

**THE RELATIONSHIP BETWEEN WORKING CAPITAL MANAGEMENT  
AND THE SYSTEMATIC RISK OF COMPANIES QUOTED AT THE  
NAIROBI SECURITIES EXCHANGE**

**BY**

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## **DECLARATION**

I declare that this research project is my original work and has not been presented for a degree in any other university.

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Signed-----

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

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## **DEDICATION**

My heartfelt dedication goes to my dear parents, my late dad Gerald Kibethi your hand drove fear out of me and triggered the urge to succeed. Mother, Lilian Wamaitha, a lady with a lion's heart, has been a great source of inspiration since my childhood. I also highly appreciate my dear sisters Loise, Agnes and Annastacia for their time devotion and prayers. May God bless you all.

## **ABSTRACT**

In any firm or an organization the issue of risk is of a great importance to anyone interested in finance either as an investor or a finance manager. This is so because while the main objective of any investment is for its return, partly depends on the risk level associated with that investment. That is, the higher the risk the higher is the expected returns and vice versa. This being the case however, it has been established further that investors can diversify away part of this risk. The part of risk which cannot be diversified away is systematic risk and this is what concerns the manager most.

A well designed and implemented working capital management is expected to contribute positively to the creation of shareholders' wealth. The purpose of this study was to determine the empirical relationship between working capital management and firm's systematic risk. The study used secondary data obtained from annual reports and financial statement of companies listed at the Nairobi Securities Exchange.

A sample of 20 companies listed at the Nairobi Securities Exchange for a period of seven years from 2008 to 2014 was studied to determine the effect of different variables of working capital management including average payment period, inventory turnover in days, average collection period and cash conversion cycle on the beta. Current ratio, size of the firm (measured in terms of natural logarithm of sales), fixed financial assets to total assets ratio and debt ratio were used as control variables.

Pearson's correlation and regression analysis (pooled least square) were used for analysis. The results show that there is no statistical significant relationship between variables of working capital management and the beta of a firm. This means that the manager may not mitigate systematic risk of a firm by handling correctly the cash conversion cycle and keeping each different component of working capital management at an optimal level.

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## LIST OF ABBREVIATIONS

ACP	Average collection period
APP	Average payment period
BI	Stock beta
CAPM	Capital Asset Pricing Model
CCC	Cash conversion cycle
CR	Current ratio
DR	Debt ratio
EOQ	Economic Order Quantity
FATA	Financial assets to total asset
ITD	Inventory turnover in days
LOS	Logarithm of sales
NSE	Nairobi Stock Exchange
ROA	Return on Assets

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## **CHAPTER ONE**

### **1.0. INTRODUCTION**

#### **1.1.0. BACKGROUND OF THE STUDY**

Working capital management is defined as the ability of an organization to fund short term assets and short term liabilities (Harris, 2005). Management of working capital needs careful attention since it plays an important role in determination of firms' financial performance, liquidity and risk as well as firms value (Smith ,1980). Greater investment in current assets leads to lower risk in settling short term obligations while leading to lower profitability. Specifically working capital investment involves a tradeoff between profitability and risk. Decisions that tend to increase profitability tend to increase risk and conversely decisions that focus on risk reduction will tend to reduce potential profitability. Every business requires working capital for its survival. Working capital is a vital part of business investment which is essential for continuous business operations. It is required by a firm to maintain its liquidity, solvency and profitability (Mukhopadhyay, 2004). The importance of managing working capital of a business efficiently cannot be denied (Filbeck & Krueger, 2005). Working capital management explicitly impacts both the profitability and level of desired liquidity of a business (Raheman&Nasr, 2007). If a firm will invest heavily in working capital that is more than it needs, then the profits which can be generated by investing these resources in fixed or long term assets will be diminished. Moreover the firm will have to endure the cost of storing inventory for longer periods as well as the cost of handling excessive inventory (Arnold, 2008). On the other hand, if a firm invests heavily on fixed assets to generate profits by neglecting its short-term capital needs, then it is quite possible that it may have to face bankruptcy because of insufficient funds. The profitability as well as adequate level of liquidity is required to be maintained for the survival of a business. So if a firm will not pay sufficient attention to its working capital management, then it is quite possible that the firm would have to face bankruptcy (Kargar& Blumenthal, 1994). Shortage of working capital is normally attributed as a major cause of failure of many small businesses in various developing and developed countries (Rafuse, 1996). Effective management of working capital decreases the need for lending funds to pay back the short term debts of the firm.

Firms face a number of important decisions in their operations and one of these important decisions concerns the efficient management of liquidity. According to (Gupta, 2002) working

capital management provides the firm with information on the liquidity needed to operate efficiently.

(Gitman, 2000) describes working capital management as the regulation, adjustment, and control of the balance of current assets and current liabilities of a firm such that account receivables and inventory may render the firm incapable of paying its short term obligation when they fall due. Also high levels of short liabilities increase chances of bankruptcy.

There are two concepts of working capital; gross and net working capital. Gross working capital refers to the firm's investment in current assets. Current Assets are the assets, which can be converted into cash within an accounting year or operating cycle. It includes cash, short-term securities, debtors (account receivables or book debts), bills receivables and stock (inventory).

Current assets consist of cash in hand, cash in bank and cash in transit, short-term investment (quoted shares of other companies intended for sales), inventories (raw materials, work in progress, finished goods) trade receivables and bills receivables and loans and advances given by the company to others. Current liabilities on the other hand consist of trade payables and bills payables, trade advances (received by the company for supply of goods and services), short term loans from other sources and provisions for payments of taxes, bad debts to be written off and adverse fluctuations of exchange rates. It should be noted that, delaying payments to suppliers allows the firm to assess the quality of the products bought and can be an inexpensive and flexible source of financing for the firm. On the other hand, late payment of invoices can be very expensive if the firm is offered discount for early payment (Murali, 2000).

### **1.1.1. Concept of Working Capital Management**

Working capital management involves the relationship between a firm's short term assets and its short term liabilities. The goals of working capital management are to enable the firm continue its operations and that it has sufficient ability to satisfy maturity, short term debts and upcoming operational expenses (Murali, 2000).

A popular measure of working capital management is the cash conversion cycle, that is, the true lag between the expenditure for the purchases of raw materials and the collection of sales for finished products. It is observed that, the longer the lag, the larger the investment in working capital (Deloof, 2003). A longer cash conversion cycle might increase profitability because it

leads to higher sales. However, corporate profitability might also decrease with the cash conversion cycle if the cost of higher investment in working capital rises higher than the benefits of holding more investments and/or granting more trade credit to customers.

Efficient working capital management involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet due short term obligations on one hand and avoid excessive investment in these assets on the other hand (Eljelly, 2004). In practice, working capital management has become one of the most important issues in organizations where many financial executives strive to identify the basic working capital drivers and the appropriate level of working capital (Lamberson, 1995). Companies can minimize risk and improve the overall performance by understanding the role and drivers of working capital. An optimal level of working capital would be the one in which a balance is achieved between risk and efficiency. It requires continuous monitoring to maintain proper level in various components of working capital; trade receivables, inventory and trade payables etc (Lamberson, 1995).

### **1.1.2 Concept of systematic risk**

A simple definition of risk is the possibility of a financial loss. Risk has also been defined as the likelihood of the realized returns on an investment being different from the expected return (Modigliani and Pogne, 1974). The concept of risk could be examined in relation to an asset or portfolio. In the financial topics, risk can be divided into systematic risk (diversifiable risk) and non-systematic risk (diversifiable or unique risk).

Systematic risk (market risk); Interest rates, recession and wars all represent sources of systematic risk because they affect the entire market and cannot be avoided through diversification. Whereas this type of risk affects a broad range of securities, unsystematic risk affects a very specific group of securities or an individual security. Systematic risk can be mitigated only by being hedged.

Non-systematic risk: Company or industry specific risk that is inherent in each investment. The amount of unsystematic risk can be reduced through appropriate diversification. Also known as “Business Risk”, “Liquidity and Marketability Risk”, “financial risk”, “credit risk” and “political risk”.

