THE RELATIONSHIP BETWEEN WORKING CAPITAL MANAGEMENT AND STOCK RETURNS OF FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

BY

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SEPTEMBER, 2015

DECLARATION

This research project is my original work and has never been presented in any other university or college for an award of degree, diploma or certificate.

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

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DEDICATION

This research project is dedicated to my dear parents Samuel Njuguna King'ori and Mary Njuguna. You gave me the tools and values necessary to be where I am today and to my lovely siblings who encourage me to always follow my dreams.

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LIST OF ABBREVIATIONS

AAR	Aged accounts receivable
APP	Average Payment Period
CCC	Cash Conversion Cycle
CMA	Capital Markets Authority
EBIT	Earnings Before Interest and Taxes
EOQ	Economic Order Quantity
ITD	Inventory Turnover in Days
NSE	Nairobi Securities Exchange
ROA	Return on Assets

ABSTRACT

Working capital management is considered to be a very important element to analyze the organizations' performance while conducting day to day operations, by which a balance can be achieved between liquidity and profitability. Stock returns is a measure of how a firm's management is able to earn to its shareholders or owners of capital. The main research objective of this study was to examine the relationship between working capital management and stock returns of NSE listed companies. The study used descriptive research design. All public companies listed at the Nairobi Stock Exchange formed the population of interest and which as at 31st December 2014 were Sixty four (64). The research study relied on the use of secondary source of data. The secondary data was derived from audited financial statements of listed companies at the Nairobi Stock Exchange (NSE). Data was analyzed with the aid of scientific software so as to show the impact of working capital management on stock returns among publicly listed companies in Kenya over time. Descriptive measures of mean and standard deviation was used to analyze the specific objective. Regression analysis was used to determine the relationship between the dependent and independent variables. The results revealed that the relationship between inventory days and stock returns is strong, positive and statistically significant. Similarly, the relationship between account payable days and stock returns rate is strong, positive and statistically significant. The relationship between account receivable days and stock returns was also significant and strong. The study recommends that there should be proper inventory management system in Nairobi to avoid working capital mismanagement. Management of listed companies should put in place working capital management systems to increase stock returns.

CHAPTER ONE: INTRODUCTION

1.1Background of the Study

Working capital management is considered to be a very important element to analyze the organizations' performance while conducting day to day operations, by which a balance can be achieved between liquidity and profitability. Smith (1980) identified that working capital management is important because it affects a firm's profitability, liquidity which in turn affects its value. Mwangi (2003) identified that firms make changes to their top management whenever the performance is seen to be deteriorating. Therefore it's a difficult task for managers to ensure that the business function is running and performing well.

Working capital management concept is explored with the measurement of account payables, account receivables and inventory days which are the components of working capital. Gitman (1974) developed cash conversion cycle theory and explained that the shorter the cash conversion days the more liquid a firm is and hence survival. Baumol (1952) developed the inventory model whose main aim is to develop an optimal cash balance for a firm. Keynes (1936) identified in Quantity Theory of money, money is only held for current transactions.

The stock market in Kenya emerged in 1920 where there were no formal trade practices but rather investors traded during social functions on the basis of a gentleman's agreement. This went on until the 1953 when the Nairobi Stock Exchange was launched formally as a voluntary association of the London Stock Exchange and only whites were

allowed to trade; however this was to change in 1963 when Kenya got its independence and Africans and Asians were allowed to trade (NSE, 2015).

1.1.1 Working Capital Management

Working capital management is the concept of ensuring that a firm is able to finance its short term assets and short term liabilities (Harris, 2005). A total approach preferred to cover all of a firm's activities related to vendors, customer and product (Hall, 2002). Working capital Management is critical since it plays an important role in determination of firms' financial performance, liquidity and risk as well as firms value (Smith, 1980).

Working capital helps in planning assets and liabilities, in order to eliminate the risk of inability to meet obligations and avoid tying excessive capital in these items, which is critical for an efficient working capital management (Eljelly, 2004). Deloof (2003) identified that how working capital is managed has significant effects on profits. Ricci and Vito (2000) observed that the primary objective of managing working capital is controlling current financial resources of a firm in so that a balance is created between profitability of the firm and risk associated with that profitability.

Agyemang and Kwame (2013) identified that in measuring working capital its mainly an assessment of a firm's investment in working capital components hence the use of number of days account receivable, account payable and inventories and the cash conversion cycle as measures of working capital. Ebenezer and Asiedu (2013) used account payables days, cash conversion cycle and inventory receivable days as measures of working capital.

1.1.2 Stock Returns

Watkins (2007) defined performance as valuable results, accomplishments or contributions of an individual/team or an organization, regardless of preferred or mandated processes. Stock returns is a measure of how a firm's management is able to earn to its shareholders or owners of capital. Therefore stock returns is an analysis of a firm's results which is defined by its financial performance. It's used as a measure of a firm's overall return over a given period of time and can be used to compare similar firms either across the same industry or different industries or sectors.

Weston and Copeland (1988) observed that the primary role of listed companies is to provide returns to investors hence the importance of studying stock returns of firms. Tehrani et al. (2012) observed that financial evaluations encourage companies to attain a higher level of performance by showing current financial position of a company in relation to other companies and creating a competitive environment. From the studies above importance of stock returns has been emphasized in that good financial performance leads to better stock returns for investors.

Stock return of firms is measured using ratios to identify returns of a firm both in the short-term and long term. Campbell and Shiller (1988) identified that dividend price ratio does move with rationally expected future growth in dividends. Thus from previous studies financial ratios have been used to assess stock returns of firms. This therefore shows how important ratios are in analyzing stock returns to investors.

1.1.3 Working capital Management and Stock Returns

Rafuse (1996) observed that many failures of small businesses is working capital starvation therefore working capital management is important to businesses whether listed or unlisted. In managing working capital a firm is in a position to meet it's short term financial obligations, thus a firm is able to finance its day to day operational activities. If working capital isn't managed well the survival of a firm becomes difficult. Gitman (1974) developed cash conversion cycle whereby he identified a model to determine time taken between acquisition of raw materials and time when money starts flowing into the firm through sales. Baumol (1952) developed inventory model whose main aim is to identify the optimal cash balance that a firm should hold at any one time. This demonstrates the linkage between working capital and stock returns in that by managing its working capital efficiently a firm is able to post better returns to investors.

Working Capital Management has been identified as a key determinant of financial performance which in turn affects the stock return of a firm. Therefore through their studies researchers such as; Ebenezer and Asiedu (2013) while using cash conversion cycle, account payable days and inventory days as independent variables and Net operating profit as the dependent variable identified that they have a significant impact on profitability of firms.

Quayyum (2011) observed that there exists a relationship between profitability indices and various liquidity indices as well as working capital components, Mathuva (2009) identified that efficient management of working capital have a direct impact on an organizations profitability, Apuoya (2010) identified that firms profitability increases with size, efficiency in working capital management and with lesser aggressiveness in

asset management, Kithii (2008) identified that managers could create profits for their companies by handling correctly the cash conversion cycle and keeping each different component of working capital management (accounts receivables, accounts payables and inventory) at an optimal level, Kweri (2011) found that working capital management affects profitability of the company and if the firm can effectively manage its working capital, it can lead to increasing profitability, Lazaridis and Tryfonidis (2006) found that managers can create profits for their companies by handling correctly the cash conversion cycle and keeping each different component (accounts receivables, accounts payables, inventory) to an optimum level, demonstrated that indeed working capital affects financial performance which in turn affect the stock return of a firm.

1.1.4 Nairobi Securities Exchange

The Nairobi Securities Exchange was established in the 1920's.Over the years the NSE has undergone transformations in the developing an efficient stock market and regulating the trading activities. It has continued to incorporate changes within the business and economic world where different sectors have emerged. Companies quoted at the NSE have been divided into different sectors; Agricultural, Commercial and services, Telecommunication and Technology, Automobile and Accessories, Banking, Insurance, Investment, Manufacturing and Allied, Construction and Allied, Energy and Petroleum and Investment Services (NSE, 2015).

Working capital management among the listed firms in the NSE varies from industry to industry with firms within the same industry exhibiting similar trends in their management of their working capital (Nyabuti & Ondiek, 2014). According to data

available from the NSE it hasn't placed any requirements on working capital management for firms that have been listed though there have been incidences where firms have been suspended from trading and placed under statutory management due to insolvency being NSE action to protect shareholder funds (NSE, 2015).

Jensen and Meckling (1976) in their study on the theory of the firm defined agency relationship as relationship where one person (principal) engages another (agent) to perform duties on their behalf which involves delegation of decision making authority. Listed firms have secured the services of managers who are the agents to act in the interest of investors (Principal). The NSE requires that listed companies in Kenya are required to produce quarterly and semi-annual financial statements as well as audited annual reports prepared according to International Financial Reporting Standards (IFRS) and audited using International Standards on Auditing (IAS).If a firm is not in a position to do the same it should disclose the same to the regulatory authority (CMA, 2015).This therefore implies that firms must always managed as per the regulatory guidelines for the interest of the investors.

