.5.2 Measurement of Firm's Profitability

Bodie, Kane and Marcus (2004) explains various measures of profits ; gross profit by subtracting cost of goods sold from sales, Operating profit equals gross profit minus other costs such as general and administration costs, Earnings before interest and tax(EBIT) equals operating profit plus non-operating profit.Net profit equals EBIT minus interest and income tax expenses.

Various studies have used different measures of profitability depending on researcher's objectives; Gross operating profit (GOP) used by Lazaridis and Tryfonidis (2006) and Deloof (2003), Net operating profit (NOI) used by Raheman and Nasr (2003) , Return on assets (ROA) used by Samiloglu and Demirgunes (2008).

$$ROA = \frac{\text{Sales} - \text{Cost of goods sold}}{\text{Total assets}}$$

This study chose ROA as measure of profitability, the rationale for ROA choice can be explained in terms of choosing operating income as numerator and total assets as denominator. This

implies that profits are benchmarked against firm's total asset which is in line with definition of profitability.

Control Variables

Based on previous studies (Deloof, 2003; Padachi, 2006; Raheman and Nasr, 2007; and Mathur, 2010) the following variables had significant impact on profitability and were therefore selected as control variables for the study:

i) Firm size, represented by natural logarithm of sales, lnsa

ii) Current ratio, CR is the traditional measure of firm's liquidity.

$$CR = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

iii) Debt ratio, DR used to measure firm's leverage

$$DR = \frac{\text{Total Debt}}{\text{Total Assets}}$$

iv) Current Liabilities to Total Assets ratio, measuring aggressiveness of financing policy.

$$CL = \frac{\text{Current Liabilities}}{\text{Total Assets}}$$

2.6 Relationship Between Working Capital Management and Profitability

When CCC shortens, cash becomes free for other usages such as investing on equipment, smoothing manufacturing and selling operations and reducing total investments in current assets. This in turn results to higher profitability. Longer CCC on the other hand, ties more funds to operating activities leaving little chance for other investments from the cash flow. This lowers profitability and in such case cash conversion cycle is said to have a negative relationship with profitability, (Mathur, 2003).

CCC can also impact profitability by altering the inventory turnover period, accounts receivable period and accounts payable period. This can be illustrated as follows; longer inventory turnover period results to low supply costs, longer accounts receivable period results to increased credit sales and finally lower accounts payable period results to high borrowing reputation. Merging the three in one scenario explains why longer cash conversion cycle increases profitability. In this scenario cash conversion cycle is said to have positive relationship with profitability,(Mathur, 2003).

In contrast short CCC can have a negative impact on company's profitability in the following ways; short inventory turnover period could lead to inventory shortages, reduced credit sales as a result of short accounts receivable period and poor credit reputation resulting from extended accounts payable period. This scenario explains why short CCC has a positive relationship with profitability, (Mathur, 2003).

The cash conversion cycle can therefore tell you how cash is moving through a company in terms of duration. This ratio is vital because the cycle represents the number of days a firm's cash remains tied up within the operations of the business. The cash conversion cycle simply indicates the duration of time it takes the firm to convert its activities requiring cash into cash returns. Therefore, a downward trend in this cycle is a positive signal while an upward trend is a negative signal. This is because when the cash conversion cycle shortens, cash becomes free for other uses such as investing in new capital, spending on equipment and infrastructure which are geared towards increasing the profitability of the company. On the flip side, when the cash conversion cycle lengthens, cash remains tied up in the firm's core operations, leaving little leeway for other uses of this cash flow thus reducing the company's ability to increase its profits (Kuczmarski, 2002).

2.7 Empirical Studies

Several studies on the relationship between WCM and firm's profitability have been carried out in different countries in the past and a summary of their results explained as follows:

Deloof (2003) in his study of impact of WCM on profitability of Belgian firms used gross operating income as dependent variable, and explanatory variables such as ARP, ITP and APP.

He concluded that there exist a negative relationship between ARP and ITP with firm's profitability and a positive relationship between APP and firm's profitability. He recommended that firms can maximize their profits by achieving shorter ARP and ITP and longer APP.

Lazaridis and Tryfonidis (2006) did a study to determine the relationship between WCM and profitability of listed companies in Athens Stock Exchange (ASE). They used Gross operating profit (GOP) as the dependent variable and CCC as explanatory variable. The study found out that there is a statistical negative relationship between profitability measured in terms of gross operating profit and CCC.

Raheman and Nasr (2007) did a study on the relationship between WCM and profitability for Pakistani companies listed on Karachi Stock Exchange (KSE). They used net operating income as the dependent and the following independent variables; ARP, ITP, APP, CCC. They also used size, leverage, and ratio of financial assets to total assets as control variables. The results showed significant negative relationship between profitability and WCM components. In addition size showed a significant positive relationship with profitability, leverage and the ratio of financial assets to total assets showed significant negative relationship sign with profitability.

Samiloglu and Demirgunes (2008) on their study to analyze the impact of WCM on firm profitability using manufacturing companies listed on Istanbul Stock Exchange (ISE) as a sample used return on asset as the dependent variable and ARP, ITP and APP as independent variables. They also used firm size, leverage and fixed financial assets to total assets as control variables. They found that ARP, ITP and leverage have significant negative effect on firm's profitability while CCC, size and fixed financial assets to total assets ratio have no significant effect on the firm's profitability.

Singh and Pandey (2008) did a study on the impact of WCM on profitability of Hindalco Industries Limited for period from 1990 to 2007. The study showed that current ratio, liquid ratio, receivables turnover ratio and working capital to total assets ratio had statistically significant impact on the profitability. However, this study was limited to one industry and hence generalizing the findings to other industries would be a challenge.

Afza and Nazir (2009) investigated the relationship between WCM policies and firm's profitability for a sample of 204 non-financial firms listed on Karachi Stock Exchange (KSE) for

the period 1998-2005.The study found significant difference in working capital policies across different industries. The study also found a negative relationship between the firm's profitability the aggressiveness of working capital policies. They suggested that managers could maximize wealth by adopting conservative working capital policies.

Conclusion

The literature review relied on to develop framework for this study is mainly from developed countries. All the local studies focused on single sectors of economy. The story of developed countries can also be applied to Kenya and other developing countries to achieve their gross domestic product growth targets. The conceptual approach in review assisted in relating various aspects of WCM and their relation with firm's profitability. The expectation of conceptual framework is that holding all factors constant, efficient WCM can be applied in risk-return trade off thus improves firm's profitability.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the overall research methodology that was used to carry out the study. This includes the research design, the population, the sample, data collection methods and data analysis and presentation techniques. For the purpose of the researcher narrowed down to non-financial institutions listed on Nairobi Securities Exchange.