According to portfolio theory by Markowitz of 1952, in a situation where the risk and return of various assets have been ascertained, it is expected that a rational investor will choose that combination of assets that will maximize his returns while minimizing risks to bear (Reilly and Brown, 2000). In effects therefore, the investors and other market players will want to know or estimate the risk associated with the returns of a particular asset. In capturing this risk, knowledgeable market players who include analysts and investors will use a statistical measure called beta. Beta is a measure of systematic risk of a security. The return on a security will depend on the return of the market as a whole. There are factors which affect the market that include inflation rate in the economy, the interest rate, legal/ political factors and others. These factors existing in the market may have more profound effects on the returns on a security much more than the market as a whole. Thus, it is commonly necessary to measure the volatility of individual stock; beta that measures the variation in the returns of a portfolio to the variation in return of entire market. This helps them isolate investment opportunities that have favourable risk-return characteristics and hence select stocks for inclusion in their portfolio.

### **1.1.3 The relationship between Working Capital Management Practices and Systematic Risk of a Stock.**

In this study, we will try to establish whether working capital management is related to systematic risk on the return of a given stock. In both theoretically and empirically, the return of any stock is influenced by both systematic and unsystematic risks. The systematic risk is the risk that is associated with the external factors such as interest rates, inflation, exchange rates, business cycles, political events, financial crisis and others and cannot be diversified using uncorrelated assets in a portfolio. On the other hand unsystematic risk or firm's specific risk is the risk that the manager of the firm can strive to manage by diversification of a portfolio with different classes of assets. Thus, every firm manager strives to manage any risk that may affect shareholder's value. He/ she will be very much interested with any strategy that he/she may use to minimize the risk under consideration (Reilly and Brown, 2000).

It is believed that different accounting data, Working Capital Management being one of them, may have information content about the magnitude of the systematic risk of a common stock. It is with this belief that considerable research has been done by the academic and investment communities on the estimation of beta. The ability to relate working capital management and

equity risk has a value for explaining and predicting market betas and therefore helping in portfolio management. The focus in this area has also been because it has implications for teaching and research in finance. It also helps business managers to better assess the relevance and bearing of their particular corporation decisions on the resultant risk borne by the firms. Evidences have shown that financial ratios / profitability ratio and to some extent activity ratios are important determinants of the systematic risk of a common stock

(Loo and Ramasamy, 1989). Beaver et. al., (1970) show that a significant correlation exists between the dividend payout, growth, leverage, liquidity, asset size, variability in earnings and covariability in earnings ratios with the systematic risk.

The management of the short-term assets and liabilities warrants a careful investigation since the working capital management plays an important role for the firm's profitability and risk as well as its value (Smith, 1980). Belkaoui (1978) and Dhingra (1982) provide the Canadian evidence. Significant positive relationships were found between the current and the long-term to common equity ratio and systematic risk, liquidity (current ratio) was found to be directly related to the systematic risk. The general expectation is that the systematic risk of the common stock is related directly to financial leverage and inversely to liquidity and activity ratios (Loo and Ramasamy, 1989). The findings of Carpenter and Johnson (1983) were that there is no relationship between the level of current assets and risk of the firms.

#### **1.1.4 The Nairobi Securities Exchange**

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 securities 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, it can also efficiently help one to monitor the systematic risk from the daily performance of the stocks

## **1.2. Statement of the problem**

Different studies have been done but there is still controversy as to whether working capital management by quoted companies at the Nairobi Securities Exchange has a systematic effect on the systematic risk of a stock. If the assumption is made that investors are rational and risk – averse, then the researchers should find that working capital management relates with the beta (Loo and Ramasamy, 1989). In investment analysis, the risk-return relationship is of paramount importance in portfolio selection. This is so because while investors expect a particular return on their investment, there is always the likelihood that the realized return may be different from the expected return. This risk-return relationship is clearly demonstrated in the capital asset pricing model (CAPM) where the risk associated with the security is determined, (Sharpe, 1964).

Working capital management as one of the management strategies has been used for the purpose of maximizing firm's value, (Eljelly, 2004). A large number of business failures have been attributed to the inability of financial managers to plan and control properly the current assets



and current liabilities of their respective firms (Smith, 1973). According to Deloof (2003) the way working capital is managed has a significant impact on profitability and risk of firms. This implies that there is a certain level of working capital requirement which potentially maximizes returns.

Loo and Ramasamy (1989) in their study, Accounting variables as determinants of systematic risk in Malaysian common stock, indicates that accounting ratios, have influence on a systematic risk. (Beaver et. al, 1970) shows that a significant correlation exists between the dividend payout, growth, leverage, liquidity, asset size, variability of earnings and covariability in earnings in ratios with the market beta. However, in Kenya the only study close to this but not in relation to working capital management was by Lutomia (2002) on the relationship between capital structure and systematic risk of the stocks of companies listed on the Nairobi Stock Exchange. The findings were that there is no relationship between capital structure and systematic risk of the stock.

Locally, a number of studies on the relationship between working capital management and financial performance have been done in Kenya though very little research has been conducted on the relationship between working capital management and the systematic risk of companies listed at the Nairobi stock exchange. For instance, Mathuva (2010) conducted a study on working capital management components on corporate profitability of Kenyan Listed Firms in the NSE. Wainaina (2010) studied the relationship between profitability and working capital of small and medium enterprises in Kenya. They both found out that there is a relationship between the working capital management and profitability. Mathai (2010) did a study on the relationship between working capital management and profitability of retail supermarket chains in Kenya. Kweri (2011) conducted a study on the relationship between working capital management and profitability of the manufacturing firms listed on the NSE. Runyora (2012) also did a study on the impact of working capital management on the profitability of the oil industry in Kenya. This study will therefore seek to answer the following question, does working capital management has a significant effect on the systematic risk of stocks of the companies quoted at the Nairobi Securities Exchange?

### **1.3. Objective of the study**

The study seeks to establish whether working capital management has a significant effect on the systematic risk of stocks of the companies quoted at the Nairobi Securities Exchange

#### **1.3.1 Specific objectives**

- i) To determine the effect of cash conversion cycle on the systematic risk of the companies listed at the NSE.
- ii) To determine the effect of days of accounts payables on the systematic risk of the companies listed at the NSE.
- iii) To determine the effect of days of accounts receivables on the systematic risk of the companies listed at the NSE.
- iv) To determine the effect of days in inventories on the systematic risk of companies listed at the NSE.

### **1.4. Significance of the study**

This study will help the finance managers know the impact that their working capital management is likely to have on the systematic risk of their common stock and hence make financial decisions accordingly

It will also be of help to investors such as security analysts, financial analysts, stock brokers and other parties whose knowledge of the relationship between working capital management and systematic risk of the stock is important input into investment analysis and portfolio construction.

This study will also be of great importance to academicians as it will act as a base for further studies and also as a point of reference for both academicians and researchers for it will provide further insight into the characteristics of the Nairobi Securities Exchange.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter is about literature review on working capital management and systematic risk. It reviews the origin of working capital management by Bowker, (2008) and the related models; the quantity theory of money; the Keynesian theory of money-the speculative motive, the precautionary motive, the transaction motive; the Baumol inventory model; the modern quantity theory; the Miller and Orr's cash management model; the treasury approach to cash management and operating cycle theory. It also reviews the historical developments of Capital Asset Pricing Model, the empirical tests on the relationship between Systematic risk and Working capital management and the conclusion of the literature review.

The literature review in this area shows that majority of the early research did not link working capital management to a known efficiency measures. The early efforts attempted to develop models for optimal liquidity and cash balances, given the firms cash flow. The earlier cash management research focused on using quantitative models that weighed the benefits and cost of holding cash (Bowker, 2008). Under this category fall Baumol (1952) inventory management and Miller and Orr (1966) models which recognize the dynamics of cash flows. The benefit of these earlier models is that they help financial managers understand the problem of cash management, but they do require assumptions that may not hold in practice.

#### **2.2.0. Theories of working capital management**

The main theme of the theory of working capital management is the interaction between current assets and current liabilities and it involves managing the balance between a firm's short-term assets and short-term liabilities with an aim of ensuring to continuity of operations (Pandey, 2011).

### **2.2.1 Quantity Theory of Money**

According to the 'quantity theory' money is held only for purpose of making payments for current transactions. This theory was proposed by (Fisher, 1911). Irving Fisher's version of the quantity theory can be explained in terms of the equation of exchange model;  $MV = PT$ , Where M is the nominal stock of money in circulation, V is the transaction velocity of circulation of money that is; the average number of times the given quantity of money changes hand in transactions, P is the average price of all transactions and T is the number of transactions that take place during the time period.