1.2 Research Problem

Deloof (2003) argues that working capital management has a direct impact on profitability and liquidity of firms. This calls for the management to make critical decisions in management of account payables, account receivables and inventory days. Weston and Copeland (1988) observed that the primary existence of listed firms is to make returns for investors. This therefore means that a firm must be run in a way that its remains efficient in working capital management so as to achieve an appropriate level of liquidity while as a result make proper returns to the owners of capital.

According to data available from the industry several firms including: United Insurance Company (2005), INVESCO Assurance Company Ltd (2008), Concord Insurance Company (2013), Blue Shield Insurance (Kenya (2011), Uchumi Supermarkets (2006), and Pan Paper Mills (2009), Hutchings Beimer (2010), Discount Securities (2008), Nyaga Stock Brokers, Francis Thuo Stocks brokerage have been placed under statutory management due to inability to finance their short term financial requirement (Nyabuti & Ondiek, 2014).

Many studies in Kenya have been done on working capital management and financial performance such as working capital management policy and financial performance among NSE listed firms from 2008 to 2012 (Nyabuti & Ondiek, 2014). Mathuva (2009) studied the influence of working capital management on corporate profitability on listed firms in the Nairobi Securities Exchange (NSE) for the period 1993 to 2008 covering 30 firms listed at the NSE and using regression analysis and Ordinary list squares. He found that efficient management of working capital has a direct impact on organizations profitability. Apuoya (2010) studied the relationship between working capital management policies and profitability of companies quoted at the NSE using a sample size of 19 firms for a period of 5years using regression analysis. He identified that firm's profitability increases with size, efficiency in working capital management and with lesser aggressiveness in asset management. Kithii (2008) studied the relationship between Working Capital Management and Profitability of companies listed on the Nairobi Stock Exchange for a sample of 24 firms for period of 6 years from 2001 to 2006. She identified that managers could create profits for their companies by handling correctly the

cash conversion cycle and keeping each different component of working capital management (accounts receivables, accounts payables and inventory) at an optimal level.

The NSE had a total of sixty four firms as at December 2014, this therefore indicates that reliable data on financial performance of firms is only available for only these firms. Therefore specific research studies extensively on the relationship between working capital management and the financial performance of firms are very limited, thus research data on Kenyan industries in this area is not comparable to those firms in the developed world or middle income countries where the empirical studies have been conducted leading to the believe by the researcher that there might be differences on the relationship between working capital and firms performance. This study is an attempt to study the potential relationship between working capital management and the financial performance of 20 share index firms listed on the NSE for the period 2008-2014. The findings of this study are expected to contribute to the existing literature of the working capital management and also provide a link to its impact on stock returns. Hence; the question is there any significant relationship between working capital management and stock returns of listed firms at the NSE?

1.3 Research Objectives

The main research objective of this study was to examine the relationship between working capital management and stock returns of NSE listed companies. The specific objectives were:

i. To determine the relationship between account payable period and stock returns of firms listed at NSE

ii. To determine the relationship between accounts receivable period and stock returns of firms listed at NSE

iii. To determine the relationship between inventory holding period and stock returns of firms listed at NSE

1.4 Value of the study

This study may provide valuable lessons to the managers of finance in organizations; Chief Executive officers and Finance managers, in that they are able to prudently manage shareholder funds so as to maximize the returns.

The study is of great importance to policy makers; Government and other Agencies tasked with management of capital markets (Capital markets Authority and Nairobi Securities Exchange) in that they may be able to formulate policies that govern the efficient management of listed firms.

This study may be of great value to shareholders and future investors such that they may be able to evaluate their current and future investments in organizations by examining their liquidity versus stock returns.

The study may be of significance to academicians and researchers in that they are able to use this work as a basis for their future studies.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter is composed of 3 sections; Theoretical review which contains finance theories on working capital management, determinants of stock returns of listed companies, empirical literature which gives account of studies undertaken by others local as well as foreign researchers and a summary of the chapter.

2.2 Theoretical Review

Business managers employ different working capital models to enable them efficiently manage working capital in their firms. Firms must ensure that they understand their business model so as to identify the specifics of their working capital components and then optimize on the promising ones. Lancaster and Stevens (1996) identified that day-to-day management of a firm‘s short term assets and liabilities is important in the success of the firm thus by employing cash conversion cycle theory technique in working capital management survival of firms is assured.

2.2.1 Baumol Cash Model

Baumol (1952) developed the cash model. This theory is based on Economic order Quantity (EOQ) which main aim it to identify the optimal cash balance for the firm. In his work Baumol assumed that an organization is able to estimate its cash requirements with certainty and receive a specific amount at intervals, that cash payments occur uniformly over a period of time, the opportunity cost of holding cash is known and doesn’t change over time. Hence: Holding cost is derived by dividing cash balance by two and multiplying the results by opportunity cost. Total cost is derived by dividing cash

balance by two then add total fund requirement divided by cash balance multiply by cost per transaction and multiply the total result by opportunity cost. Transaction cost is derived by dividing total cash requirement by cash balance and multiplying the result by cost per transaction. The implication of this model is a firm is that it should be in a position to forecast its cash requirements with certainty, receive specific amounts at regular intervals, make its cash payments uniformly over time, and have a steady rate of cash outflows. It should know the opportunity cost of holding cash which should be fixed over time.

2.2.2 Cash Conversion Cycle Theory

Gitman (1974) developed cash conversion cycle as part of operating cycle which is calculated by adding inventory period to accounts receivables period and then subtracting accounts payables from it. Its focus on time taken between the acquisition of raw materials and other inputs and the time that cash starts flowing into the firm through sale of the goods or services which means number of days of operation for which financing is needed. Cash conversion cycle is used as a comprehensive measure of working capital as it shows the time lag between expenditure for the purchase of raw materials and the collection of sales of finished goods (Padachi, 2006). Jose, Lancaster and Stevens (1996) identified that day-to-day management of a firm‘s short term assets and liabilities is important in the success of the firm. Thus it’s important for firms to manage their liquidity for them to remain solvent. Cash conversion cycle is given by a sum of inventory days and trade receivable days less trade payable days.

The implication of this theory is that firms need to reduce the cash conversion cycle in order to maximize on the working capital management benefits. Arnold (2008) identified

that the shorter the CCC period the fewer the financial resources required by a firm to finance its short term cash requirements and vice versa with longer CCC periods. Longer periods could mean increase in sales since most firms like financing from longer trade payable days but this could outweigh the benefits to an organization on its bottom line thus eroding returns to investors of capital.

2.2.3 The Modern Quantity Theory

This theory was developed by Milton Friedman in 1956 by restating the quantity theory of money as a theory of demand for money and it has become the basis of news put forward by monetarists Copeland et al. (2005). Milton identified that economic agents (individuals, firms, governments) want to hold a certain quantity of real, as opposed to nominal money. That money has a convenience yield in the sense that its holding saves time and effort in carrying transactions. This therefore implies that firms must have certain amount of real money in its procession so as to finance its day to day transactions.

2.3 Determinants of Stock Return of Listed Companies

Ebenezer and Asiedu (2013) observed that major components of working capital such as inventory days, account payable and cash conversion cycle have significant influence on the profitability of firms. Therefore stock returns of firms is determined by how well they manage their working capital components (accounts payable, accounts receivable and inventory days) which affects the profitability of a firm.

2.3.1 Working Capital Management

Smith (1980) observed that working capital management is critical since it plays an important role in determination of firms' financial performance, liquidity and risk as well

as firms value which would further demonstrate that it has on impact on stock return. This can be explained by identifying the various components of working capital and how they are measured to identify the impact of the components.

Inventory Holding Period is a measure of the number of days a firm is holding its inventory. If the inventory holding period is high this could indicate that the company is having problems selling its products and leading to high stock levels. What this means is that the firm is having so much cash tied in its inventory. A low inventory holding period could be desirable as the company's ability to turn over inventory has improved and the company does not have excess cash tied up in inventory. However, any reductions should be reviewed further as the company may be struggling to manage its liquidity and may not have the cash available to hold the optimum level of inventory. Inventory holding period is derived from dividing inventory with cost of sales then multiplying the result with 365 days. Mathuva (2009) observed that there exists a highly significant positive relationship between the period taken to convert inventories into sales and profitability. Since profits affect stock returns this could further be developed to show how inventory holding period impact on the same.

Aged accounts payable relates to the average period it takes for a company to pay for its purchases. An increase in the company's payables period could indicate that the company is struggling to pay its debts as they fall due. However, it could simply indicate that the company is taking better advantage of any credit period offered to them. Aged Accounts Payables is derived by dividing payables with purchases then multiplying the result with 365 days. Mathuva (2009) observed that there exists a highly significant positive relationship between the time it takes the firm to pay its creditors and profitability.