3.2 Research Design

Brown (1998) defines research design as procedures for collection and analysis of data in a manner that aims to combine relevance of the research purpose with economy during research process. The research sought to establish the effect of working capital management on firm's profitability in Kenya. It was a survey of selected firms from various sectors listed Nairobi Securities Exchange (NSE). A sample of 20 non-financial institutions listed in the NSE were economical to study in terms of cost and time as well as being appropriate representative of all the listed companies. The study used cross sectional and time series secondary data for a period of 5 years between 2008 and 2012.

3.3 The Population

Brink (1996) defines population as the total collection of elements with common observable characteristics about which some inferences can be made. The population of interest in this study was all the companies listed in the Nairobi Securities Exchange (NSE) for a period of 5 years between 2008 and 2012.

3.4 The Sample

A sample of 20 companies was selected from the NSE listing through a stratified random sampling. NSE has more than fifty listed companies which are classified into 11 sectors which were used as the basis of population stratification. Sectors were also used as the probability base so that appropriate number of companies per sector is proportional to the total sample. This ensured that sectors with more companies are largely represented. Due to their nature of operations, firms from finance, insurance and investment sectors were excluded from the sample.

Care was also taken to ensure that only companies with the required data were selected. A sample of 20 constituted more than 30 % of the total population and thus the findings can be generalized.

3.5 Data Collection Methods

The study exclusively relied on secondary data drawn from the selected company's audited annual financial statements which were reliably obtained from company's websites or from the NSE's records since it's a requirement that all listed companies deposit their financial statements with NSE. Data collection sheets were designed to derive information from the balance sheets income statements of the sample companies. Such information included; sales volumes, cost of goods sold, total assets, financial assets, accounts receivable, inventories, accounts payable, current assets, current liabilities and total assets.

The validity and reliability of the data was guaranteed since the data was gathered from audited financial statements which reduced chances of misrepresentation of information contained therein.

3.6 Data Analysis

Marshall and Rossman (1999) define data analysis as the process of bringing order, structure and interpretation to the mass of collected data. To achieve the objective of the study, data analysis was done using both descriptive and quantitative analysis techniques. Statistical Package for Social Sciences (SPSS) version 18 was used to aid data analysis. The choice for SPSS is because of its ability to cover wider range of most common statistics and graphical data and is very systematic.

Descriptive analysis provided the minimum, maximum, mean and standard deviations for the variables of study. Correlation analysis was used to examine the degree of association between the dependent and explanatory variables; this brought out the relationship between profitability, working capital management and other chosen variables. Regression analysis was further used to

explain causal relationship between the three categories of variables (dependent, explanatory and the control variables). Pooled least squares were also used because the data used was purely quantitative and were measured accurately and reliably from the firm's financial statements across various sectors and over the period of study. The regression models were tested for significance using T-Test.

The selected variables resulted to a specific model below:

$$ROA_{it} = \beta_o + \beta_1 (ACP_{it}) + \beta_2 (ITP_{it}) + \beta_3 (APP_{it}) + \beta_4 (lnsa_{it}) + \beta_5 (CR_{it}) + \beta_6 (DR_{it}) + \beta_7 (CL_{it}) + \varepsilon$$

Where,

ROA_{it} =Return on Asset of firm i at time t

β_o = the intercept coefficient of the firm

β_i = Slope coefficient of the independent variable.

t = Time = 1, 2 …5 years

ACP= Average collection period

ITP =Inventory turnover period

APP =Average payment period

Lnsa= Natural logarithm of sales

CR = Current ratio

DR = Debt ratio

CL = Current liabilities to Total assets ratio

ε - The error term

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents the results of the analyzed data that was collected and further discusses the findings. The data was analyzed using both descriptive and quantitative techniques of analysis. Quantitative techniques included correlation and regression models of analysis. The tables and figures on this chapter are derived from the data resultant from the findings of the study. The researcher presents the findings of the study in three sections; descriptive, correlation and regression analysis. The study relied on secondary data only.

4.2 Descriptive Statistics

Descriptive statistics shows the minimum, maximum, mean and standard deviation of the variables of study. These statistics are essential for using all normative and cause-and-effect statistical techniques effectively including hypothesis testing, correlation and regression analysis. This enabled the researcher understand better the trends of the variables of study of different companies for the period of study.

Table 1: Annual Averages of Key Statistics

Year	ROA	ACP	ITP	APP	Lnsa	CR	DR	CL	CCC
2008	0.32	72.98	96.69	136.02	14.36	1.63	0.27	0.30	33.65
2009	0.29	76.42	89.25	126.20	14.42	1.66	0.25	0.31	39.47
2010	0.30	76.94	84.33	121.15	14.55	1.75	0.30	0.32	40.12
2011	0.33	71.52	84.82	106.50	14.73	1.92	0.32	0.33	49.84
2012	0.27	69.49	86.38	109.30	14.80	1.76	0.26	0.30	46.57

Table 1 above shows the annual averages of key statistics for the twenty sampled companies for the period between 2008 and 2012. Such averages enable the researcher to study the trends of the variables for the period. The annual averages for the 20 companies were the used in descriptive, correlation and regression analysis models.

There are quite huge differences between the accounts collection period, inventory turnover period and accounts payables period among the sampled institutions across the period of study.

Regarding accounts collection period, the sampled non-financial institutions in Kenya had a maximum period of 77 days to collect debts from customers in 2010 while the same firms took the shortest period of 69 days to do the same in 2012. This may be explained by the differences in commercial policies, competitive pressure or inefficient management among the sampled companies over the period of five years.

The inventory turnover period foe the sampled companies also varied over the period of study, it took the longest period of 97 days to convert inventories to sales in 2008 and the shortest period of 84 days to do the same in 2010. This could be due to diffusion on the product nature, automation and technology levels used in production processes.

The average payment period for the sampled firms also varied over the period of study, in 2008 it took the longest period of 136 days for the companies to settle payables from their suppliers while it also took shorter period of 107 days in 2011 to do the same. This is highly influenced by the company's payment policies.

Regarding the return on assets, the companies achieved highest returns on assets at 33 % in 2011 and the least returns of 27 % in 2012. The natural logarithm of sales used as a proxy of firm size however did not change much remaining 14 throughout the period. Current ratio used as a proxy of firm's liquidity was maximum at 1.92 times in 2011 and minimum at 1.63 times in 2008. Debt ratio the proxy of firm's leverage was maximum at 32 % in 2011 and minimum of 25 % in 2009.