Both MV and PT measure the total value of transactions during the time period and so must be identical. Thus 'the equation' is really an identity which must always be true; it tells us only that the total amount of money handed over in transactions equal to the value of what is sold.

### **2.2.2 Keynesian theory of Money**

Keynes (1936) in his work, the General Theory of Employment, Interest and Money identified three reasons why liquidity is important, the speculative motive, the precautionary and the transaction motive. The speculative motive is the need to hold cash to be able to take advantage of, for example bargain purchase opportunities that might arise, attractive interest rates and in the case of international firms, favourable exchange rate fluctuations. For most firms, reserve borrowing ability and marketable securities can be used to satisfy speculative motives. The precautionary motive is the need for a safety supply to act as financial reserve. Once again, there is probably a precautionary motive for liquidity. However, given that the value of money market instruments is relatively certain and that instruments such as Treasury bills are extremely liquid, there is no real need to hold substantial amount of cash for precautionary purpose. Cash is needed to satisfy the transaction motive, the need to have cash on hand to pay bills. Transaction related needs come from collection activities of the firm. The disbursement of cash includes the payment of wages and salaries, trade debts, taxes and dividends.

### **2.2.3 Baumol Inventory Model**

Baumol (1952) developed the inventory development model. The Baumol model is based on the Economic Order Quantity (EOQ). The objective is to determine the optimal target cash balance. Baumol made the following assumptions in his model; The firm is able to forecast its cash

requirements with certainty and receive a specific amount at regular intervals; The firm's cash payments occur uniformly over a period of time that is; a steady rate of cash outflows; the opportunity cost of holding cash is known and does not change over time; cash holdings incur an opportunity cost in the form of opportunity foregone; the firm will incur the same transaction cost whenever it converts securities to cash; cash transaction incurs at a fixed and variable cost. The limitations of the Baumol model are as follows; assumes a constant disbursement rate; in reality cash outflows occur at different times, different due dates; assumes no cash receipts during the projected period, obviously cash is coming in and out on a frequent basis; no safety stock is allowed for, reason being it only takes a short amount of time to sell marketable securities.

#### **2.2.4. The Modern Quantity Theory**

Friedman (1956) restated the quantity theory of money, a theory of demand for money and this "modern quantity theory" has become the basis of news put forward by monetarists. In this theory, money is seen as just one of a number of ways in which wealth can be held, along with all kinds of financial asset, consumer durables, property and human wealth. According to Friedman, money has a convenience yield in the sense that its holding saves time and effort in carrying transactions.

#### **2.2.5 Miller and Orr's cash management Model**

Miller and Orr (1966) came up with another model of cash management. As per the Miller and Orr's model of cash Management the companies let their cash balance move within two limits- the upper limit and the lower limit. The companies buy and sell the marketable securities only if the cash balance is equal to any one of these. The model rectified some of the deficiencies of the Baumol model by accommodating a fluctuating cash flow situation stream that can either be inflow or outflow

When the cash balance of a company touches the upper limit, it purchases a certain number of saleable securities that helps them to come back to the desired level. If the cash balance of the company reaches the lower level then the company trades its saleable securities and gathers enough cash to fix the problem.

It is normally assumed in such cases that the average value of the distribution of net cash flow is zero. It is understood that the distribution of net cash flows has a standard deviation. The Miller and Orr's model of cash management also assumes that distribution of cash flow is normal. The Miller and Orr's cash management model is widely used by most business entities.

### **2.2.6 Treasury approach to cash management**

Johnson and Aggarwal (1998) developed a cash management model focusing on cash flows and argued that cash collection and cash payment processes should be handled independently. This entails that cash collection and payment management cycles should be broken into their constituent parts.

### **2.2.7 Operating cycle theory**

Park and Gladson (1963) held that the one year temporal standard to determine the currentness was arbitrary and not universally valid. What was current or non-current depended on the nature of core business activity marked by technological requirements and trading practices. They used the term 'natural business year' within which an activity cycle is completed. The yardstick for judging currentness of an item, both assets and liabilities, would be 'natural business year'. The 'natural business year' concept was developed later into operating cycle (OC) theory of working capital.

Operating cycle theorists claim that money is blocked first in raw materials, labour and other conversion costs come later, selling and distribution costs come at the end. Thus all items do need cash support for the entire operating cycle days. Hence the need to aggregate working capital could be more accurately derived by considering each component of working capital.

Each component of working capital (namely inventory, receivables and payables) has two dimensions TIME and MONEY. When it comes to managing working capital - **TIME IS MONEY**. If you can get money to move faster around the cycle (e.g. collect monies due from trade receivables more quickly) or reduce the amount of money tied up (e.g. reduce inventory levels relative to sales), the business will generate more cash or it will need to borrow less money to fund working capital. As a consequence, you could reduce the cost of bank interest or you will have additional *free* money available to support additional sales growth or investment. Similarly,

if you can negotiate improved terms with suppliers e.g. get longer credit or an increased credit limit; you effectively create *free* finance to help fund future sales.

It can be tempting to pay cash, if available, for fixed assets e.g. computers, plant, vehicles etc. If you do pay cash, remember that this is now longer available for working capital. Therefore, if cash is tight, consider other ways of financing capital investment - loans, equity, leasing etc. However, if dividends are paid or drawings are increased, these are cash outflows and they remove liquidity from the business.

### **2.3 Review of empirical studies**

The study of individual firm's risk as related to their underlying characteristics began with the work of (Beaver and et. al, 1970). They examined the relationship of certain accounting ratios (dividend payout, liquidity, earnings variability, leverage, asset size and covariability of earnings) to firm's systematic risk and found a strong and significant association between them.

Bowman (1980) tried in his paper to establish whether there was a theoretical relationship between systematic risk and financial accounting variable. He looked into earnings variability, dividend payout, capital structure and growth. He collected market values for both debt and equity for a sample of 92 firms. He concluded that systematic risk was not a function of earnings variability, growth, size of a firm, or dividend payout. However, there was a theoretical relationship between systematic risk and the firm's leverage.

Shin and Soenen (1998) highlighted that efficient Working Capital Management was very important for creating value for the shareholders. The way working capital was managed had a significant impact on both profitability and liquidity. The relationship between the length of Net Trading Cycle, corporate profitability and risk adjusted stock return was examined using correlation and regression analysis, by industry and capital intensity. They found a strong negative relationship between lengths of the firm's net trading cycle and its profitability. In addition, shorter net trade cycles were associated with higher risk adjusted stock returns.

Belkaoui (1978) & Dhingra (1982) provide the Canadian evidence. Significant positive relationships were found between the current and the long-term debt to common equity ratios and systematic risk. Liquidity (current) was found to be directly related to the systematic risk.

Loo & Ramasamy (1989) in their study on the relationship between financial accounting variables and systematic securities risk in a small and developing capital market namely; Kuala Lumpur Stock Exchange based on 67 firms between the years 1977 and 1984 shows that there is the influence of accounting ratios on the systematic risk. However, the results show a negative relationship between leverage ratio and risk. Factor analysis was used to group and identify the financial variables into independent dimensions. The beta of an individual stock was estimated by regressing a time series of the historical data from the Kuala Lumpur Stock Exchange composite index which is non-dividend adjusted value-weighted sample index monthly returns from 1977-1984 were used to compute monthly betas of the individual firms. The total period was later sub-divided into two four-year periods of 1977 to 1980 and 1981 to 1984. Betas were computed for each period for the individual firms. The betas of firms for these different periods were then tested for their stability. All companies established before 1977 and listed on the Kuala Lumpur Stock Exchange continuously over the test period were included in the initial sample. All companies which had not been traded continuously were discarded if the price quotations for any period of four months were missing. For each of the selected securities monthly closing prices were obtained and adjusted for bonuses and rights. Using the adjusted prices, monthly returns were computed for the firm's security. The study used ratios which have the characteristics of being commonly used and understood by the general investment community and widely used in previous in research on risk analysis. The variables used are presumed to reflect the results of the main corporate decisions mostly likely to be associated with the systematic risk of the firm. The problem of possible bias due to multi collinearity between any two accounting series was mitigated by selecting one representation variable from each financial profile of a firm after identifying the factors in the analysis. To assist the selection of the representative variable from each financial dimension factor analysis was used to group and identify the financial data into independent dimensions.