Aged accounts receivable are the average period it takes a firm to collect debts from its debtors. The less the number of days the better for a firm since it indicates that the firm is able to collect its debts effectively thus avoiding being cash strapped. If the days are high this indicates that the firm isn't effectively managing its debtors well which could lead to firm being insolvent. Aged accounts receivable is derived by dividing account receivable with sales the multiplying the result with 365 days. Lazaridis and Tryfonidis (2006) observed that there is a negative correlation between net operating profit and accounts receivable which implies that they affect the profitability of a firm.

2.3.2 Industry Effects

Industry effects relate to factors within a specific industry that influence the business environment within which firms operates. Claver, Molina and Tarí (2002) while using return on assets as a measure of financial performance they identified that industry effects are more significant for large and medium size firms .This therefore affirms that industry effects do exists and that formulation of any corporate strategy should be after a suitable internal and external analysis about itself and industry. McGahan and Porter (1997) observed that industry effects differ substantially across broad economic sectors thus firms are affected differently depending on which sector of the economy they fall under. Therefore while evaluating stock returns an investor should take this into account.

2.3.3 Time Span of Study

Kakani, Saha and Reddy (2001) observed that economies go through a phases of increasing competition, deregulation, and restructuring hence the need to increase the

period of study to cover a longer time span. This would therefore help in taking into recognition of the business cycles that have been witnessed within an economy during a certain time span hence the study being more conclusive and inclusive. Different investments have different life spans therefore investors should take this into account in evaluating investments.

2.3.4 Firm Leverage

Financial leverage refers to the degree to which a firm uses fixed-income securities such as debt and preferred equity. The more debt financing a company uses, the higher its financial leverage. A high degree of financial leverage means high interest payments, which negatively affect the company's bottom-line. Financial leverage is measured by dividing debt by equity. The high the ratio the more leveraged a firm is which implies that the firm is heavily financed through debt. Ching, Novazzi and Gerab (2011) observed that by managing debt ratio effectively business managers can create more profits for their companies which in turn translate to higher stock returns.

2.3.5 Firm Size

The size of a firm is determined by the volume of sales, total assets held and the number of employees that it has. Dogan (2013) identified that there is a positive relationship between size indicators (total assets, total sales and number of employees) and financial returns of firms. Therefore an increase in size of a firm would influence the increase in returns of a firm and vice verse. This can be identified through use of accounting ratios such as earning per share and return on assets.

2.4 Empirical Literature

Campbell and Shiller (1988) while studying the dividend-price ratio and expectations of future dividends and discount factors identified that dividend price ratio does move with rationally expected future growth in dividends. In their study dividend price ratio was used as a measure of expected growth thus there is a gap in identifying how working capital influences the ratio hence need for study.

Lazaridis and Tryfonidis (2006) while studying the relationship between working capital management and profitability of listed companies in the Athens Stock Exchange using a sample of 131 listed companies between 2001-2004 and with the use of regression analysis model found out that Managers can create profits for their companies by handling correctly the cash conversion cycle and keeping each different component (accounts receivables, accounts payables, inventory) to an optimum level. They should also have shown how stock returns is influenced hence the need for further study.

Raheman and Nasr (2007) while studying the relationship between working Capital Management and Profitability of Listed Firms in Pakistani using sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of 6 years from 1999 to 2004 and using regression model found out that there is a strong negative relationship between variables of the working capital management and profitability of the firm. In their study they observed that they were constrained by data availability thus they resulted to limiting the time period for data used. In their study they should further have indicated how stock returns is impacted hence the need for further study.

Kithii (2008) studying the relationship between working capital management and profitability of companies listed on the Nairobi Stock Exchange for a sample of 24 firms for period of 6 years from 2001 to 2006 using regression analysis and working capital and profitability ratios as variables identified that managers could create profits for their companies by handling correctly the cash conversion cycle and keeping each different component of working capital management (accounts receivables, accounts payables and inventory) at an optimal level. The study should have further demonstrated how stock returns are affected by the same.

Mathuva (2009) studying the influence of working capital management on corporate profitability on listed firms in the Nairobi Securities Exchange (NSE) for period of 1993 to 2008 covering 30 firms listed at the NSE using regression analysis and Ordinary list squares identified that efficient management of working capital have a direct impact on an organizations profitability. He used accounting ratios ands and working capital ratios to test the influence of working capital management on profitability however in his sample data from various industries was omitted also how stock returns is influenced isn't show leaving an area for further study.

Apuoya (2010) studying the relationship between working capital management policies and profitability for companies quoted at the NSE using a sample size of 19 firms for a period of 5 years using regression analysis identified that firms profitability increases with size, efficiency in working capital management and with lesser aggressiveness in asset management. He used random stratified sampling to select his sample from the population however this study should have gone further to show how stock returns were affected thus need for further study.

Kweri (2011) studying the relationship between working capital management and profitability of manufacturing firms listed at the Nairobi Stock Exchange, from 2006 to 2010 with a sample of 14 firms using regression analysis model identified that working capital management affects profitability of the company and if the firm can effectively manage its working capital, it can lead to increasing profitability. Therefore, it will be important for a firm's management to understand the relationship that exists between various working capital components and profitability and the direction that they affect the profit for effective management of the working capital. This study only covered one industry and should have also demonstrated the impact on stock returns hence the need to undertake further studies.

Quayyum (2011) studying the relationship between working capital components and liquidity for cement companies listed at Dhaka Stock Exchange using regression analysis with profitability as the dependent variable and quick ratio, cash conversion cycle ,receivables collection period (RCP), payable deferral period, Inventory turnover period, cash to current liability , cash to sales identified that there exists a relationship between profitability indices and various liquidity indices as well as working capital components. However this study was only for a specific industry and for only a period of 5 years hence need to try and establish whether the relationship can be identified in other industries over a longer time span, also it didn't show how stock returns are affected.

Ebenezer and Asiedu (2013) studying the relationship between working capital management and profitability of Listed manufacturing companies in Ghana between 2007-2011 and using regression analysis found out the major component of working

capital management such as inventory days, account payable and cash conversion cycle have influence on the profitability of manufacturing companies. This study is only limited to one industry and also didn't show how stock returns are influenced hence need for further study.

Nyabuti and Ondiek (2014) studying relationship between working capital management policy and financial performance among NSE listed firms from 2008 to 2012 for a sample of 10 listed firms and using regression analysis identified that there exists a relationship between working capital management policy and financial performance of quoted companies at the NSE, that efficient working capital management has a positive effect on financial performance of a company and working capital policy influences the financial performance of a firm. In their study it is however noted that the period of study was short and number of firms studied was also small. They should have also show the influence on stock returns of a firm.

2.5 Summary of Literature Review

A review of the theories in this study identifies that none of them has established an optimum working capital under different operating environments or even industries assist managers to plan their working capital. The theories suggest the existence of an optimum level of cash and working capital without necessarily suggesting how to establish or achieve the same level. This therefore calls for more studies to identify an optimum level.

A review of prior literature reveals that there exists a significant relationship between profitability and working capital management by using different variable selection for analysis. It has also been identified that working capital levels vary from industry to.

Time span of study, firms leverage and firm's size have also been found to affect the firm's financial performance. These factors should be put to test further to establish whether they have any correlation with stock returns hence the need for further study.

A critical review at the literature has identified that none of the studies has been able to develop a model that will assist managers to establish an optimum working capital under different operating environments or even industries. Instead the literature and studies suggest the existence of an optimum level without necessarily suggesting how to establish or achieve the same level. The studies on working capital management haven't yielded much on the relationship between working capital and stock returns. Therefore there is need to establish whether there exists any relationship between working capital management and stock returns so as to guide current and future investors as well as researchers.

CHAPTER THREE: RESEARCH METHODOLGY

3.1 Introduction

The chapter provides information on research design that was used in collecting the data and reporting the results, the population, sample and sampling methods, data collection and data analysis techniques that was employed in the project.

3.2 Research Design

The research design is a structure and plan of how the research was conducted. The study used descriptive research design. Descriptive research involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data collection (Glass & Hopkins, 1984).The reason for using this method is because the researcher has the ability to test hypotheses about the variable in any situation (Mitchell & Jolley, 2012). Therefore this allows for testing of relationships between two or more variables to test covariance.

3.3 Population of the Study

Mugenda and Mugenda (2003) defined a population as an entire group of individuals, events or objects having common characteristics that conform to a given specification. All public companies listed at the Nairobi Stock Exchange formed the population of interest and which as at 31st December 2014 were Sixty four (64). Since the population is small a census of all the Sixty four firms was done. (See Appendix i)

3.4 Data Collection Techniques

The research study relied on the use of secondary source of data. The secondary data was derived from audited financial statements of listed companies at the Nairobi Stock

Exchange (NSE).The financial information used was audited balance sheet and profit and loss accounts showing annual financial statements for the sampled companies. The data used was for a period of 7 years from 2008 to 2014.