Table 2: Descriptive Statistics for the Averages of Variables

	N	Minimum	Maximum	Mean	Std. Deviation
ACP	20	23.00	169.70	73.47	44.56
ITP	20	4.02	199.47	88.29	58.48
APP	20	28.76	373.46	119.83	91.63
lnsa	20	1.50	18.77	14.57	3.98
CR	20	0.57	4.04	1.74	0.76
DR	20	0.01	0.93	0.28	0.24
CL	20	0.06	0.66	0.31	0.18
ROA	20	0.02	0.95	0.30	0.24

This table shows descriptive statistics for the averages of the variables of the sampled non-financial institutions in Kenya.

Average collection period (ACP) was used to measure how many days it takes Kenyan firms to collect cash from sales. The sampled non-financial institutions Kenya had ACP minimum value of 23 days, maximum period of 170 days, mean of 73 days and a standard deviation of 45 days. The variations could be as a result of differences in commercial policies, competitive pressure or inefficient management among the sampled companies over the period of five years.

The Inventory turnover period (ITP) was used to measure how quickly inventory flows through the company from purchase to sale. The sampled Kenyan firms had a minimum value of 4 days, maximum period of 199 days, mean of 88 days and a standard deviation of 58 days. The variations could be as a result of diffusion on the product nature, automation and technology levels used in production processes.

Average payment period (APP) was used to measure the average number of days it takes Kenyan companies to pay its invoices The sampled institutions had APP minimum value of 29 days, maximum period of 373 days, mean of 120 days and a standard deviation of 92 days. This is highly influenced by the company's payment policies.

Debt ratio was used to measure firm's leverage among Kenyan non-financial institutions. The sampled firm's debt ratio had a minimum value 1 %, maximum of 93 %, mean of 28 % and a standard deviation of 24 %.

Current ratio was used to measure liquidity of Kenyan firms. The firms had a current ratio minimum of 57 %, maximum of 4, mean of 17 % and a standard deviation of 76 %.

Firm size for the sampled companies was represented by natural logarithm of sales, it had a minimum value of 1.50, maximum value of 18.77, mean value of 14.57 and a standard deviation of 3.98. The larger the firm size the more profitable it is, this can be attributed to benefits that comes with economies of scale by expanding company's production scale while reducing average unit costs of production.

Current Liabilities to Total Assets ratio was used to measure aggressiveness of Kenyan company's financing policy. It had a minimum of 6 %, maximum of 66 %, mean of 31 % and a standard deviation of 18 %. Companies with more aggressive financing policies rely much on liabilities to finance their operations.

Tables 3(a-d) shows the annual descriptive statistics for the dependent and explanatory variables for the period of study independently. These statistics enabled the researcher to compare the minimum, maximum, mean and standard deviations for different years.

Table 3(a): Descriptive Statistics for Return on Assets (ROA)

Year	Minimum	Maximum	Mean	Std. Deviation
2008	0.02	0.98	0.32	0.21
2009	0.02	0.93	0.29	0.21
2010	0.02	0.96	0.30	0.27
2011	0.02	1.44	0.33	0.34
2012	0.02	0.91	0.27	0.25

This table shows the descriptive statistics for return on assets (ROA), it reveals that the minimum value of ROA for the five years was 2 % throughout the period, 2012 had the lowest value of

maximum return at 91 % while 2011 had the highest value of maximum return at 144 %. Mean value was highest in 2011 at 0.33 and lowest in 2012 at 0.27. Standard deviation was lowest in 2008 and 2009 at 0.21 and highest in 2011 at 0.25.

Table 3(b): Descriptive Statistics for Average Collection Period (ACP)

Year	Minimum	Maximum	Mean	Std. Deviation
2008	21.29	175.89	72.98	41.87
2009	24.33	210.68	76.42	47.35
2010	21.92	244.35	76.94	55.17
2011	14.90	186.70	71.52	45.06
2012	16.67	158.32	69.49	44.59

This table shows descriptive statistics for average collection period. Listed Kenyan firms had highest values of minimum in 2009 at 24 days and lowest in 2011 at 15 days. Maximum was highest in 2010 and 244 and lowest in 2012 at 158 days. All these reflect the number of days within which the firm's collected receivables from customers.

Mean was highest in 2010 at77 days and lowest in 2012 at 69 days. Standard deviation was highest in 2010 at 55 days and lowest in 2008 at 42 days.

Table 3(c): Descriptive Statistics for Inventory turnover period (ITP)

Year	Minimum	Maximum	Mean	Std. Deviation
2008	4.39	225.23	96.69	69.91
2009	2.71	252.55	89.25	63.98
2010	2.50	226.23	84.33	62.49
2011	6.00	185.01	84.82	57.68
2012	4.51	204.01	86.38	57.04

This table shows inventory turnover period statistics for the sampled firms in Kenya. The minimum was highest in 2011 at 6 days and lowest in 2010 at 3days. Maximum was highest in 2009 at 253 days and lowest in 2011 at 185 days. Mean was highest in 2008 at 97 days and lowest in 2010 at 84. Standard deviation was highest in 2008 at 70 days and lowest in 2012 at 57 days. All these represented the period of converting inventory to sales.

Table 3(d): Descriptive Statistics for Average Payment Period (APP)

Year	Minimum	Maximum	Mean	Std. Deviation
2008	27.05	465.14	136.02	114.92
2009	40.78	423.67	126.20	105.43
2010	18.41	353.80	121.15	91.12
2011	21.14	319.25	106.50	79.02
2012	17.67	424.31	109.30	90.82

This table shows descriptive statistics for average payment period for the sampled companies. The minimum was highest in 2009 at 41 days and lowest in 2012 at 18.Maximum was highest in 2008 at 465 days and lowest in 2011 at 319 days. Mean was highest in 2011 at 136 days and lowest in 107 days. Standard deviation was highest in 2008 at 115 days and lowest in 2011 at 79 days. These represented the period of settling the supplier’s debts.

4.3 Correlation Analysis

Spearman's correlation analysis was used to determine the degree of association between the firm's profitability and return on assets, the results below were obtained.

Table 4: Correlations Analysis Matrix

	ACP	ITP	APP	lnsa	CR	DR	CL	ROA
ACP	1							
ITP	0.098	1						
APP	0.269	0.248	1					
lnsa	0.131	-0.177	-0.006	1				
CR	.496*	-0.04	-0.045	-0.089	1			
DR	0.138	0.299	0.172	0.28	-0.416	1		
CL	-0.344	0.142	-0.143	0.025	-0.335	0.303	1	
ROA	-0.262	-0.217	0.463	0.378	0.125	-0.046	0.326	1

*. Correlation is significant at the 0.05 level (2-tailed).