Smith & Begemann (1997) emphasized that those who promoted working capital theory showed that profitability and liquidity comprised that salient goods of working capital management. The



problem arose because the maximization of the firm's returns could seriously threaten its liquidity and the pursuit of liquidity had a tendency to dilute returns. This article evaluated the association between traditional and alternative working capital measures and returns on investment (ROA) specifically in industrial firms listed on the Johannesburg Stock Exchange. The problem under investigation was to establish whether the more recently developed alternative working capital concepts improved association with return on investment to that of traditional working capital ratios or not. Results indicated that there were no significant differences amongst the years with respect to the independent variables. The results of their stepwise regression corroborated that total current liabilities divided by funds flows accounted for most of the variability in returns on investment (ROA). The statistical test results showed that a traditional working capital leverage ratio, current asset, current liabilities divided by funds flow, displayed the greatest associations with returns on investment. Well known liquidity concepts such as the current and quick ratios registered insignificant associations whilst only one of the newest working capital concepts the liquidity comprehensive index, indicated significant associations with returns on investment.

Deloof (2003) discussed that most firms had a large amount of cash invested in working capital. It can therefore be expected that the way in which working capital is managed will have a significant impact on profitability of those firms. Using correlation and regression tests he found a significant negative relationship between gross operating income and the number of days of trade receivable, inventories and trade payables of Belgian firms. On basis of these results he suggested that managers could create value for their shareholders by reducing the number of days' trade receivable and inventories to a reasonable minimum. The negative relationship between trade payable and profitability firms wait longer to pay their bills.

Reheman and Nasr (2007) carried out a study on working capital management and profitability, a case of 94 Pakistan firms on Karachi Stock Exchange for a period of six years 1999-2004. Their main objective was to establish the relationship between working capital management and profitability of a firm. Their findings were that there was a negative relationship between net operating profitability and the average collection period, inventory turnover in days, average payment period and cash conversion cycle for the sample of Pakistan firms listed on the Karachi stock exchange. The results suggested that managers can create value for their shareholders by

reducing the number of days of accounts receivable and inventory to a reasonable minimum. The negative relationship between account payable and profitability was consistent with the view that less profitability firms wait longer to pay their bills.

In Kenya, Kithii (2008) carried out a study on the relationship between working capital management and profitability of listed companies on Nairobi stock exchange. Her objectives were to establish how efficient the firms are in managing their working capital. She also aimed at establishing the relationship between profitability, the cash conversion cycle and its components for the listed companies on the Nairobi stock exchange for the period 2001-2006. The results showed that there is a statistical significant negative relationship between variables of working capital management and the profitability of firms except for the average payment period which showed a positive relationship.

Ochieng (2006) carried out a study on firms quoted on the Nairobi stock exchange over the last twenty years on the relationship between working capital and the Economic Activities in Kenya. The objective of the study was to examine how the changes in economic activities affect changes in working capital by firms listed on the Nairobi stock exchanges. The findings revealed that the liquidity of the small firms as measured by the current and quick ratios increased slightly during economic slowdown. The study also shows that the liquidity positions reacted differently to various economic indicators such as inflation and lending rates. With lending rates, the study found that lending rates indeed did affect the amount of working capital for the firms and this further showed that during times of economic contraction, working capital positions of the firms improved.

However, there was a need to establish how firms' stocks specifically responded to working capital management practices subject to the effects of the external environmental factors to the firms quoted at the Nairobi Stock Exchange. This calls for the measure of stock's beta or systematic risk in relation to working capital management. Thus, a study on the relationship between working capital management practices and systematic risk of stock needs be carried out.

Nyakundi (2003) studied the working capital management policies among public companies in Kenya, while Lutomia (2002), carried out a study close to this, on the relationship between capital structure and systematic risk of the stocks of companies listed on the Nairobi Stock

Exchange. The findings of the study by Lutomia were that there is no relationship between capital structure and systematic risk of the stock.

In her study 2001 entitled, 'business risk and systematic: a case of companies listed at the Nairobi stock exchange' Ndegwa (2001) found out that the relationship between business risk and market risk holds for selected companies and not all companies. For the market as a whole the study revealed that there is a relation between systematic risk and business risk. Also the study revealed that only a small number (30%) of companies with high risk are compensated with a high return. The study used secondary data covering years 1996 to 2000 derived from the financial statements of the selected companies. Regression method was used to analyze the data. On the other hand, Ngaba (1990) studied the working capital management practices used in the Kenya secondary schools.

## **2.4 Working capital management**

Working capital management is defined as a measure of both a company's efficiency and its short-term financial health. Positive working capital reflects a company's ability to pay off its short-term liabilities whereas negative working capital reflects a company's inability to meet its short term liabilities with its current assets i.e. cash, accounts receivable and inventory. Working capital is also known as "net working capital", or the "working capital ratio".

Many surveys have indicated that managers spend considerable time on day-to-day problems that involve working capital decisions. One reason for this is that current assets are short-term investments that are continually being converted into other asset types (Rao, 1989).

The term working capital originated at a time when most industries were closely related to agriculture. Processors would buy crops in the autumn, process them, sell the finished product, and end up just before the next harvest, with relative low stock levels. Bank loans with maximum maturities of one year were used to finance both the purchase and the processing costs, and these loans were retired with the proceeds from the sale of the finished products (Bowker, 2008).

The concept of working capital was perhaps first evolved by Karl Marx between 1861 and 1864, though in a somewhat different form. Marx used the term 'variable capital' meaning outlays for payrolls advanced to workers before the goods they worked on were complete. He contrasted this with 'constant capital' which according to him, is nothing but 'dead labour' that is; outlays for

raw materials and other instruments of production produced by labour in earlier stages which are now needed for live labour to work within the present stage (Bowker, 2008).

The 'variable capital' is nothing but wage fund which remains blocked in terms of financial management, in work-in-process along with other operating expenses until it is released through sale of finished goods. Although Marx did not mention that workers also gave credit to the firm by accepting periodical payment of wages which funded a portion of work-in-process, the concept of working capital as we understand today was embedded in his 'variable capital' (Bowker, 2008).

The literature review in this area shows that majority of the early research did not link working capital management to a known efficiency measures. The early efforts attempted to develop models for optimal liquidity and cash balances, given the firms cash flow. The earlier cash management research focused on using quantitative models that weighed the benefits and cost of holding cash (Bowker, 2008). Under this category fall Baumol (1952) inventory management and Miller and Orr (1966) models which recognize the dynamics of cash flows. The benefit of these earlier models is that they help financial managers understand the problem of cash management, but they do require assumptions that may not hold in practice.

## **2.5 Systematic risk**

Systematic risk is usually measured using the coefficient beta, according to CAPM, beta is the only relevant measure of a stock's risk (systematic risk). It measures a stock's volatility, that is; it shows how much the price of a particular stock jumps up and down compared with how much the stock market as a whole jumps up and down.

Beta has the following characteristic; Beta is unit less, the beta co-efficient of the market portfolio is equal to one and the beta coefficient of any security can take any of the three critical values;

## **2.6. Summary of literature review**

In order to develop the framework for this study, relevant literature that was established mostly in the developed countries will be relied on. It is believed that the experiences in the developed countries can be used as a reference point for the managers in developing countries like Kenya. Although the study by Loo and Ramasamy (1989) on the relationship between financial accounting variables and systematic securities risk in a small and developing capital market namely; Kuala Lumpur Stock Exchange shows that there is the influence of accounting ratios on the systematic risk, no similar study has been carried out here in Kenya. The study close to this, was carried out by Lutomia (2002), on the relationship between capital structure and systematic risk of the stocks of the companies listed on the Nairobi Stocks Exchange that showed that there is no relationship between capital structure and systematic risk of the stock. Amid these positions therefore this research would like to find out whether the relationship tested on firms quoted at Kuala Lumpur Stock Exchange hold on the Nairobi Stock Exchange. The conceptual approach presented in the literature review helps in defining the approach to common working capital management components and the beta concept. This helps in designing the data collection approach and the analysis the sample developed to establish the relationship. In conclusion, this study therefore seeks to establish the effects of a firm's working capital management practices on the systematic risk of common stocks in an effort to analyze the relationship between systematic risk and working capital management practices on the Nairobi Securities Exchange. It hopes to bring new knowledge and hence a better understanding of our stock market.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter details the blueprint that was followed in this research to establish the relationship between working capital management and the systematic risk of companies quoted at the Nairobi securities exchange. It specifically details the research design, population of study, data collection instrument and finally the data analysis

#### **3.2 Research design**

The main purpose of this research was to determine the effect of a firm's working capital management on the systematic risk of its common stock in Kenya. This is a causal relationship study between working capital management and its effects on systematic risk of the firms listed on the Nairobi Securities Exchange to be established for a period between 2008 and 2014, thus covering a period of six years. This section of the study discusses the firms based on the selected common variables of working capital and the variables that were used to compute the stock beta as included in the distribution patterns of data. It also applies statistical techniques such as descriptive and quantitative analysis in establishing the relationship between working capital management and systematic risk of the firm's stock.