3.5 Data Analysis Techniques

Data was analyzed with the aid of scientific software so as to show the impact of working capital management on stock returns among publicly listed companies in Kenya over time. Descriptive measures of mean and standard deviation was used to analyze the specific objective. Regression analysis was used to determine the relationship between the dependent and independent variables. Data to achieve the main objective was analyzed using the regression equation shown below.

$$\mathbf{Y= B_0+B_1X_1+B_2X_2+B_3X_3+\varepsilon}$$

Where:

Y is the dependent variable i.e. **Total Stock Return which is given by the equation**

$$\mathbf{R_i = D_1/P_o + (P_1-Po)/Po}$$

Where:

D_1=Dividends at end of period

P_o =Initial Stock price

P_1=Period end stock price

R_i = Total Stock Return

The independent variables are;

X_1 = Inventory Days

X_2 = Accounts Payable Days

X_3 = Accounts Receivables Days

ε = The error term

Bo = Constant of Regression,

While B_1, B_2, B3 and B_4 are the weights of the regression coefficients

Average Payment Period (APP) - this is used as an independent variable. It is calculated by dividing accounts payable by purchases and multiplying the result by 365days.

Aged accounts receivable (AAR)- this used as an independent variable and it's calculated by dividing accounts receivable by sales and multiplying the result by 365days.

Inventory turnover in days (ITD) -this is an independent variable. It is calculated by dividing inventory by cost of goods sold and multiplying with 365 days.

3.5.1 Test of Significance

T-tests was performed to tell the strength of the independent variables, whether they are significant or not.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The broad objective of the study was to examine the relationship between working capital management and stock returns of firms listed at the Nairobi Securities Exchange. The chapter presents findings of the study on the basis of both descriptive and inferential statistics. The details of descriptive analysis using frequency distribution tables, descriptive statistics using means and t-tests was used for ranking the variables under investigation.

4.2 Pretesting for Multiple Regression Assumptions

Various assumptions are made about variables during statistical tests. This is to ensure that the findings are worth using in decision making. Testing for assumptions is beneficial because it ensures that analysis meets associated assumptions and helps avoid Type I and Type II errors (Osborne et al, 2001). This study carried out test of normality and multicolineriaty tests.

4.2.1 Tests of Normality

Statistical procedures require that the assumption of normality is test. It helps to confirm whether the data follows a normal distribution or not. If the normality is not achieved, the regression analysis for goodness of fit, the results may not depict the true picture relationship amongst the variables. In this study the normality was tested using Kolmogorov-Smirnov Test and the Shapiro-Wilk Test. It is a more reliable test for determining skewness and kurtosis values of normality. If it is below 0.05, the data significantly deviate from a normal distribution.

Table 4.1: Shapiro-Wilk Test of Normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Inventory days	.072	231	.200*	.979	231	.428
Account payable days	.093	231	.200*	.972	231	.219
Account receivable days	.085	231	.200*	.976	231	.322
Stock returns	.077	231	.200*	.979	231	.413

Source; Research Findings

If the p-value is greater than the chosen alpha level, then the hypothesis that the data came from a normally distributed population cannot be rejected. The results of the tests of normality on the variables showed that all the p-values were greater than the alpha level of (0.05). Shapiro-Wilk Test results were (0.428, 0.219, 0.322, .413, .376) greater than 0.05 confirming the data was normal.

4.2.2 Test for Multicollinearity

Multicollinearity is a test that evaluates whether the independent variables are highly correlated. It occurs when two or more predictors in the model are highly correlated leading to unreliable and unstable estimates of regression coefficients hence causing strange results when attempting to study how well individual independent variables constitute to an understanding of the dependent variable. The consequences of Multicollinearity are increased standard error of estimates of the Betas, meaning

decreased reliability and often confusing and misleading results. The test for Multicollinearity was conducted to assess whether one or more of the variables of interest is highly correlated with one or more of the other independent variables. The variance inflation factor (VIF) was used to evaluate the level of correlation between variables and to estimate how much the variance of a coefficient was inflated because of linear dependence with other predictors. As a rule of thumb if any of the VIF are greater than 10 (greater than 5 when conservative) then there is a probability of a problem with Multicollinearity and is harmful to the study. The results for tests of Multicollinearity were as presented in Table 4.2.

Table 4.2 Test for Multicollinearity

Model	**Collinearity Statistics**	
	Tolerance	**VIF**
Inventory days	.772	1.295
Account payable days	.698	1.433
Account receivable days	.873	1.146
Stock returns	.756	1.321

Source; Research Findings

The results in Table 4.2 revealed that there was no serious problem with multicollinearity. The variance inflation factors for the variables were all below 5 meaning that the variables were not highly correlated.

4.3 Descriptive statistics

Descriptive measures involved mean, standard deviation and standard error of estimate. The variables aggregate score was computed as the simple average of the mean scores of the seven years period. Mean is a measure of central tendency used to describe the most typical value in a set of values. In addition, standard error of mean (SE) was computed. Standard error of mean is a measure of reliability of the study results. Standard deviation shows how far the distribution is from the mean. The results of the descriptive statistics of the variables under study for a period of seven years (2008-2014) are as indicated in table 4.3

Table 4.3 Descriptive statistics (2008-2014)

	N	Mean	Std. Deviation	Std. Error Mean	t	Sig. (2-tailed)
Inventory days	231	74.1130	6.44024	2.03658	36.391	.000
Account payable days	231	42.5300	4.50972	1.42610	29.823	.000
Account receivables days	231	48.8280	13.25102	4.19034	11.653	.000
Stock returns	231	16.5270	1.78000	.56289	29.361	.000

Source; Research Findings

The findings in Table 4.3 indicate that variables had t-values ranging from 2.803 to 36.391, $p<0.05$ implying that these variables had statistically significant differences and variations across the years. Inventory days had a mean of 74.113, account payable days 42.53, account receivable days 48.828 and stock returns had an average mean of 16.527. The positive means and the respective smaller standard deviations imply that all the variables had a significant performance across the period studied.

4.4 Correlation Analysis

The study conducted Pearson's correlation coefficient. The Pearson product-moment correlation coefficient (or Pearson correlation coefficient for short) is a measure of the strength of a linear association between two variables and is denoted by r. The Pearson correlation coefficient, r, can take a range of values from +1 to -1. A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association, that is, as the value of one variable increases so does the value of the other variable. A value less than 0 indicates a negative association, that is, as the value of one variable increases the value of the other variable decreases.

Table 4.4 Correlation Results

		Inventory days	Account payable days	Account receivable days	Stock returns
Inventory days	Pearson Correlation	1			
Account payable	Pearson Correlation	0.742	1		

days					
Account receivable days	Pearson Correlation	0.842	0.542	1	
Stock returns	Pearson Correlation	0.771	0.664	0.732	1

Source; Research Findings

The results in Table 4.4 indicate that the relationship between inventory days and stock returns is strong, positive and statistically significant (r=.771). Similarly, the relationship between account payable days and stock returns rate is strong, positive and statistically significant (r=.664). The relationship between account receivable days and stock returns was also significant and strong (r=.732) This implies that inventory days, account payable days and account receivables days play a critical role of influencing stock returns of firms listed at the Nairobi Securities Exchange. The strongest relationship was between inventory days and stock returns (r=.771).

4.4 Regression Analysis

The study carried out a regression analysis to determine the magnitude of the relationship between the independent variables and the dependent variable. The coefficient of determination is a measure of how well a statistical model is likely to predict future outcomes. The coefficient of determination, r^2 is the square of the sample correlation

coefficient between outcomes and predicted values. As such it explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (stock returns) that is explained by all the five independent variables (inventory days, account payable days and account receivables days).

Table 4.5 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.831[a]	.690	.303	5.37539

a. Predictors: (Constant), Inventory days, account payable days, accounts receivables days

b. Dependent variable, Stock returns

Source; Research Findings

The three independent variables that were studied, explain 69.0% of the stock returns as represented by the R^2. This therefore means the independent variables contribute about 69.0% to variations in stock returns while other factors not studied in this research contribute the remaining percentage. Therefore, further research should be conducted to investigate the other factors that influence stock returns.

The statistical F test is used to determine how well the regression equation fits the data. In this study, the F value of 7.786 was significant at the 1% level, indicating that at least one of the independent variables helped to explain some of the variation in stock returns.

Table 4.6: Analysis of Variance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	272.606	4	68.151	7.786	.000[b]
	Residual	323.870	227	8.753		
	Total	596.476	231			

a. Dependent Variable: Stock returns

b. Predictors: (Constant), inventory days, accounts payable days, accounts receivables days

Source; Research Findings

Table 4.7: Coefficients

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.207	2.948		.410	.685
	Inventory days	.245	.115	-.332	2.134	.003
	Accounts payable	.330	.126	.473	2.620	.000

	days					
	Accounts receivables days	.357	.123	.412	2.900	.000
a. Dependent Variable: Stock returns						

Source; Research Findings

The researcher conducted a multiple regression analysis so as to determine the relationship between stock returns and the three independent variables.