This table illustrates the results obtained from the correlation analysis for the sampled firms for the period of study at ά = 5%.

The result shows negative correlations between return on assets with average collection period and inventory turnover period with correlation coefficients of -0.262 and -0.217 at ά = 5% respectively. This implies that collecting payments from customers within the shortest time possible and reducing the period of ordering raw materials can significantly increase firm's profitability.

The results also indicate a positive correlation between return on assets and average payment period with a correlation coefficient of 0.463.This implies that if firm's can delay making payments to their suppliers without affecting its reputation then this can lead to increased profitability.

The result shows a positive correlation between firm's profitability and size with a correlation coefficient of 0.378 implying that the larger the firm the higher the profits it could be making thus its advisable to always increase firm's size. This could be as a result of economies of scale

the firm enjoys. Such benefits importantly enhances firm's profitability by expanding company's scale of production while reducing it average production cost per unit.

There is a negative correlation between debt ratio and return on asset also with a correlation coefficient of -0.046. The debt ratio is used to measure firm's leverage and this implies that the lower the leverage the more profitable a firm is likely to be.

The result also shows a positive correlation between the current ratio with the return on asset with a correlation coefficient of 0.125.The current ratio is used to measure firm's liquidity and is therefore advised that firms maintain the ratio high in order to result to higher profitability.

Finally the result shows a positive correlation between return on asset and current liabilities to total assets ratio. This has a correlation coefficient of 0.326 and it implies the higher the ratio the more profitable the firm is.

It is only the current ratio that is highly significant 0.05 in the correlation matrix while the rest of the variables are insignificant.

4.4 Regression Analysis

A multivariate regression model was used to determine the cause-and-effect relationship between working capital management and return on assets. This involved the use of pooled ordinary least squares (OLS) and fixed effect framework. The resultant regression model is as follows;

$$ROA_{it} = \beta_o + \beta_1 (ACP_{it}) + \beta_2 (ITP_{it}) + \beta_3 (APP_{it}) + \beta_4 (lnsa_{it}) + \beta_5 (CR_{it}) + \beta_6 (DR_{it}) + \beta_7 (CL_{it}) + \varepsilon$$

To conduct regression analysis using ordinary least squares the researcher ran three models in which each explanatory variable was alternated while keeping control variables constant. This enabled the researcher to determine the effect of working capital management on firm's profitability through finding the influence of each component on working capital management individually. The choice of determining separate influences was consistent with previous researchers: Deloof, 2003; Padach, 2006 and Nobanee, 2009.

The study therefore came up with three models for each component of working capital management,

Table 5: Regression Model for Accounts Collection Period.

This table brings out the relationship between average collection period and return on assets,

$ROA=\beta_{0} + \beta_1 (ACP_{it}) + \beta_2 (Insa_{it}) + \beta_3 (CR_{it}) + \beta_4 (DR_{it}) + \beta_5 (CL_{it}) + \varepsilon$

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.613	.376	.154	.22361

Coefficient of multiple determination (adjusted R^2) 15.4% which is the percentage of variance explained uniquely or jointly by independent variables. This implies that the percentage of variance explained by average collection period, firm size, current ratio and debt ratio is 15 %. The model also has a standard error estimate of 22 %.

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.422	5	.084	1.689	.202
	Residual	.700	14	.050		
	Total	1.122	19			

The analysis of variation shows that it is not statistically significant at ά = 5% since 0.02 > 0.05 using F test =1.698.

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.320	.277		1.155	.267
	ACP	-.002	.002	-.369	-1.280	.221
	lnsa	.022	.014	-.353	-1.596	.133
	CR	.148	.095	.462	1.570	.139
	DR	.210	.286	.204	.734	.475
	CL	.405	.326	.301	1.242	.235

The results of this model indicate that the coefficient of accounts collection period for the sampled companies in Kenya is -0.02 at ά = 5%, this means the relationship between accounts collection period and return on assets for the firms is negative. Therefore an increase in collection period leads to decrease in firm's profitability and vice versa. The coefficient of firm size is 0.022; this means that the relationship between return on assets and firm size is positive further implying the larger the firm the more profitable it is. Elsewhere coefficients for current ratio, debt ratio and current liability to total assets ratio for the firms are 18 %, 21% and 41 % respectively. This implies that an increase for each leads to an increase in return on assets.

The constant for the model or Y-intercept is 0.32 which the value of dependent variable ROA when independent variables equals to 0.

However none of the variables is significant since they all have significances greater than 0.05. T statistic is used to test the significance.

Table: 6 Regression Model for Inventory Turnover Period

This model shows the relationship between inventory turnover period and return on assets

$ROA=\beta_{0} + \beta_{1} (ITP_{it}) + \beta_{2} (Insa_{it}) + \beta_{3} (CR_{it}) + \beta_{4} (DR_{it}) + \beta_{5} (CL_{it}) + \varepsilon$

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.560	.313	.068	.23462

Adjusted R^2 also referred to coefficient of multiple determination is 6.8 % which is the percentage of variance jointly or uniquely explained by the independent variables. This implied that 7 % of variance of the model is explained by inventory turnover period, firm size, current ratio and debt ratio. The model has a standard error estimate of 0.23.

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.352	5	.070	1.278	.327
	Residual	.771	14	.055		
	Total	1.122	19			

Inventory turnover period is however not significant at ά = 5% since 0.327 > 0.05. The F statistic is used to test significance.

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.276	.307		.900	.383
	Lnsa	.021	.015	-.346	-1.433	.174
	CR	.073	.081	.228	.903	.382
	DR	-.008	.285	-.008	-.029	.977
	CL	.535	.323	.398	1.657	.120
	ITP	-.018	.001	.110	.452	.658

The regression model for inventory turnover period for the sampled firms' results has a coefficient of -.018 which means that there exist a negative relationship between inventory

turnover period and return on assets; this in turn implies that an increase in inventory turnover period results to an increase in return on assets and vice versa. However none of the variables is significant at ά = 5% since they have significance greater than 0.05.

Coefficients for firm size, current ratio and current liability to total assets ratio are 0.021, 7.3 % and 5 % respectively, this means that their relationship with return on assets is negative and further implies that an increase of either will result to an increase in firm's profitability.

Coefficient for debt ratio is -0.008 meaning their relationship is negative which further implies an increase in debt ratio results to a decrease in firm's profitability.

The constant for the model(Y intercept) is 0.276 which is the value of return on assets when all the independent variables (inventory turnover period, firm size, current ratio and debt ratio) equals to zero.