#### **3.3 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 constituted of all companies quoted at the NSE for a period of 7 years from 2008 to 2014. According to the Nairobi Securities Exchange weekly report, there are a total of 64 firms quoted at the Nairobi Securities Exchange both main investment market segment and the alternative investment market segment.

### **3.4 The sample size**

A sample is defined as a small proportion of the population selected for observation and analysis (Best and Khan, 1993). The study was based on financial statements of the selected firms listed on the Nairobi Securities Exchange. Because of the specific nature of their activities, firms in financial sector; banking, insurance, leasing business, service rendering and other services were excluded from the sample. Firms must have complete data for the period 2008-2014 which reduced the final sample to 20 non-financial firms.

### **3.5 Data collection**

The data used in this study was secondary data that was obtained from Nairobi Securities Exchange Handbook and at the specific companies. A data collection form was designed to record sales, cost of sales, total assets, financial assets, trade receivables, trade payables, inventories and total debts, annual stock prices, non-current liabilities, common stock dividend, interest expenses, annual corporation tax, firm's earnings and common stock issued. This was from Annual Capitalization Reports and Annual Price Lists for the period of seven years covered under this study. This was aimed at coming up with valid empirical evidence to the issues of the relationship between working capital management and systematic risk.

### **3.6 Data analysis techniques**

To determine the relationship between working capital management and systematic risk of companies listed on the Nairobi Securities Exchange, two types of data analysis were used; descriptive and quantitative analysis.

#### **3.6.1 Descriptive Analysis**

Descriptive analysis was the first in the analysis; it helped in describing relevant aspects of phenomena of cash conversion cycle and provided detailed information about each relevant variable. Descriptive statistics like mean, median and standard deviation were used to describe the different variables of interest in the study. Researches have already been conducted in some areas of this study and a lot of information is already in hand, and SPSS software will be used for analysis of the different variables in this study.

### **3.6.2 Quantitative Analysis**

Two methods of quantitative analysis were applied in this study. One method to be used is correlation models specifically Pearson correlation to measure the degree of association between different variables under consideration. The other method that was used is multiple regression analysis that estimated the causal relationships between stock beta and other chosen variables. Generalized Least Squares (Cross section weights) method will be applied for analysis. The use of panel data in a pooled regression where time-series and cross-sectional observations was combined and estimated. This means that, several cross-sectional units were observed over a period of time in a panel data setting.

At first, correlation was used to measure the degree of association between different variables under consideration. Many important variables associated with working capital management were identified. As multiple variables are influencing the problem in hand, the crucial factors associated with working capital management were identified. Pearson correlation was calculated for all variables used in the study.

### **3.6.3 Pearson's Correlation Coefficient Analysis**

Pearson's Correlation analysis was used for data analysis to see the relationship between variables such as those between working capital management and systematic risk. If efficient working capital management reduces stock beta, one expects a positive relationship between the measures of working capital management and systematic risk variable.

### **3.6.4 Regression Analysis**

For the purpose of identifying the important variables influencing the dependent variable, regression analysis was used. In panel data (pooled) regression, time –series and cross-sectional observations was combined and estimated. In other words, several cross-sectional units were observed over a period of time in a panel data setting. Panel is more useful in studying the dynamics of adjustment, and is better able to identify and measure effects that are simply not detectable in pure cross-sections or pure time-series data. Moreover, many variables can be more accurately measured at the micro level and biases resulting from aggregation over firms or individuals are eliminated (Reheman and Nasr, 2007).



Regression analysis was used to investigate the impact of working capital management on corporate stock beta. The determinants of corporate stock beta were estimated using pooled least squares and general least squares method with cross section weights.

### 3.6.5 Determinants of the beta

The assumption of the validity of the MM theory approach by Modigliani and Miller (1958) was applied in this case. Hence, to discuss this approach specifically a consideration was made on the relationship for the shilling return to the common shareholder from the period t-1 to t. Lutomia (2002) in his study found that the beta stock is not related to the firm capital structure. Thus, whether the firm was leveraged or not would not affect the stock beta. Hence, to measure the firm's stock beta, the equations used by Hamada (1972) and Lutomia (2002) were applied as follows:

$$Ct = (x-1) t (1-T) t - Pt + \Delta Gt = Dt + Cgt$$

Where,  $Ct$ = Total shilling return to the common shareholder from period t-1 to t,  $Xt$ = Earnings before interest and preferred dividends,  $I$  = Interest expense,  $T$ = Corporate tax rate,  $Pt$ = Preferred dividends paid,  $\Delta Gt$ = The change in capitalized growth over the period,  $Dt$ =Common stock dividends,  $Cgt$ = Common stock capital gains.

It should be noted that there is a need to add any change in capitalized growth since the study will try to explain the common shareholder's market holding period shilling return with respect to systematic risk,  $\Delta gt$  must be added for firm's growth to the current period's profits from existing assets since capitalized growth opportunities of the firm future earnings from new assets over and above firm's cost of capital which are already reflected in the stock price at (t-1)-t should change over the period and would accrue to the common shareholder.

Thus, the above variables were used in the model below to give the systematic risk of a common stock:

$$\beta_i = \frac{\text{Cor}(R_{it}, R_{mt})}{\sigma^2(R_{mt})}$$

Where,  $R_{it}$ = The common shareholder rate of return,  $R_{mt}$  = The return on the market portfolio.

### 3.6.6 Hypotheses Testing

The objective of this study was to examine the relationship between working capital management (the cash conversion cycle and its components for companies on the Nairobi stock exchange for the period 2008-2014) and stock beta. To achieve this, the study made the testable hypothesis (the null hypothesis  $H_0$ : verses the alternative hypothesis  $H_1$ ) as follows:

$H_0$ : There is no relationship between efficient working capital management and systematic risk of Kenyan firms.

$H_1$ : There is a possible positive relationship between efficient working capital management and systematic risk of Kenya firms. That is, firms more efficient in managing their working capital were expected to report low level of stock beta.

### 3.6.7 Model Specifications

The study used panel data, regression analysis of cross-sectional and time series data. The pooled regression type of panel data analysis was used. The pooled regression, also called the constant coefficients model is one where both slopes are constant, where the cross section firm data and time series data are pooled together in a single column assuming that there is no significant cross section or temporal effects.

The general form of the model is:

$Bit = \beta_0 + \sum_{i=1}^n \beta_i X_{it} + \varepsilon$ , where:

$Bit$  : Stock beta of firm at time  $t$ ;  $i=1,2, \dots, 64$  firms

$\beta_0$  : The intercepts of equation

$\beta_i$  : Coefficients of  $X_{it}$  variables

$X_{it}$  : The different independent variables for working capital management of firm  $i$  at time  $t$ .

$t$  : Time = 1,2, ..., 7 years

$\varepsilon$ : The error term

Specifically, when the above general least squares model is converted into our specified variables it becomes:

$$Bit = \beta_0 + \beta_1(ACPi) + \beta_2(ITIDi) + \beta_3(APPi) + \beta_4(CCC) + \beta_5(CRi) + \beta_6(DRi) + \beta_7(LOSi) + \beta_8(FATAi) + \varepsilon$$

Where:

Bi: Stock beta of the firm;  $\beta_0$ : The intercepts of equation; ACP: Average Collection Period; ITID: Inventory Turnover in Days'; APP: Average Payment Period; CCC: Cash Conversion Cycle; CR: Current Ratio; DR: Debt Ratio; LOS: Natural logarithm of Sales; FATA: Financial Assets to Total Sales;

$\varepsilon$ : The error term

The hypothesis is to be tested at 5% level of significance using F-test

## CHAPTER FOUR

### DATA ANALYSIS, RESULTS AND DISCUSSION

#### 4.1 Introduction

This chapter discusses the interpretation and presentation of the findings. The objective of this study was to establish whether there is a relationship between working capital management and systematic risk of stocks of the companies quoted at the Nairobi Securities Exchange. This chapter focused on data analysis, interpretation and presentation. The researcher made use of descriptive statistics and quantitative analysis to present data.