The regression equation ($\mathbf{Y= \beta_0+ \beta_1X_1+\beta_2 X_2+\beta_3 X_3)}$ now becomes:

$$\mathbf{Y = 1.207 +0.245\ X_1 +0.330X_2 + 0.357X_3}$$

Whereby Y = Stock returns

X1 = Inventory days

X2 = Account payable days

X3= Accounts receivables

The multiple linear regression models indicate that all the independent variables have positive coefficient. The regression results above reveal that there is a positive relationship between dependent variable (stock returns) and independent variables (inventory days, accounts payables days and accounts receivables days). The t statistics helps in determining the relative importance of each variable in the model. As a guide regarding useful predictors, we look for t values well below -0.5 or above +0.5.

4.5 Discussion of findings

The findings of the study indicated that all the variables had statistically significant differences and variations across the years. The findings concur with Lazaridis & Tryfonidis (2006) who studied the relationship between working capital management and profitability of listed companies in the Athens Stock Exchange using a sample of 131 listed companies between 2001-2004 and with the use of regression analysis model and found out that Managers can create profits for their companies by handling correctly the cash conversion cycle and keeping each different component (accounts receivables, accounts payables, inventory) to an optimum level. They should also have shown how stock returns is influenced hence the need for further study.

The results further indicated that the relationship between inventory days and stock returns is strong, positive and statistically significant. Similarly, the relationship between account payable days and stock returns rate is strong, positive and statistically significant. The relationship between account receivable days and stock returns was also significant and strong. This implies that inventory days, account payable days and account receivables days play a critical role of influencing stock returns of firms listed at the Nairobi Securities Exchange.

The multiple linear regression models indicated that all the independent variables have positive coefficient thus there is a positive relationship between dependent variable (stock returns) and independent variables (inventory days, accounts payables days and accounts receivables days). The findings are in consistency with Kithii (2008) who studied the relationship between working capital management and profitability of companies listed

on the Nairobi Stock Exchange for a sample of 24 firms for period of 6 years from 2001 to 2006 using regression analysis and working capital and profitability ratios as variables identified that identified that managers could create profits for their companies by handling correctly the cash conversion cycle and keeping each different component of working capital management (accounts receivables, accounts payables and inventory) at an optimal level.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the study and makes conclusion based on the results. The implications from the findings and areas for further research are also presented. This section presents the findings from the study in comparison to what other scholars have said as noted under literature review.

5.2 Summary

The broad objective of the study was to examine the relationship between working capital management and stock returns of firms listed at the Nairobi Securities Exchange. Various assumptions are made about variables during statistical tests. This was to ensure that the findings are worth using in decision making. Statistical procedures require that the assumption of normality is test. It helps to confirm whether the data follows a normal distribution or not. If the normality is not achieved, the regression analysis for goodness of fit, the results may not depict the true picture relationship amongst the variables. In this study the normality was tested using Kolmogorov-Smirnov Test and the Shapiro-Wilk Test. It is a more reliable test for determining skewness and kurtosis values of normality. The results of the tests of normality on the variables showed that all the p-values were greater than the alpha level of (0.05). Shapiro-Wilk Test results were (0.428, 0.219, 0.322, .413, .376) greater than 0.05 confirming the data was normal.

Multicollinearity is a test that evaluates whether the independent variables are highly correlated. It occurs when two or more predictors in the model are highly correlated leading to unreliable and unstable estimates of regression coefficients hence causing

strange results when attempting to study how well individual independent variables constitute to an understanding of the dependent variable. The consequences of Multicollinearity are increased standard error of estimates of the Betas, meaning decreased reliability and often confusing and misleading results. The test for Multicollinearity was conducted to assess whether one or more of the variables of interest is highly correlated with one or more of the other independent variables. The variance inflation factor (VIF) was used to evaluate the level of correlation between variables and to estimate how much the variance of a coefficient was inflated because of linear dependence with other predictors. As a rule of thumb if any of the VIF are greater than 10 (greater than 5 when conservative) then there is a probability of a problem with Multicollinearity and is harmful to the study.

The results revealed that there was no serious problem with multicollinearity. The variance inflation factors for the variables were all below 5 meaning that the variables were not highly correlated.

Descriptive measures involved mean, standard deviation and standard error of estimate. The variables aggregate score was computed as the simple average of the mean scores of the seven years period. Mean is a measure of central tendency used to describe the most typical value in a set of values. In addition, standard error of mean (SE) was computed. Standard error of mean is a measure of reliability of the study results. Standard deviation shows how far the distribution is from the mean. The findings indicate that variables had t-values ranging from 2.803 to 36.391, $p<0.05$ implying that these variables had statistically significant differences and variations across the years.

The study conducted Pearson's correlation coefficient. The Pearson product-moment correlation coefficient (or Pearson correlation coefficient for short) is a measure of the strength of a linear association between two variables and is denoted by r. The Pearson correlation coefficient, r, can take a range of values from +1 to -1. A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association, that is, as the value of one variable increases so does the value of the other variable. A value less than 0 indicates a negative association, that is, as the value of one variable increases the value of the other variable decreases.

The results indicated that the relationship between inventory days and stock returns is strong, positive and statistically significant. Similarly, the relationship between account payable days and stock returns rate is strong, positive and statistically significant. The relationship between account receivable days and stock returns was also significant and strong. This implies that inventory days, account payable days and account receivables days play a critical role of influencing stock returns of firms listed at the Nairobi Securities Exchange.

The study further carried out a regression analysis to determine the magnitude of the relationship between the independent variables and the dependent variable. The coefficient of determination is a measure of how well a statistical model is likely to predict future outcomes. The coefficient of determination, r^2 is the square of the sample correlation coefficient between outcomes and predicted values. As such it explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (stock

returns) that is explained by all the five independent variables (inventory days, account payable days and account receivables days).

The multiple linear regression models indicate that all the independent variables have positive coefficient. The regression results above reveal that there is a positive relationship between dependent variable (stock returns) and independent variables (inventory days, accounts payables days and accounts receivables days).

5.3 Conclusion

The analysis of the correlations results seemed to support the argument that each independent variable has its own particular informative value in the ability to explain stock returns. The significance of the coefficients was calculated at the level of 95%. The study findings indicate that inventory days, accounts payables days and accounts receivables days are statistically significant to stock returns as indicated by the positive and strong Pearson correlation coefficients.

According to the regression equation established, taking all factors into account (inventory days, accounts payables days and accounts receivables days), stock returns will be 1.207. A Pearson coefficient measure showed a strong, significant, positive relationship between the predictor variables on stock returns of firms listed at the NSE. The findings showed that predictor variables considered in the model are significantly associated with stock returns as indicated by the positive mean values and their respective standard deviations.

5.4 Policy Recommendations

The study recommends that there should be proper inventory management system in Nairobi to avoid working capital mismanagement. Management of listed companies

should put in place working capital management systems to increase stock returns. The study further recommends that companies should engage in relationship with those suppliers who allow long credit time period and those customers who allow short payment period. There is also still need in the future to identify the sector wise relationship between working capital management and stock returns of firms listed at the NSE.

The study therefore recommends that listed companies ensure that stocks are sufficient to meet customer demands at all times while at the same time avoiding holding unnecessary surplus stocks that may increase holding costs. The listed companies should seek knowledge on the use of stock optimization techniques so as to be able to determine right quantities of stock to hold.

5.5 Limitations of the Study

Although this study helped to shed light on the relationship between working capital management and stock returns of firms listed at the NSE, it was subject to a number of limitations. These mainly related to the setup of the study relative to the resources available within the research period. As such the constraints influenced the scale of the study but did not affect the conduct of the research once the design was arrived at.

Since the main purpose of this study is to identify the relationship between working capital management and stock returns of firms listed at the NSE, capital market authority considered some information sensitive and confidential and thus the researcher had to convince them that the purpose of information is for academic research only and may not be used for any other intentions.

Stock returns keep on changing from period to period depending on prevailing economic situations and demand on the capital market. The findings therefore may not reflect the true effect of such variables across a period of 10 years since some measures keeps fluctuating.

5.6 Suggestions for Further Research

This study used only three variables to test their influence on stock returns of firms listed at the NSE. Given the fact that there are many other factors that may affect stock returns, other researchers may seek to unravel the influence of such other factors like political influence, fiscal policies and so forth on the stock returns. It would be interesting to find out whether the results would be the same when different variables are used.

Given the critical role that stock returns play in the market economy, it would also be interesting for future research to study the influence of stock return as an independent variable and market economy as a dependent variable. With only secondary data, triangulating the data is complex. Future research should consider combining both secondary and primary data.

Further studies should focus on the effects of corporate governance mechanisms on the stock returns of an organization. It may be important to evaluate the influence of how an organization is managed on the stock returns.

Future areas of studies should concentrate on other factors that influence stock returns of listed firms. Factors such as; the industry structure, new products, resources and capabilities of the organization.