However, none of the variables is significant since all have significance greater than 0.05.

Table 7: Regression Model for Average Payment Period

This model shows the relationship between average payment period in days and return on assets for the sampled firms.

$ROA=\beta_{0} + \beta_{1} (APP_{it}) + \beta_{2} (Insa_{it}) + \beta_{3} (CR_{it}) + \beta_{4} (DR_{it}) + \beta_{5} (CL_{it}) + \varepsilon$

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.774	.600	.457	.17911

Adjusted R2 (Coefficient of multiple determination) is 45.7 % which is the percentage variance explained uniquely or jointly by the independent variables. This implies that 46 % variance of the model is explained by the average payment period, firm size, current ratio and debt ratio. The model has a standard error estimate of 18 %.

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.673	5	.135	4.197	.015
	Residual	.449	14	.032		
	Total	1.122	19			

Analysis of variance of the model shows that it is highly significant at ά = 5% since 0.015 < 0.05. F statistic is used to test significance.

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.084	.234		.358	.725
	Lnsa	.020	.011	-.335	-1.895	.079
	CR	.082	.062	.255	1.330	.205
	DR	-.109	.208	-.105	-.523	.609
	CL	.716	.252	.534	2.848	.013
	APP	.002	.000	.567	3.221	.006

Regression analysis coefficient for accounts payables period is 0.02 which means that the relationship between return on assets and average payables period is positive. This implies that an increase in accounts payables period results an increase in firm's profitability.

Coefficients for firm size, current ratio and current liability to total assets ratio are 2 %, 8.2 % and 7.16 % respectively, this means that the relationship between return on assets and them is positive which in turn implies that increase in them results to increase in firm's profitability and vice versa.

The coefficient for debt ratio is -0.109 which means the relationship between return on assets and debt ratio is negative, this implies that an increase in debt ratio results to a decrease in firm's profitability and vice versa.

The Average payment period and current liability to total assets ratio are highly significant since both 0.013 and 0.006 are both less than 0.05. All the other variables are insignificant since their significance is greater than 0.05. T statistic is used to test the significance of the model.

The constant (Y intercept) of the model is 0.084 which is the value of return on assets when all the independent variables equals to zero.

Table 8: Regression Model for Cash Conversion Cycle

Cash conversion cycle is just conclusive measure of working capital management and should not be part of the model. However in order to understand and compare the effect of cash conversion cycle as comprehensive measure of working capital management on firm's profitability, the researcher introduced this model. It brings out the combined effect of working capital management as opposed to the previous models that were separately done.

$$ROA=\beta_{0} + \beta_{1} (CCC_{it}) + \beta_{2} (Insa_{it}) + \beta_{3} (CR_{it}) + \beta_{4} (DR_{it}) + \beta_{5} (CL_{it}) + \varepsilon$$

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.788	.621	.486	.17432

The adjusted R^2 (coefficient of determination) is 48.6 % which is the percentage of variance explained by the independent variables. This implies that 49 % variance of the model's variance is explained by cash conversion cycle, firm size, debt ratio and current ratio. The model has a standard error estimate of 0.17.

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.697	5	.139	4.587	.011
	Residual	.425	14	.030		
	Total	1.122	19			

Analysis of variance of the model shows that it is highly significant since 0.011 < 0.05. F statistic is used to measure significance.

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.229	.218		1.050	.312
	lnsa	.026	.011	-.420	-2.437	.029
	CR	.149	.063	.465	2.354	.034
	DR	.173	.201	.168	.859	.405
	CL	.644	.241	.480	2.673	.018
	CCC	-.002	.000	-.600	-3.425	.004

The regression model for cash conversion cycle constant is – 0.02, this means that the relationship between the cash conversion cycle and return on assets is negative. This implies that an increase in cash conversion cycle results to an increase in firm's profitability and vice versa.

Firm size, current ratio, debt ratio and current liability to total assets ratio constants are positive meaning the relationship between them and return on assets is positive and that an increase in either results to an increase in firm's profitability. Firm size, current ratio and current liability to total assets ratio variables are highly significant since 0.018 and 0.04 significances are less than 0.05. T statistic is used as measure of significance.

The constant (Y intercept) for the model is 0.229 which is the value of return on assets when all the independent variables equals to zero.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter discusses the findings presented in chapter four with line to the objectives of the study culminating into this discourse and further tries to draw a conclusion from the results obtained.

5.2 Summary of Findings

The study sought to establish the effect of working capital management on firm's profitability in Kenya. A total of twenty listed non-financial institutions were sampled and the period of study was five years between 2008 and 2012. All the data required was obtained from the firm's audited financial statements.

The study found out that there exist a negative relationship between average collection period and firm's profitability among the listed non-financial institutions in Kenya. This implies that a decrease in accounts receivables period results to increased profitability and vice versa. There also exist a negative relationship between inventory turnover period and firm's profitability among the listed non-financial institutions in Kenya. This implies that a decrease in inventory turnover period results to increased profitability and vice versa. However there exist a positive relationship between accounts payables period and firm's profitability among the listed non-financial institutions in Kenya. This implies that an increase in accounts payables period results to a decrease in profitability and vice versa. In summary the shorter the cash conversion cycle the more profitable the listed non-financial institutions are.

5.3 Conclusions

Working capital management is important because it affects both profitability and liquidity for a firm, and consequently its value. Management performance would be improved by managing working capital efficiently. Applying panel data analysis including pooled OLS regression and fixed effect estimation we find that cash conversion cycle negatively associated to the Return on Assets (ROA). The results show that managers can improve their performance by managing working capital efficiently. Accounts receivables period and inventory turnover period components of cash conversion cycle have negative relationship with profitability. Accounts

payables period elsewhere has a positive relationship with firm's profitability. These results imply that firm's profitability is increased by decreasing accounts receivables period and inventory turnover period. Although finance managers fear for managing accounts payables period might stem from the fact that more controlling the accounts payables period would damage firm's reputation, and consequently decrease profitability.

Usually, the amounts invested in working capital are often too high in proportion to the total assets employed and so it is vital that these funds are used in efficient and effective way. A firm can be very profitable but if this is not translated into cash from operations within the same operating cycle, the firm may have to borrow to support its continued working capital needs. Thus the two objectives of profitability and liquidity must be traded off. Investment in current assets is inevitable to ensure delivery of goods and services to the final consumers and proper management of the same should give the desired impact either on profitability or liquidity. If resources are blocked at different stages of supply chain, this will prolong the cash operating cycle. Although this might increase profitability by raising sales, it may also adversely affect the profitability if costs tied up in working capital exceed the benefits of holding more inventories and granting more trade credit to customers.