#### 4.2. Descriptive analysis

Descriptive analysis presents the mean, standard deviation, maximum values, and minimum values of the different variables in this study.

**Table 4.2.1: Descriptive statistics**

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
BI	140	-7.9800	5.9000	-.042744	1.2316009
ACP	140	15.00	491.00	81.1767	71.90979
APP	140	13.0000	570.0000	1.018021E2	89.3685250
ITD	140	.0000	279.0000	8.299671E1	58.8897622
CCC	140	-2.6400E2	432.0000	6.195086E1	98.9684653
CR	140	.2700	18.2900	2.256714E0	2.5646104
LOS	140	7.2300	19.2200	1.494586E1	2.2245430
FATA	140	.0000	1.5200	.139655	.2059785
DR	140	-.0300	.7200	.161239	.1799469

Table 4.2.1 above shows the mean, standard deviation, minimum values and maximum values for 20 companies listed on Nairobi Securities Exchange for 140 firms-year observations from year 2008 to year 2014. The cash conversion cycle used as a proxy to check the efficiency in managing working capital is on average 62 days and standard deviation is 99 days. Firms receive payment after sales after an average of 81 days and a standard deviation of 71 days. Minimum time taken by a company to collect cash from receivable is 15 days while the maximum time for this purpose is 491 days. It takes an average 83 days to sell inventory with standard deviation of 59 days. Maximum time taken by a company is 279 days which is a very large time period to convert inventory into sales while the minimum is 0 days. Firms wait an average of 101 days to pay their purchases with a standard deviation of 89 days.

To check the size of the firm and its relationship with stock beta, natural logarithm of sales is used as a control variable. The mean log of sales is 14.94 while the standard deviation is 2.22. The maximum value of the log of sales of a company in a year is 19.2 and the minimum is 7.23

In the same way to check the liquidity of the companies, a traditional measure of liquidity (current ratio) is used. The average current ratio for firms analyzed is 2.25 and a standard deviation of 2.56. The highest current ratio for a company in a particular year is 18.2 times in the same way the minimum ratio for a company in a year is 0.27.

To determine the debt financing and its relationship with the stock beta the debt ratio (obtained by dividing the total debt of the company by the total assets) is used as control variable. From the results the average debt ratio for the analyzed companies was 16% with a standard deviation of 18%. The maximum debt financing used by a company is 72% while the minimum level of the debt ratio is -3%.

To determine the ratio of the fixed financial assets to total assets of the analyzed firms, the financial assets to total assets ratio is used as controlled variable. The mean value for this ratio is 14% with a standard deviation of 21%. The maximum portion of the assets in the form of financial assets for a particular company is 152% and the minimum is 0%.

## **4.3 Quantitative analysis**

Pearson and spearman correlations are calculated for all the variables used in the study starting with the Pearson correlation results.

### **4.3.1. Pearson's correlation coefficients analysis**

If efficient working capital management decreases stock beta, one should expect a negative relationship between the measure of the working capital management and the stock beta. There is a negative relationship between stock beta on one hand and the measures of working capital management on the other hand. This is consistent with the view that the time lag between expenditure for purchases of raw material and the collection of sales of finished goods can be too long and that decreasing this time lag reduces the stock beta.

#### **Appendix I: Presents Pearson correlation coefficients for all variables considered**

The analysis of correlation results between the average collection period and stock beta show a negative coefficient -0.097, with p-value of 0.256. It indicates that the result is significant at  $\alpha = 5\%$ , and that if the average collection period increases it will have a negative impact on the stock beta and the stock beta will increase. The correlation results between inventory turnover in days and the stock beta shows a positive correlation coefficient of 0.053 and a p-value of 0.535 which significant at  $\alpha = 5\%$ , this means that if ITD increase it will have a positive impact on the stock beta. The correlation result of average payment period also shows the coefficient is positive and significant  $\alpha = 5\%$ . It was also realized that there is positive correlation 0.043, with p value of 0.612 between average payment periods and the beta stock of a firm. From these results we can deduce that an increase in average payment period will have a positive impact on the stock beta of the firm, will lead to increase in stock beta of the firm. The cash conversion cycle which is a comprehensive measure of working capital management has a negative coefficient -0.078 and the p-value is 0.358 and significant at  $\alpha = 5\%$ . It means that if the firm is able to reduce the cash conversion cycle it can reduce its stock beta.

By analyzing the results a conclusion can be drawn that if the firm is able to reduce these time periods, then the firm is efficient in managing working capital. This efficiency will lead to decreasing the size of the stock beat. Current ratio as a traditional measure of checking liquidity of the firm has a significant negative relationship with the stock beta. Its coefficient is -0.155 and

a p-value of 0.068 and significant at  $\alpha = 5\%$ . It indicates that the elements of liquidity and stock risk have inverse relationships. So, the Kenyan firms need to maintain an optimal level between the two measures.

The positive significant association that exists between stock beta and measure of firm size, LOS has a coefficient of 0.106 with a p-value of 0.213 and is significant at  $\alpha = 5\%$ . It shows that as the size of the firm increases, it will decrease the stock beta. It was also revealed that there is a negative relationship between financial assets to total assets of a firm and its stock beta. This was shown by a correlation of -0.123 and p value of 0.147. This indicates that an increase in financial assets to total assets of a firm will lead to a negative impact on stock beta of a firm.

The significant relationship between the average collection period and cash conversion cycle, with a correlation coefficient is 0.652 and a p-value of 0.000 is significant at  $\alpha = 1\%$  which means that if a firm takes more time to collect cash against the credit sales it will increase its cash conversion cycle.

The inventory turnover in days shows a negative relationship with a correlation coefficient of -0.039, with a p-value of 0.648 showing that it is highly significant at  $\alpha = 1\%$ .

The average payment period and cash conversion cycle have a negative relationship with a coefficient of -0.608 and a p-value 0.000 and highly significant at  $\alpha = 1\%$ . It means that if firms take more time to pay their purchases than the time for collection and selling inventory, the cash conversion cycle will be reduced.

The results of correlation analysis indicate that as far as Kenya firms are concerned, the working capital management significantly affects their stock beta.

### **4.3.2 Regression analysis**

The researcher conducted a multiple linear regression analysis so as to determine the relationship between the stock beta of the firm and the 8 independent variables; ITID: Inventory Turnover in Days'; Average Payment Period; Cash Conversion Cycle; Current Ratio; Debt Ratio; Natural logarithm of Sales; Financial Assets to Total Sales; The error term for 7 years. The regression equation is

$$B_{it} = \beta_0 + \beta_1 (ACP_{it}) + \beta_2 (ITID_{it}) + \beta_3 (APP_{it}) + \beta_4 (CCC) + \beta_5 (CR_{it}) + \beta_6 (DR_{it}) + \beta_7 (LOS_{it}) + \beta_8 (FATA_{it}) + \varepsilon$$

Where:  $B_{it}$ : Stock beta of the firm;  $\beta_0$ : The intercepts of equation; ACP: Average Collection Period; ITID: Inventory Turnover in Days'; APP: Average Payment Period; CCC: Cash Conversion Cycle; CR: Current Ratio; DR: Debt Ratio; LOS: Natural logarithm of Sales; FATA: Financial Assets to Total Sales;  $\varepsilon$ : The error term