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APPENDIX I: LISTED FIRMS AT THE NSE AS AT 31ST DECMBER 2014

CATEGORY		ELEMENTS
AGRICULTURAL		
	1	Eaagads Ltd
	2	Kapchorua Tea Co. Ltd
	3	Kakuzi
	4	Limuru Tea Co. Ltd
	5	Rea Vipingo Plantations Ltd
	6	Sasini Ltd
	7	Williamson Tea Kenya Ltd
AUTOMOBILES AND ACCESSORIES		
	1	Car and General (K) Ltd
	2	Sameer Africa Ltd
	3	Marshalls (E.A.) Ltd
BANKING		
	1	Barclays Bank Ltd
	2	CFC Stanbic Holdings Ltd
	3	I&M Holdings Ltd
	4	Diamond Trust Bank Kenya Ltd
	5	Housing Finance Co Ltd
	6	Kenya Commercial Bank Ltd
	7	National Bank of Kenya Ltd
	8	NIC Bank Ltd

	9	Standard Chartered Bank Ltd
	10	Equity Bank Ltd
	11	The Co-operative Bank of Kenya Ltd
COMMERCIAL AND SERVICES		
	1	Express Ltd
	2	Kenya Airways Ltd
	3	Nation Media Group
	4	Standard Group Ltd
	5	TPS Eastern Africa (Serena) Ltd
	6	Scangroup Ltd
	7	Uchumi Supermarket Ltd
	8	Hutchings Biemer Ltd
	9	Longhorn Kenya Ltd
	10	Atlas Development and Support Services
CONSTRUCTION AND ALLIED		
	1	Athi River Mining
	2	Bamburi Cement Ltd
	3	Crown Berger Ltd
	4	E.A.Cables Ltd
	5	E.A.Portland Cement Ltd
ENERGY AND PETROLEUM		
	1	KenolKobil Ltd
	2	Total Kenya Ltd
	3	KenGen Ltd

	4	Kenya Power & Lighting Co Ltd
	5	Umeme Ltd
INSURANCE		
	1	Jubilee Holdings Ltd
	2	Pan Africa Insurance Holdings Ltd
	3	Kenya Re-Insurance Corporation Ltd
	4	Liberty Kenya Holdings Ltd
	5	British-American Investments Company (Kenya) Ltd
	6	CIC Insurance Group
INVESTMENT		
	1	Olympia Capital Holdings ltd
	2	Centum Investment Co Ltd
	3	Trans-Century Ltd
	4	Home Afrika Ltd
	5	Kurwitu Ventures
INVESTMENT SERVICES		
	1	Nairobi Securities Exchange Ltd
MANUFACTURING AND ALLIED		
	1	B.O.C Kenya Ltd
	2	British American Tobacco Kenya Ltd
	3	Carbacid Investments Ltd
	4	East African Breweries Ltd
	5	Mumias Sugar Co. Ltd

	6	Unga Group Ltd
	7	Eveready East Africa Ltd
	8	Kenya Orchards Ltd
	9	A.Baumann CO Ltd
	10	Flame Tree Group Holdings Ltd
TELECOMMUNICATION AND TECHNOLOGY		
	1	Safaricom

(Source, NSE)

APPENDIX II: RAW DATA ANALYSIS

	Counter	Dividends at end of period	Initial Stock price	Period end stock price	Total Stock Return	Inventory Days	Accounts Payable Days	Accounts Receivables Days
1	**Sasini Ltd**							
	2008	5.9103	13.3848	17.4049	0.0466	36.8634	46.0466	49.2174
	2009	2.1905	11.1966	13.1501	0.0808	32.6490	58.8460	75.1920
	2010	2.9060	8.0618	12.1580	0.0027	23.0718	41.0583	80.4674
	2011	2.1905	13.0458	15.1793	0.0203	44.3822	45.7541	28.0431
	2012	2.1905	19.6590	22.4029	0.0090	38.2190	27.0127	52.3054
	2013	2.1905	17.8848	20.9920	0.0095	13.7436	98.9960	37.7130
	2014	1.0169	19.6590	21.8624	0.0090	21.1899	40.0409	49.2174
2	**Kapchorua Tea Co. Ltd**							
	2008	5.7136	15.9029	22.7400	0.0124	26.4305	11.3877	49.2174
	2009	1.0534	38.2962	35.8005	0.0671	19.5897	97.1031	46.2872
	2010	1.3040	61.6375	64.1995	0.0090	5.5728	128.7579	49.2174
	2011	2.2946	25.6318	28.0050	0.0200	54.7998	12.9179	49.2174

	2012	2.4417	19.6590	20.5699	0.0090	88.3296	97.1031	10.3383
	2013	3.0727	5.5829	8.8946	0.0090	14.2237	97.1031	15.3384
	2014	5.4086	17.1473	17.8695	0.0058	50.1323	79.0145	10.4922
3	**Kakuzi**							
	2008	5.6925	31.1715	31.9121	0.0058	50.1323	79.0145	10.4922
	2009	2.3434	14.7258	31.9121	0.0096	32.2631	32.5691	18.1096
	2010	5.4086	25.7574	20.8016	0.0058	16.7088	16.0982	22.2770
	2011	4.5914	30.1814	31.9121	0.0058	49.8677	79.0145	39.3149
	2012	8.0681	45.0481	42.8345	0.0031	32.3816	51.8756	96.7593
	2013	5.4086	14.7258	12.0802	0.0015	32.2631	15.1478	49.2159
	2014	8.4803	12.7000	12.0802	0.0125	16.9860	79.0145	70.5889
4	**Limuru Tea Co. Ltd**							
	2008	2.4821	20.5085	23.8401	0.0058	50.1323	87.0481	49.2159
	2009	2.0007	69.7668	70.3191	0.0015	50.1323	65.9130	80.7927
	2010	2.0884	30.2162	27.4159	0.0058	32.2631	79.0145	10.4922
	2011	5.4086	16.2623	17.4856	0.0419	58.9586	101.1657	24.9061

	2012	2.2145	11.6278	12.7063	0.0058	25.0407	37.1735	10.3412
	2013	1.0060	36.3405	44.8864	0.0113	24.7094	62.2012	22.6951
	2014	8.1688	4.2834	4.8985	0.0016	46.1391	25.2988	35.8678
		2.4650	23.8574	26.0100	0.0085	32.2502	119.6287	18.2927
5	**Rea Vipingo Plantations Ltd**							
	2008	2.2915	9.0428	7.9760	0.0043	21.1123	25.2988	26.7082
	2009	2.8291	66.5604	64.0263	0.0016	19.1550	33.5247	31.9162
	2010	2.2887	33.9761	40.2628	0.0127	57.9993	57.7111	13.8432
	2011	7.8622	23.2100	23.7750	0.0184	19.1414	75.2988	11.3386
	2012	2.8291	3.6180	4.0263	0.0016	16.4292	11.2255	22.2753
	2013	2.7601	36.3743	36.8113	0.0121	18.6868	24.0353	27.9922
	2014	0.0028	14.1449	12.8478	0.0016	41.6429	76.3192	14.8936
6	**Eaagads Ltd**							
	2008	1.5958	9.0428	9.7597	0.0199	16.3620	82.2281	72.8278
	2009	2.7954	28.3398	29.7202	0.0095	20.4054	24.2690	38.9664
	2010	1.7946	25.9053	27.0356	0.0104	23.4828	11.4585	35.8678
	2011	2.1245	10.7885	10.6566	0.0030	32.7738	55.2243	19.5599

	2012	2.2409	36.1700	32.9100	0.0030	42.7657	21.1116	44.0835
	2013	3.8951	20.6864	28.7857	0.0027	89.4551	21.1116	11.7825
	2014	4.2224	18.0349	17.4786	0.0044	43.4281	21.1116	10.0844
7	**Williamson Tea Kenya Ltd**							
	2008	2.6695	58.6567	62.8016	0.0030	14.2766	77.8983	53.9557
	2009	3.7661	32.4133	28.8452	0.0520	30.8319	26.0155	32.6714
	2010	4.3496	22.4844	21.0488	0.0030	25.1352	28.1919	16.1731
	2011	4.0614	64.0073	79.3821	0.0143	43.7712	36.3597	44.0835
	2012	2.4752	29.3070	29.7160	0.0104	54.5230	53.7948	69.0875
	2013	3.7165	31.6218	48.0427	0.0030	42.7657	23.8503	44.0835
	2014	2.1547	44.3617	41.0998	0.0089	74.8813	97.9360	16.1731
8	**Car and General (K) Ltd**							
	2008	4.4957	13.1035	14.3972	0.0300	69.7868	17.3694	45.8096
	2009	2.9060	8.0618	12.1580	0.0096	32.2631	32.5691	18.1096
	2010	2.1905	13.0458	15.1793	0.0058	16.7088	16.0982	22.2770
		2.1905	19.6590	22.4029	0.0058	49.8677	79.0145	39.3149