Findings of this study indicate that efficient working capital management results to increased firm's profitability.The conclusion of this study was that when efficient working capital management leads to better financial performance, then one should expect a negative relationship between the financial performance and the working capital measures.

5.4 Recommendations

The study established that efficient working capital management results to increased profitability among the listed non-financial institutions in Kenya. It is expected that finance managers will get a clear understanding of the relationship between individual working capital management components and profitability. Based on the findings the following recommendations are made for each component of working capital;

There exist a negative relationship between average collection period and firm's profitability. This therefore means that a decrease in the period results to increase in profitability and thus firms should try as much as possible to reduce the period for collecting receivables from

customers. Firms should however be careful that this does not harm their volume of credit sales which can adversely affect its profitability.The immediate receipt of cash can minimize the time gap between sales inflow and the outflow for raw materials and labor paid for production. However, it is not practical for firms to have all sales paid for in cash due to their trade credit policy or competitor's pressure. Almost all firm's keep some daily receivables in their daily operations. The advantage of reduced receivables is that it results to reduced bad debts through accelerated collections.

The relationship between inventory turnover period and firm's profitability is also negative, this implies that a decrease in inventory turnover days results to increased profitability.The inventory turnover period is the number of days required to order raw materials, produce and sell product. Therefore it depends on both production and sales processes. Production time is subject to nature of product, automation level and technology used. Firms therefore must make a trade-off between speed of production, product quality and cost of innovation. Sales process elsewhere depends on product readiness to satisfy customer needs when required. Merits of companies reducing inventories includes reduced warehouse space, reduced obsoleteness of products, low depreciation and low deadweight costs associated with inventories such as cash tied up in raw materials or work-in-progress which could be profitability used elsewhere.

The relationship between average payables period and firm's profitability is positive, this implies that an increase in average payables period results to an increased profitability. Average payables period is the number of days which the firm is able to delay payment on raw materials to its suppliers. The delay in payment is seen as an internal financing that helps a company to save costs associated with external financing such as bank loan. However a trade-off between the period of delay and damaging of long-term relationship with suppliers must be appropriately set.

5.5 Limitations of the Study

There exist exceptional heterogeneity among the sectors; some sectors are too small for others. For instance telecommunication sector has only two companies while manufacturing and allied sector has nine companies. Different sectors also have different levels of investment. All sectors are not the same, such differences may be due to inherent characteristics of industries in which

each company works in. Accordingly the results could not be generalized for all the Kenyan firms.

The study was also limited to listed non-financial institutions excluding banking, insurance and investment companies and companies not listed in Nairobi Securities Exchange. A sample of twenty companies is also too small to generalize the results.

The period of study was five years which was also too short to observe changes in variables overtime. Some of changes could not be observed then.

5.6 Suggestions for Further Research

There is so much more research that needs to be carried out in Kenya based on results of this study.

Studies should be done about working capital management in firm from specific sectors so as to be able to generalize the findings.

Financial institutions also have a section of working capital management and a study should be done on the effect of working capital management on their profitability based on the findings of this study.

Further study on effect of working capital management on profitability should be done with more firms including those not listed and include all the sectors and extend the period of study.

REFERENCES

Afza T and Nazir, M.S. (2007). "*Is it better to be aggressive or conservative in managing working capital*"? Paper presented at Singapore Economic Review Conference (SERC) on August 02-04, Singapore.

Baumol, W.J., (1952). "*The Transaction Demand for Cash: An inventory theoretic approach*". The Quarterly journal of Economics, Vol.66 No.4 pp.545-556

Brealey, R.A. and Meyers S.C (1996), Principles of Corporate Finance, Mc Graw-Hill international editions, New York.

Deloof, M. (2003). "*Does Working Capital Management Affect Profitability of Belgian Firms*"? Journal of business finance and Accounting, Vol. 30 No 3 and 4 pp.573-587

Eljelly, A. (2004). "*Liquidity-Profitability Tradeoff: An empirical Investigation in an Emerging Market*", International Journal of Commerce and Management, Vol 14 No 2.

F.Samiloglu and K.Demirgunes, (2008). "*The Effect of Working Capital on Firm Profitability: Evidence from Turkey*". The international journal of applied economics and finance, 2: pp.44-50.

Ghosh, S. K. and Maji, S. G. 2003. A Study on the Indian Cement Industry, the Management Accountant 39(5): pp.363-372.

Gitman, L.J. 1974.Estimating corporate liquidity requirement: A simplified approach. Finance Revision, 9:pp.79-88

Guthmann H.G (2006). "*Industrial working capital during business recession*", Harvard Business Review, Vol.3 pp. 472-477

Harris A. (2005), "*Working Capital Management Difficult, but Rewarding*", Financial Executive, Vol. 21, pp. 52-53.

Lamberson, M. (1995). "*Changes in working capital of small firms in relation to changes in economic activity*". Journal of business, 10(2), pp. 45-50

Lazaridis and Tryfonidis (2006). "*Relationship between working capital management and profitability of listed companies in the Athens Stock Exchange*", Journal of Financial Management and Analysis. Vol. 19, pp.26-35.

Mathuva D.M. (2009), "*The Influence of Working Capital Management Components on Corporate Profitability*": A Survey on Kenyan Listed Firms, Research Journal of Business Management.

Mathur B. Satish, (2002), Working Capital Management and Control: Principles and Practice, New Delhi: New Age International (P) Ltd.

Mogere, N (2003): "A survey of Working Capital Management among Public companies in Kenya", Unpublished MBA Management Project, University of Nairobi.

Ngaba D. K. (1990), "Working Capital Management Practices used in Kenyan Secondary Schools", Unpublished MBA Management Project, University Of Nairobi

Njogo, M.N. (2008). "A survey of working capital financing policies among micro-finance institutions in Nairobi" Business Management: Unpublished MBA Management Project, University of Nairobi.

Nyakundi M. (2003), "A Survey of Working Capital Management Policies among Public Companies in Kenya", Unpublished MBA Management Project, University of Nairobi.

Ochieng J. A. (2006), "The Relationship between Working Capital of Firms Listed in the NSE and Economic Activity in Kenya", Unpublished MBA Management Project, University Of Nairobi.

Ross A.S, Westfield W.F, Jaffe F.J and Jordan D.B (2009) "Corporate Finance: Core principles and applications" 2nd edition.