**Table 4.3 1: Regression analysis of the general model**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.714	1.035		-.690	.491
	ACP	.005	.025	.289	.196	.845
	APP	-.003	.025	-.211	-.115	.908
	ITD	.005	.025	.219	.181	.857
	CCC	-.003	.025	-.238	-.117	.907
	CR	-.104	.063	-.217	-1.646	.102
	LOS	.057	.060	.103	.956	.341
	FATA	-.516	.616	-.086	-.838	.404
	DR	-1.123	.697	-.164	-1.611	.110

a. Dependent Variable: BI



### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.240 <sup>a</sup>	.057	.000	1.2316483

a. Predictors: (Constant), DR, FATA, APP, ACP, LOS, ITD, CR, CCC

### ANOVA<sup>b</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.119	8	1.515	.999	.440 <sup>a</sup>
	Residual	198.721	131	1.517		
	Total	210.841	139			

a. Predictors: (Constant), DR, FATA, APP, ACP, LOS, ITD, CR, CCC

b. Dependent Variable: BI

According to the regression equation established, taking all variables (ACP, APP, CCC, ITD, CR, LOS, FATA, DR) constant at zero, the stock beta of a firm will be – 0.714. The data findings analyzed also show that taking all other independent variables at zero, a unit increase in ACP will lead to 0.005 increase in beta stock of the firm, a unit increase in APP will lead to - 0.003 decrease in beta stock of a firm, a unit increase in current ratio will lead to a 0.104 decrease in beta stock of a firm, a unit increase in ITID will lead to a 0.005 increase in beta stock of a firm, unit increase in LOS will lead to a 0.057 increase in beta stock of a firm, a unit increase in FATA will lead to a 0.516 decrease in beta stock of a firm, while a unit increase in debt ratio will lead to a 1.123 decrease in beta stock of a firm. The adjusted  $R^2$  was 0.00% and the F statistics had a value of 0.999. This infers that ACP, ITD and LOS had a positive relationship with beta stock of a firm while APP, DR and FATA will lead to a negative relationship with the beta stock of a firm. However, after these findings are subjected to the F-distribution test, the critical value is 1.94 which greater than the observed the F statistic value of 0.999. Hence, there is no relationship between ACP, APP, CCC, ITD and the stock beta.

**Table 4.3 2 Regression model for average collection period**

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.393	.850		-.462	.645
CR	-.112	.058	-.233	-1.921	.057
LOS	.046	.054	.084	.860	.392
FATA	-.395	.593	-.066	-.665	.507
DR	-1.062	.664	-.155	-1.598	.112
ACP	.002	.002	.098	.807	.421

a. Dependent Variable: BI

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	11.048	5	2.210	1.482	.200 <sup>a</sup>
Residual	199.793	134	1.491		
Total	210.841	139			

a. Predictors: (Constant), ACP, DR, LOS, FATA, CR

b. Dependent Variable: BI

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.229 <sup>a</sup>	.052	.017	1.2210614

a. Predictors: (Constant), ACP, DR, LOS, FATA, CR

$$\text{Bit} = \beta_0 + \beta_1 (\text{ACPit}) + \beta_2 (\text{CRit}) + \beta_3 (\text{LOSit}) + \beta_4 (\text{FATAit}) + \beta_5 (\text{DRit}) + \epsilon$$

The results for this regression indicates that the coefficient of ACP is negative and is highly significant at  $\alpha = 5\%$ . It implies that the increase or decrease in trade receivable will significantly affect the stock beta. The current ratio which is a traditional measure of liquidity has also a significant negative relationship with the stock beta which confirms that elements of liquidity and stock beta have inverse relationship. The debt ratio as a proxy for leverage; shows a significant negative relationship with the stock beta, which means that when leverage of the firm increases it will cause a decrease in the stock beta. The log of sales used as proxy for size of a company shows a significant positive relationship with the stock beta which means that bigger size firms have less stock beta compared to firms of smaller size. The ratio of financial assets to total asset has a significant negative relation with stock beta. It reflects that if this ratio increase the stock beta will increase.

The adjusted  $R^2$  also called the coefficient of multiple determinants is the percent of the variance in the dependent explained uniquely or jointly by the independent variables and is 1.7%. The B is the constant where the regression line intercepts the y axis, representing the amount of the dependent y will be when all the independent variables are zero. Here, B is -0.393; the probability of the coefficient is used to test the significant of R. Overall; the model is significant as F-statistics is 1.482 but less than the critical value of F-distribution value of 2.21

**Table 4.3 3: Regression model for average payment period**

		Coefficients <sup>a</sup>				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.543	1.013		-.536	.593
	CR	-.073	.051	-.153	-1.443	.151
	LOS	.053	.059	.095	.891	.374
	FATA	-.297	.576	-.050	-.516	.606
	DR	-.907	.660	-.133	-1.375	.171
	APP	.001	.001	.047	.460	.647

a. Dependent Variable: BI

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.543	1.013		-.536	.593
	CR	-.073	.051	-.153	-1.443	.151
	LOS	.053	.059	.095	.891	.374
	FATA	-.297	.576	-.050	-.516	.606
	DR	-.907	.660	-.133	-1.375	.171
	APP	.001	.001	.047	.460	.647

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.393	5	2.079	1.390	.232 <sup>a</sup>
	Residual	200.448	134	1.496		
	Total	210.841	139			

a. Predictors: (Constant), APP, DR, FATA, CR, LOS

b. Dependent Variable: BI

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.222 <sup>a</sup>	.049	.014	1.2230625

a. Predictors: (Constant), APP, DR, FATA, CR, LOS

The second regression is run using the average payment period as an independent variable the control variables. This gives the equation as follow:-

$$\text{Bit} = \beta_0 + \beta_1 (\text{APPit}) + \beta_2 (\text{CRit}) + \beta_3 (\text{LOSit}) + \beta_4 (\text{FATAit}) + \beta_5 (\text{DRit}) + \varepsilon$$

The coefficient of B is -0.114 and significant. The result indicates that the coefficient of average payment period is negative and is significant at  $\alpha = 5\%$ . It implies that the increase or decrease in the average payment period, significantly affects the stock beta. The size of the firm has a

positive impact on the stock beta while other control variables like debt ratio, financial assets to total assets and current ratio has a negative relationship with the firm value .. The adjusted  $R^2$  is 1.4%. The F-statistic has a value of 1.390. It reflects the significance of the model even though the critical value of F-distribution is 2.21 which is greater than F statistic value of 0.477

**Table 4.3. 4: Regression model for inventory turnover in days**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.502	.901		-.557	.578
	CR	-.073	.048	-.152	-1.507	.134
	LOS	.048	.055	.087	.885	.378
	FATA	-.330	.579	-.055	-.570	.570
	DR	-.991	.654	-.145	-1.516	.132
	ITD	.001	.002	.062	.671	.504

a. Dependent Variable: BI

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.748	5	2.150	1.440	.214 <sup>a</sup>
	Residual	200.093	134	1.493		
	Total	210.841	139			

a. Predictors: (Constant), ITD, LOS, DR, FATA, CR

b. Dependent Variable: BI

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.226 <sup>a</sup>	.051	.016	1.2219779

a. Predictors: (Constant), ITD, LOS, DR, FATA, CR

The third regression is run using the inventory turnover in days as an independent variable alongside the control variables. This gives the model as follows:-

$$\text{Bit} = \beta_0 + \beta_1 (\text{ITDit}) + \beta_2 (\text{CRit}) + \beta_3 (\text{LOSit}) + \beta_4 (\text{FATAit}) + \beta_5 (\text{DRit}) + \varepsilon$$

The coefficient of intercept B has a value of -0.502 and is also significant. The coefficient of inventory turnover in days is negative 0.001 and significant at  $\alpha = 5\%$  and implies that increase or decrease in the inventory turnover in days significantly affects the stock beta. This indicates that if the inventory takes more time to sell, it will decrease the stock beta. The adjusted  $R^2$  is 1.6% and the F-statistic has a value of 1.440 which is less than the critical value of F-distribution of 2.21. However, the findings reflect a significance of the model.