	2011							
	2012	1.5958	9.0428	9.7597	0.0844	38.7593	21.6984	48.9398
	2013	2.7954	28.3398	29.7202	0.0030	14.2766	77.8983	53.9557
	2014	1.7946	25.9053	27.0356	0.0520	30.8319	26.0155	32.6714
9	**Sameer Africa Ltd**							
	2008	2.2915	9.0428	7.9760	0.0199	16.3620	82.2281	72.8278
	2009	2.8291	66.5604	64.0263	0.0095	20.4054	24.2690	38.9664
	2010	2.2887	33.9761	40.2628	0.0104	23.4828	11.4585	35.8678
	2011	8.0681	45.0481	42.8345	0.0031	25.1352	28.1919	16.1731
	2012	5.4086	14.7258	12.0802	0.0015	43.7712	36.3597	44.0835
	2013	1.5958	9.0428	9.7597	0.0844	38.7593	21.6984	48.9398
	2014	2.7954	28.3398	29.7202	0.0030	14.2766	77.8983	53.9557
10	**Marshalls (E.A.) Ltd**							
	2008	5.6925	31.1715	31.9121	0.0058	50.1323	79.0145	10.4922
	2009	2.3434	14.7258	31.9121	0.0096	32.2631	32.5691	18.1096
	2010	5.4086	25.7574	20.8016	0.0058	16.7088	16.0982	22.2770
		4.5914	30.1814	31.9121	0.0058	49.8677	79.0145	39.3149

	2011							
	2012	8.0681	45.0481	42.8345	0.0031	32.3816	51.8756	96.7593
	2013	5.4086	14.7258	12.0802	0.0015	32.2631	15.1478	49.2159
	2014	8.4803	12.7000	12.0802	0.0125	16.9860	79.0145	70.5889
11	**Express Ltd**							
	2008	2.7954	28.3398	29.7202	0.0095	20.4054	24.2690	38.9664
	2009	1.7946	25.9053	27.0356	0.0104	23.4828	11.4585	35.8678
	2010	2.1245	10.7885	10.6566	0.0030	32.7738	55.2243	19.5599
	2011	2.2409	36.1700	32.9100	0.0030	42.7657	21.1116	44.0835
	2012	3.8951	20.6864	28.7857	0.0027	89.4551	21.1116	11.7825
	2013	4.2224	18.0349	17.4786	0.0044	43.4281	21.1116	10.0844
	2014	1.5958	9.0428	9.7597	0.0199	16.3620	82.2281	72.8278
12	**Kenya Airways Ltd**							
	2008	2.6695	58.6567	62.8016	0.0030	14.2766	77.8983	53.9557
	2009	3.7661	32.4133	28.8452	0.0520	30.8319	26.0155	32.6714
	2010	4.3496	22.4844	21.0488	0.0030	25.1352	28.1919	16.1731

	2011	4.0614	64.0073	79.3821	0.0143	43.7712	36.3597	44.0835
	2012	2.4752	29.3070	29.7160	0.0104	54.5230	53.7948	69.0875
	2013	3.7165	31.6218	48.0427	0.0030	42.7657	23.8503	44.0835
	2014	2.1547	44.3617	41.0998	0.0089	74.8813	97.9360	16.1731
13	**Nation Media Group**							
	2008	4.4957	13.1035	14.3972	0.0300	69.7868	17.3694	45.8096
	2009	2.9060	8.0618	12.1580	0.0096	32.2631	32.5691	18.1096
	2010	2.1905	13.0458	15.1793	0.0058	16.7088	16.0982	22.2770
	2011	2.1905	19.6590	22.4029	0.0058	49.8677	79.0145	39.3149
	2012	1.5958	9.0428	9.7597	0.0844	38.7593	21.6984	48.9398
	2013	2.7954	28.3398	29.7202	0.0030	14.2766	77.8983	53.9557
	2014	1.7946	25.9053	27.0356	0.0520	30.8319	26.0155	32.6714
14	**Standard Group Ltd**							
	2008	2.2915	9.0428	7.9760	0.0199	16.3620	82.2281	72.8278
	2009	2.8291	66.5604	64.0263	0.0095	20.4054	24.2690	38.9664
		2.2887	33.9761	40.2628	0.0104	23.4828	11.4585	35.8678

	2010							
	2011	8.0681	45.0481	42.8345	0.0031	25.1352	28.1919	16.1731
	2012	5.4086	14.7258	12.0802	0.0015	43.7712	36.3597	44.0835
	2013	2.9204	2.1150	2.0994	0.0844	38.7593	21.6984	48.9398
	2014	5.6925	31.1715	31.9121	0.0058	50.1323	79.0145	10.4922
15	**Uchumi Supermarket Ltd**							
	2008	2.2887	33.9761	40.2628	0.0127	57.9993	57.7111	13.8432
	2009	7.8622	23.2100	23.7750	0.0184	19.1414	75.2988	11.3386
	2010	2.8291	3.6180	4.0263	0.0016	16.4292	11.2255	22.2753
	2011	2.7601	36.3743	36.8113	0.0121	18.6868	24.0353	27.9922
	2012	0.0028	14.1449	12.8478	0.0016	41.6429	76.3192	14.8936
	2013	1.5958	9.0428	9.7597	0.0199	16.3620	82.2281	72.8278
	2014	2.3434	14.7258	31.9121	0.0096	32.2631	32.5691	18.1096
16	**Longhorn Kenya Ltd**							
	2008	3.7661	32.4133	28.8452	0.0520	30.8319	26.0155	32.6714
	2009	4.3496	22.4844	21.0488	0.0030	25.1352	28.1919	16.1731
	2010	4.0614	64.0073	79.3821	0.0143	43.7712	36.3597	44.0835

	2011	2.4752	29.3070	29.7160	0.0104	54.5230	53.7948	69.0875
	2012	3.7165	31.6218	48.0427	0.0030	42.7657	23.8503	44.0835
	2013	2.1547	44.3617	41.0998	0.0089	74.8813	97.9360	16.1731
	2014	4.4957	13.1035	14.3972	0.0300	69.7868	17.3694	45.8096
17	**Athi River Mining**							
	2008	2.8291	66.5604	64.0263	0.0095	20.4054	24.2690	38.9664
	2009	2.2887	33.9761	40.2628	0.0104	23.4828	11.4585	35.8678
	2010	8.0681	45.0481	42.8345	0.0031	25.1352	28.1919	16.1731
	2011	5.4086	14.7258	12.0802	0.0015	43.7712	36.3597	44.0835
	2012	2.3434	14.7258	31.9121	0.0096	32.2631	32.5691	18.1096
	2013	2.3434	14.7258	31.9121	0.0096	32.2631	32.5691	18.1096
	2014	2.3434	14.7258	31.9121	0.0096	32.2631	32.5691	18.1096
18	**Bamburi Cement Ltd**							
	2008	2.0884	30.2162	27.4159	0.0058	32.2631	79.0145	10.4922
	2009	5.4086	16.2623	17.4856	0.0419	58.9586	101.1657	24.9061

	2010	2.2145	11.6278	12.7063	0.0058	25.0407	37.1735	10.3412
	2011	1.0060	36.3405	44.8864	0.0113	24.7094	62.2012	22.6951
	2012	8.1688	4.2834	4.8985	0.0016	46.1391	25.2988	35.8678
	2013	2.4650	23.8574	26.0100	0.0085	32.2502	119.6287	18.2927
	2014	2.0007	69.7668	70.3191	0.0015	50.1323	65.9130	80.7927
19	**Crown Berger Ltd**							
	2008	2.8291	66.5604	64.0263	0.0016	19.1550	33.5247	31.9162
	2009	2.2887	33.9761	40.2628	0.0127	57.9993	57.7111	13.8432
	2010	7.8622	23.2100	23.7750	0.0184	19.1414	75.2988	11.3386
	2011	2.8291	3.6180	4.0263	0.0016	16.4292	11.2255	22.2753
	2012	2.7601	36.3743	36.8113	0.0121	18.6868	24.0353	27.9922
	2013	0.0028	14.1449	12.8478	0.0016	41.6429	76.3192	14.8936
	2014	1.5958	9.0428	9.7597	0.0199	16.3620	82.2281	72.8278
20	**E.A.Cables Ltd**							
	2008	1.7946	25.9053	27.0356	0.0104	23.4828	11.4585	35.8678
		2.1245	10.7885	10.6566	0.0030	32.7738	55.2243	19.5599

	2009							
	2010	2.2409	36.1700	32.9100	0.0030	42.7657	21.1116	44.0835
	2011	3.8951	20.6864	28.7857	0.0027	89.4551	21.1116	11.7825
	2012	4.2224	18.0349	17.4786	0.0044	43.4281	21.1116	10.0844
	2013	2.9204	2.1150	2.0994	0.0844	38.7593	21.6984	48.9398
	2014	2.0007	69.7668	70.3191	0.0015	50.1323	65.9130	80.7927
21	**E.A.Portland Cement Ltd**							
	2008	2.9060	8.0618	12.1580	0.0096	32.2631	32.5691	18.1096
	2009	2.1905	13.0458	15.1793	0.0058	16.7088	16.0982	22.2770
	2010	2.1905	19.6590	22.4029	0.0058	49.8677	79.0145	39.3149
	2011	1.5958	9.0428	9.7597	0.0844	38.7593	21.6984	48.9398
	2012	2.7954	28.3398	29.7202	0.0030	14.2766	77.8983	53.9557
	2013	1.7946	25.9053	27.0356	0.0520	30.8319	26.0155	32.6714
	2014	2.6695	58.6567	62.8016	0.0030	14.2766	77.8983	53.9557
22	**Total Kenya Ltd**							
	2008	2.2915	9.0428	7.9760	0.0199	16.3620	82.2281	72.8278
	2009	2.8291	66.5604	64.0263	0.0095	20.4054	24.2690	38.9664