Shin, H.H and Soenen, L. (1998). Efficiency of working capital management and corporate profitability. Financial Practice and Education, 8(2), pp.37–45

Terry H. Hill, (2008), How to More Effectively Convert your Accounts Receivables into Cash. ` The Institute of Cost and Works Accountants of India.

Walker, E. and Petty, W. (1978). Financial Differences between Large and Small Firms. Sweden.

Yadav R. and Kamath V (2009): Financial Management, Theory and Practice, the Dryden Press, Orlando.

Zariyawati, M, Annuar A.S., Abdul Rahim (2009), "*Working capital management and corporate performance: Case of Malaysia*", Journal of Modern Accounting and Auditing, Vol. 11, pp.47-54

APPENDICES

Appendix I: List of Non-Financial Institutions Listed on the Nairobi Securities Exchange Per Sectors.

Agricultural Sector

1. Eaagads Ltd

2. Kapchorua Tea Ltd

3. Limuru Tea Co Ltd

4. Rea Vipingo Plantations Ltd

5. Kakuzi Ltd

6. Sasini Ltd

7. Williamson Tea Kenya Ltd

Commercial and Services Sector

8. Express Ltd

9. Kenya Airways Ltd

10. Nation Media Group Ltd

11. Standard Group Ltd

12. TPS Eastern Africa (Serena) Ltd

13. Scangroup Ltd

14. Uchumi Supermarkets Ltd

15. Hutchings Beimer Ltd

16. Longhorn Kenya Ltd

Telecommunication and Technology Sector

17. AccessKenya Group Ltd

18. Safaricom Ltd

Automobiles and Accessories Sector

19. Car and General (K) Ltd

20. CMC Holdings Ltd

21. Sameer Africa Ltd

22. Marshalls (E.A) Ltd

Manufacturing and Allied Sector

23. B.O.C Kenya Ltd

24. British American Tobacco Ltd

25. Carbacid Investments Ltd

26. East Africa Breweries Ltd

27. Mumias Sugar Company Ltd

28. Unga Group Limited Ltd

29. Eveready East Africa Ltd

30. Kenya Orchards Ltd

31. A Baumann Company Ltd

Construction and Allied Sector

32. Athi river Mining Ltd

33. Bamburi Cement Ltd

34. Crown Berger Ltd

35. E.A Cables Ltd

36. E.A Portland Cement Ltd

Energy and Petroleum Sector

37. KenolKobil Ltd

38. Total Kenya Ltd

39. Kengen Ltd

40. Kenya Power and Lightning Company Ltd

41. Umeme Ltd

Growth Enterprise Market Segment Sector

42. Home Africa Ltd

Appendix II: Data Collection Sheet

Company Name ——————————————————————————

Variable **Year**

	2008	2009	2010	2011	2102
Sales					
Gross Operating Profit					
Accounts Receivables					
Inventory					
Cost of Sales					
Accounts Payables					
Total Assets					
Current Assets					
Current Liabilities					
Total Debt					

Appendix III: Individual Company's Variables for the Period of Study

1. Rea Vipingo Plantations Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	52.06	120.74	40.71	132.10	14.76	3.41	0.06	0.11	0.53
2011	54.34	185.01	58.65	180.70	14.56	2.10	0.12	0.19	0.53
2010	56.97	131.24	59.16	129.05	14.18	1.34	0.17	0.26	0.32
2009	45.84	124.69	50.08	120.45	14.13	2.24	0.09	0.16	0.45
2008	70.10	168.64	60.85	177.88	14.12	1.43	0.27	0.34	0.35

2. Sasini Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	53.75	84.07	89.84	47.98	14.84	1.90	0.01	0.07	0.10
2011	47.55	88.89	101.72	34.71	14.80	2.13	0.02	0.06	0.11
2010	50.68	73.92	97.45	27.14	14.65	2.37	0.06	0.06	0.10
2009	44.42	58.29	72.99	29.72	14.60	2.57	0.02	0.05	0.09
2008	67.75	60.24	114.66	13.33	14.19	2.75	0.09	0.05	0.25

3. Kenya Airways Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	34.57	9.19	30.96	12.80	11.59	0.92	0.35	0.31	0.02
2011	47.45	8.70	41.01	15.14	11.36	1.06	0.32	0.28	0.07
2010	46.71	8.17	42.71	12.17	11.17	0.87	0.37	0.28	0.03
2009	45.72	11.26	40.78	16.20	11.18	0.90	0.43	0.28	0.21
2008	41.23	11.83	50.25	2.81	11.01	1.57	0.36	0.18	0.18

4. Nation Media Group Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	67.19	139.31	424.31	-217.81	9.42	2.25	0.01	0.30	0.91
2011	62.60	131.95	319.25	-124.70	9.33	2.31	0.02	0.29	0.95
2010	66.83	139.63	353.80	-147.34	9.17	2.65	0.00	0.25	0.96
2009	70.89	108.79	304.79	-125.11	9.01	2.13	0.01	0.27	0.93
2008	79.47	201.51	465.14	-184.16	9.02	1.85	0.02	0.32	0.98

5. TPS Eastern Africa (Serena) Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	98.61	32.25	109.87	20.99	15.49	1.01	0.24	0.15	0.09
2011	109.26	32.66	99.05	42.87	15.51	1.50	0.16	0.12	0.10
2010	80.72	28.06	112.83	-4.05	15.31	1.41	0.14	0.14	0.09
2009	80.83	27.53	63.04	45.31	15.22	1.54	0.22	0.14	0.12
2008	98.38	31.57	101.08	28.87	14.99	1.23	0.20	0.16	0.11

6. Scangroup Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	158.32	4.51	39.52	123.31	16.38	6.03	0.04	0.15	0.49
2011	153.63	6.00	41.45	118.17	16.28	8.29	0.01	0.11	0.42
2010	154.90	2.50	167.58	-10.18	16.25	1.68	0.03	0.53	0.29
2009	151.71	2.71	128.16	26.26	15.59	2.07	0.01	0.40	0.41
2008	149.14	4.39	127.15	26.38	15.57	2.13	0.01	0.45	0.38

7. Safaricom Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	27.94	17.89	205.38	-159.55	18.49	0.56	0.16	0.31	0.43
2011	36.34	22.63	231.50	-172.53	18.37	0.64	0.13	0.30	0.43
2010	38.53	12.55	247.03	-195.95	18.25	0.67	0.16	0.32	0.46
2009	46.66	15.17	325.31	-263.48	18.07	0.49	0.12	0.39	0.41
2008	30.15	13.59	313.91	-270.18	17.93	0.51	0.10	0.28	0.39

8. Car and General (K) Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	65.46	181.01	89.41	157.06	15.56	1.20	0.26	0.36	0.16
2011	58.24	166.64	103.59	121.28	15.62	1.12	0.30	0.56	0.19
2010	65.86	164.74	90.44	140.16	15.38	1.31	0.25	0.53	0.26
2009	58.92	149.26	73.22	134.96	15.29	1.30	0.22	0.52	0.28
2008	65.46	179.39	128.55	116.30	14.91	1.29	0.16	0.51	0.27

9. Sameer Africa Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	115.73	131.82	53.07	194.48	15.19	2.83	0.14	0.28	0.28
2011	101.55	138.63	31.20	208.98	15.12	3.02	0.15	0.24	0.26
2010	119.89	118.63	48.74	189.78	15.03	2.71	0.14	0.26	0.21
2009	94.09	155.47	45.96	203.60	15.01	2.12	0.23	0.33	0.25
2008	103.44	178.02	38.42	243.04	14.92	2.55	0.18	0.18	0.24

10. East Africa Breweries Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	53.84	101.35	195.22	-40.03	17.83	0.80	0.53	0.49	0.59
2011	57.45	70.34	217.15	-89.36	17.61	0.89	1.57	1.01	1.44
2010	51.66	65.91	188.73	-71.16	17.49	1.49	1.14	0.55	0.94
2009	44.14	148.45	193.08	-0.49	17.35	2.01	0.67	0.26	0.48
2008	46.20	144.33	199.51	-8.98	17.30	1.98	0.72	0.27	0.53

11. Mumias Sugar Company Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	107.65	55.31	96.62	66.34	16.55	1.25	0.20	0.21	0.16
2011	89.28	42.04	71.45	59.87	16.57	2.20	0.13	0.13	0.24
2010	77.76	32.63	87.72	22.67	16.56	2.00	0.14	0.18	0.27
2009	100.90	34.48	108.67	26.71	16.28	1.36	0.19	0.22	0.19
2008	80.23	51.57	87.27	44.52	16.30	1.35	0.07	0.24	0.30

12. Eveready East Africa Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	46.92	204.01	80.81	170.12	14.13	1.26	0.24	0.60	0.27
2011	50.00	167.96	71.43	146.53	14.13	1.11	0.30	0.65	0.26
2010	54.40	201.99	67.47	188.92	14.31	1.41	0.38	0.57	0.34
2009	49.50	153.08	49.69	152.89	14.31	1.51	0.36	0.53	0.46
2008	38.88	109.25	50.18	97.95	14.39	1.66	0.49	0.49	0.52

13. Kenya Orchards Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	144.46	119.68	163.25	100.89	17.21	1.73	0.82	0.18	0.02
2011	130.15	173.65	207.20	96.60	17.11	1.54	0.80	0.20	0.03
2010	167.82	226.23	321.86	72.20	16.96	1.29	0.76	0.25	0.02
2009	210.68	252.55	423.67	39.56	16.93	1.15	0.71	0.30	0.03
2008	175.89	225.23	313.53	87.59	16.81	1.87	0.81	0.15	0.02

14. Athi river Mining Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	61.77	148.10	114.19	95.68	16.25	1.22	0.56	0.24	0.12
2011	82.71	93.39	125.28	50.83	15.92	0.84	0.52	0.22	0.13
2010	71.43	95.85	89.53	77.75	15.60	1.75	0.45	0.21	0.15
2009	80.93	109.01	100.60	89.35	15.45	1.03	0.29	0.30	0.18
2008	75.22	97.56	97.39	75.38	15.35	1.02	0.42	0.29	0.26

15. Bamburi Cement Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	16.67	74.04	81.82	8.89	10.53	2.35	0.02	0.16	0.23
2011	14.90	60.62	57.45	18.07	10.49	2.62	0.04	0.15	0.30
2010	21.92	69.67	103.13	-11.54	10.24	1.72	0.09	0.22	0.29
2009	24.33	82.56	75.86	31.03	10.31	2.58	0.01	0.15	0.34
2008	37.39	122.38	100.24	59.54	10.22	1.84	0.04	0.19	0.44

16. Crown Berger Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	58.14	84.91	75.84	67.22	1.53	1.54	0.17	0.46	0.65
2011	60.01	100.46	78.47	82.01	1.52	1.46	0.24	0.48	0.60
2010	65.53	86.11	75.86	75.78	1.49	1.49	0.28	0.50	0.60
2009	68.55	117.02	93.66	91.92	1.47	1.44	0.27	0.50	0.50
2008	88.90	144.77	93.52	140.15	1.47	1.34	0.32	0.53	0.43

17. E.A Portland Cement Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	23.21	82.99	72.57	33.64	15.97	1.16	0.25	0.16	0.09
2011	34.61	72.56	76.22	30.95	16.14	1.51	0.24	0.16	0.18
2010	26.07	58.86	72.34	12.59	16.06	1.59	0.28	0.15	0.17
2009	30.76	52.00	78.61	4.15	15.91	2.07	0.27	0.13	0.21
2008	27.28	78.02	70.56	34.74	15.79	2.26	0.30	0.13	0.26

18. KenolKobil Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	24.81	17.23	17.67	24.36	19.08	0.97	0.51	0.78	0.13
2011	21.07	41.71	21.14	41.63	19.22	1.22	0.41	0.71	0.27
2010	39.90	49.48	18.41	70.97	18.44	1.41	0.43	0.59	0.24
2009	30.44	53.04	59.54	23.94	18.39	1.30	0.14	0.62	0.19
2008	21.29	31.11	27.05	25.34	18.72	1.30	0.23	0.59	0.27

19. Total Kenya Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	27.59	49.57	49.49	27.67	18.60	1.30	0.13	0.54	0.18
2011	32.52	50.01	43.95	38.58	18.48	1.10	0.41	0.65	0.13
2010	36.83	58.83	60.87	34.79	18.19	1.18	0.33	0.56	0.18
2009	109.20	96.25	106.36	99.09	17.54	1.16	0.44	0.57	0.09
2008	36.79	35.49	39.13	33.14	17.82	1.24	0.35	0.65	0.20

20. Kengen Ltd

	ACP	ITP	APP	CCC	lnsa	CR	DR	CL	ROA
2102	151.18	69.53	155.38	65.32	16.67	1.49	0.42	0.09	0.02
2011	186.70	42.58	132.87	96.42	16.54	1.74	0.43	0.07	0.02
2010	244.35	61.56	117.25	188.66	16.26	4.71	0.41	0.05	0.02
2009	139.84	33.32	129.91	43.25	16.42	2.17	0.26	0.06	0.02
2008	126.35	44.88	241.92	-70.70	16.29	1.40	0.21	0.08	0.03