	2010	2.2887	33.9761	40.2628	0.0104	23.4828	11.4585	35.8678
	2011	8.0681	45.0481	42.8345	0.0031	25.1352	28.1919	16.1731
	2012	5.4086	14.7258	12.0802	0.0015	43.7712	36.3597	44.0835
	2013	2.8291	66.5604	64.0263	0.0095	20.4054	24.2690	38.9664
	2014	5.6925	31.1715	31.9121	0.0058	50.1323	79.0145	10.4922
23	**KenGen Ltd**							
	2008	5.4086	25.7574	20.8016	0.0058	16.7088	16.0982	22.2770
	2009	4.5914	30.1814	31.9121	0.0058	49.8677	79.0145	39.3149
	2010	8.0681	45.0481	42.8345	0.0031	32.3816	51.8756	96.7593
	2011	5.4086	14.7258	12.0802	0.0015	32.2631	15.1478	49.2159
	2012	8.4803	12.7000	12.0802	0.0125	16.9860	79.0145	70.5889
	2013	2.4821	20.5085	23.8401	0.0058	50.1323	87.0481	49.2159
	2014	2.6695	58.6567	62.8016	0.0030	14.2766	77.8983	53.9557
24	**Kenya Power & Lighting Co Ltd**							
	2008	2.0884	30.2162	27.4159	0.0058	32.2631	79.0145	10.4922
	2009	5.4086	16.2623	17.4856	0.0419	58.9586	101.1657	24.9061

	2010	2.2145	11.6278	12.7063	0.0058	25.0407	37.1735	10.3412
	2011	1.0060	36.3405	44.8864	0.0113	24.7094	62.2012	22.6951
	2012	8.1688	4.2834	4.8985	0.0016	46.1391	25.2988	35.8678
	2013	2.4650	23.8574	26.0100	0.0085	32.2502	119.6287	18.2927
	2014	2.6695	58.6567	62.8016	0.0030	14.2766	77.8983	53.9557
25	**B.O.C Kenya Ltd**							
	2008	2.7954	28.3398	29.7202	0.0095	20.4054	24.2690	38.9664
	2009	1.7946	25.9053	27.0356	0.0104	23.4828	11.4585	35.8678
	2010	2.1245	10.7885	10.6566	0.0030	32.7738	55.2243	19.5599
	2011	2.2409	36.1700	32.9100	0.0030	42.7657	21.1116	44.0835
	2012	3.8951	20.6864	28.7857	0.0027	89.4551	21.1116	11.7825
	2013	4.2224	18.0349	17.4786	0.0044	43.4281	21.1116	10.0844
	2014	1.5958	9.0428	9.7597	0.0199	16.3620	82.2281	72.8278
26	**British American Tobacco Kenya Ltd**							
	2008	2.6695	58.6567	62.8016	0.0030	14.2766	77.8983	53.9557

	2009	3.7661	32.4133	28.8452	0.0520	30.8319	26.0155	32.6714
	2010	4.3496	22.4844	21.0488	0.0030	25.1352	28.1919	16.1731
	2011	4.0614	64.0073	79.3821	0.0143	43.7712	36.3597	44.0835
	2012	2.4752	29.3070	29.7160	0.0104	54.5230	53.7948	69.0875
	2013	3.7165	31.6218	48.0427	0.0030	42.7657	23.8503	44.0835
	2014	1.5958	9.0428	9.7597	0.0199	16.3620	82.2281	72.8278
27	**Carbacid Investments Ltd**							
	2008	4.4957	13.1035	14.3972	0.0300	69.7868	17.3694	45.8096
	2009	2.9060	8.0618	12.1580	0.0096	32.2631	32.5691	18.1096
	2010	2.1905	13.0458	15.1793	0.0058	16.7088	16.0982	22.2770
	2011	2.1905	19.6590	22.4029	0.0058	49.8677	79.0145	39.3149
	2012	1.5958	9.0428	9.7597	0.0844	38.7593	21.6984	48.9398
	2013	2.7954	28.3398	29.7202	0.0030	14.2766	77.8983	53.9557
	2014	1.5958	9.0428	9.7597	0.0199	16.3620	82.2281	72.8278
28	**East African Breweries Ltd**							
	2008	2.4650	23.8574	26.0100	0.0016	41.6429	76.3192	14.8936

	2009	2.2915	9.0428	7.9760	0.0199	16.3620	82.2281	72.8278
	2010	2.8291	66.5604	64.0263	0.0095	20.4054	24.2690	38.9664
	2011	2.2887	33.9761	40.2628	0.0104	23.4828	11.4585	35.8678
	2012	8.0681	45.0481	42.8345	0.0031	25.1352	28.1919	16.1731
	2013	5.4086	14.7258	12.0802	0.0015	43.7712	36.3597	44.0835
	2014	1.5958	9.0428	9.7597	0.0199	16.3620	82.2281	72.8278
29	**Mumias Sugar Co. Ltd**							
	2008	2.7954	28.3398	29.7202	0.0095	20.4054	24.2690	38.9664
	2009	1.7946	25.9053	27.0356	0.0104	23.4828	11.4585	35.8678
	2010	2.1245	10.7885	10.6566	0.0030	32.7738	55.2243	19.5599
	2011	2.2409	36.1700	32.9100	0.0030	42.7657	21.1116	44.0835
	2012	3.8951	20.6864	28.7857	0.0027	89.4551	21.1116	11.7825
	2013	4.2224	18.0349	17.4786	0.0044	43.4281	21.1116	10.0844
	2014	1.5958	9.0428	9.7597	0.0199	16.3620	82.2281	72.8278
30	**Unga Group Ltd**							
	2008	2.6695	58.6567	62.8016	0.0030	14.2766	77.8983	53.9557

	2009	3.7661	32.4133	28.8452	0.0520	30.8319	26.0155	32.6714
	2010	4.3496	22.4844	21.0488	0.0030	25.1352	28.1919	16.1731
	2011	4.0614	64.0073	79.3821	0.0143	43.7712	36.3597	44.0835
	2012	2.4752	29.3070	29.7160	0.0104	54.5230	53.7948	69.0875
	2013	3.7165	31.6218	48.0427	0.0030	42.7657	23.8503	44.0835
	2014	2.1547	44.3617	41.0998	0.0089	74.8813	97.9360	16.1731
31	**Eveready East Africa Ltd**							
	2008	2.3434	14.7258	31.9121	0.0096	32.2631	32.5691	18.1096
	2009	5.4086	25.7574	20.8016	0.0058	16.7088	16.0982	22.2770
	2010	4.5914	30.1814	31.9121	0.0058	49.8677	79.0145	39.3149
	2011	8.0681	45.0481	42.8345	0.0031	32.3816	51.8756	96.7593
	2012	5.4086	14.7258	12.0802	0.0015	32.2631	15.1478	49.2159
	2013	8.4803	12.7000	12.0802	0.0125	16.9860	79.0145	70.5889
	2014	1.5958	9.0428	9.7597	0.0199	16.3620	82.2281	72.8278
32	**Kenya Orchards Ltd**							
		2.0007	69.7668	70.3191	0.0015	50.1323	65.9130	80.7927

	2008							
	2009	2.0884	30.2162	27.4159	0.0058	32.2631	79.0145	10.4922
	2010	5.4086	16.2623	17.4856	0.0419	58.9586	101.1657	24.9061
	2011	2.2145	11.6278	12.7063	0.0058	25.0407	37.1735	10.3412
	2012	1.0060	36.3405	44.8864	0.0113	24.7094	62.2012	22.6951
	2013	8.1688	4.2834	4.8985	0.0016	46.1391	25.2988	35.8678
	2014	1.5958	9.0428	9.7597	0.0199	16.3620	82.2281	72.8278
33	**Safaricom**							
	2008	2.9204	2.1150	2.0994	0.0844	38.7593	21.6984	48.9398
	2009	2.6695	58.6567	62.8016	0.0030	14.2766	77.8983	53.9557
	2010	3.7661	32.4133	28.8452	0.0520	30.8319	26.0155	32.6714
	2011	4.3496	22.4844	21.0488	0.0030	25.1352	28.1919	16.1731
	2012	4.0614	64.0073	79.3821	0.0143	43.7712	36.3597	44.0835
	2013	2.4752	29.3070	29.7160	0.0104	54.5230	53.7948	69.0875
	2014	2.4752	30.2654	29.7160	0.01143	55.5425	54.7578	69.5280

(Source, NSE and CMA)