**Table 4.3. 5: Regression model for cash conversion cycle**

		Coefficients <sup>a</sup>				
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.155	.873		-.178	.859
	CR	-.102	.057	-.211	-1.778	.078
	LOS	.034	.055	.062	.622	.535
	FATA	-.312	.578	-.052	-.541	.590
	DR	-1.078	.690	-.157	-1.561	.121
	CCC	.001	.001	.060	.546	.586

a. Dependent Variable: BI

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.522	5	2.104	1.408	.225 <sup>a</sup>
	Residual	200.319	134	1.495		
	Total	210.841	139			

a. Predictors: (Constant), CCC, LOS, DR, FATA, CR

b. Dependent Variable: BI

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.223 <sup>a</sup>	.050	.014	1.2226673

a. Predictors: (Constant), CCC, LOS, DR, FATA, CR

The fourth regression, cash conversion cycle is used as an independent variable instead of average collection period, inventory turnover in days and average payment period. It is the comprehensive measure of checking efficiency of working capital management. The model derived appears as follows:-

$$\text{Bit} = \beta_0 + \beta_1 (\text{CCCit}) + \beta_2 (\text{CRit}) + \beta_3 (\text{LOSit}) + \beta_4 (\text{FATAit}) + \beta_5 (\text{DRit}) + \varepsilon$$

The result here indicates that the coefficient of cash conversion cycle is negative (-0.155) and is significant at  $\alpha = 5\%$  and implies that the increase or decrease in cash conversion period significantly affects the stock beta of the firm. All the other variables are also significantly affecting the stock beta. The increase in sales has a positive impact on the stock beta. Current ratio has a negative impact on stock beta while other control variables like debt ratio and financial assets to total assets have a significant effect on stock beat of the firm. The adjusted  $R^2$  is 1.4%. The value of F- statistic observed is 1.408 which is less than the critical value of F-distribution of 2.21 but the model is significant.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1. Introduction

This chapter presents summary of findings, conclusions and recommendations based on the findings. The aim of the study was to establish whether working capital management has a significant effect on the systematic risk of stocks of the companies quoted at the Nairobi Securities Exchange. This effect was measured by using the event study methodology. The chapter is organized as follows: Section 5.2 presents a discussion of findings; Section 5.3 presents the conclusions; and Section 5.4 presents recommendations for policy and further research.

#### 5.2 Summary of findings

The objective of this research was to find out the relationship between working capital management and the systematic risk firms quoted at the NSE. In order to achieve this objective a causal relation was conducted where the stock price as the dependent variable for each of 20 sampled firms quoted at the Nairobi Securities Exchange were computed. The APP, ACP, ITD and CCC were computed as independent variables and as components of working capital management. Alongside the dependent and independent variables were also control variables such as current ratio, logarithm of total assets, financial assets to total assets ratio and debt ratio. The choice of quoted companies was preferred because they represented the main sectors of the Kenyan economy, and are therefore considered as adequate representation of companies in Kenya. In addition, since they are publicly quoted and publish their annual reports, information about the measurement of working capital and value was readily available, unlike those unlisted companies.

A descriptive statistics analysis was conducted on all the variables to give the general behavior of the firms quoted at the Nairobi Securities Exchange with respect to working capital management and systematic risk. Pearson correlation coefficient analysis was also conducted to establish the relationship among the variables. The relationship between the dependent variable, systematic risk and the other variables was conducted using a general regression model.



To establish whether each of the independent variables had any significant relationship with the dependent variable (value) a regression model was conducted separately between the dependent variable and each of the independent variables alongside the control variables.

From the Pearson correlation coefficient analysis, the results showed some aspects of relationship among the variables. There was negative relationship between stock beta ACP and the cash conversion cycle while inventory turnover and average payment period showed a positive relationship. The regression models indicated that there was no relationship between working capital management and the firm's stock beta. The coefficient determination of variance indicated this relationship but the T test indicates there is no relationship where the adjusted R<sup>2</sup> was 0.00%. These findings helped in drawing the conclusion of the research.

### **5.3 Conclusions**

Following the findings in this study, a conclusion is drawn that there is no statistical significant relationship between efficient working capital management and systematic risk of Kenyan firms. Hence, the alternative hypothesis; H<sub>1</sub> is rejected and the null hypothesis; H<sub>0</sub> is accepted. This conclusion is arrived at after the F-distribution test a weak relationship as explained by the negative levels of adjusted  $R^2$ . A substantial amount of assets is held by Kenyan firms as working capital and thus the way working capital is managed is of great importance that even though it will not have a significant impact on the systematic risk of the firms in Kenya, the value of the firm could be enhanced. A study close to this though not similar by Loo and Ramasamy (1989) on the relationship between financial accounting variables and systematic securities risk shows that there is the influence of accounting variables on the systematic risk. However, their findings are not confirmed by the findings of this study.

### **5.4 Recommendations**

The results of this study suggest that managers may not mitigate the effects of the systematic risk of their firms by efficient working capital management. However, by reducing the duration of cash conversion cycle to a reasonable minimum the wealth of the firm's shareholders could be enhanced as highlighted by Shin and Soenen (1998), Kithii (2008) and, Neheman and Nars (2007) that efficient Working Capital Management is very important for creating value for the shareholders.

### **5.5 Limitations of the Study**

The analysis only covered the firms quoted at the Nairobi Securities Exchange and this may limit the fair findings that could have been found if the non-quoted firms were covered. The sample size could also have affected the results and thus the findings should not be generalized with certainty.

### **5.6 Suggestions for Further Research**

The studies on working capital management and systematic risk have not been exhaustively done in Kenya. Similar studies need be done in future to cover a wide sample size as well companies not quoted at the Nairobi Securities Exchange. Analysis on the firms based on different sectors of the economy need be done to draw a clear influence of working capital management on the systematic risk.

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## APPENDICES

**Appendix I: Present Pearson correlation coefficients for all variables considered**

		BI	ACP	APP	ITD	CCC	CR	LOS	FATA	DR
BI	Pearson Correlation	1	-.097	.043	.053	-.078	-.155	.106	-.123	-.056
	Sig. (2-tailed)		.256	.612	.535	.358	.068	.213	.147	.510
	N	140	140	140	140	140	140	140	140	140
ACP	Pearson Correlation	-.097	1	-.046	-.191*	.652**	.646**	-.329**	.439**	-.083
	Sig. (2-tailed)	.256		.586	.024	.000	.000	.000	.000	.329
	N	140	140	140	140	140	140	140	140	140
APP	Pearson Correlation	.043	-.046	1	.551**	-.608**	-.209*	-.403**	.195*	-.096
	Sig. (2-tailed)	.612	.586		.000	.000	.013	.000	.021	.261
	N	140	140	140	140	140	140	140	140	140
ITD	Pearson Correlation	.053	-.191*	.551**	1	-.039	-.258**	-.151	.194*	.170*
	Sig. (2-tailed)	.535	.024	.000		.648	.002	.075	.022	.045
	N	140	140	140	140	140	140	140	140	140
CCC	Pearson Correlation	-.078	.652**	-.608**	-.039	1	.504**	.036	.258**	.129
	Sig. (2-tailed)	.358	.000	.000	.648		.000	.670	.002	.129
	N	140	140	140	140	140	140	140	140	140
CR	Pearson Correlation	-.155	.646**	-.209*	-.258**	.504**	1	-.309**	.257**	-.374**

	Sig. (2-tailed)	.068	.000	.013	.002	.000		.000	.002	.000
	N	140	140	140	140	140	140	140	140	140
LOS	Pearson Correlation	.106	-.329**	-.403**	-.151	.036	-.309**	1	-.381**	.277**
	Sig. (2-tailed)	.213	.000	.000	.075	.670	.000		.000	.001
	N	140	140	140	140	140	140	140	140	140
FATA	Pearson Correlation	-.123	.439**	.195*	.194*	.258**	.257**	-.381**	1	.052
	Sig. (2-tailed)	.147	.000	.021	.022	.002	.002	.000		.541
	N	140	140	140	140	140	140	140	140	140
DR	Pearson Correlation	-.056	-.083	-.096	.170*	.129	-.374**	.277**	.052	1
	Sig. (2-tailed)	.510	.329	.261	.045	.129	.000	.001	.541	
	N	140	140	140	140	140	140	140	140	140
*. Correlation is significant at the 0.05 level (2-tailed).										

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



## Appendix ii: Data Collection form

Name of the Company-----

Description	Year						
	2014	2013	2012	2011	2010	2009	2008
Sales							
Cost of goods sold							
Total assets							
Financial assets							
Total receivables							
Inventories: opening							
Closing							
Trade payables							
Current assets							
Current liabilities							
Debt							
Annual opening stock price							
Annual closing stock price							
Dividends per common stock							
Preferred dividend							
Interest expenses							

Firm's earnings						
Total number of shares issued						
Corporation tax						
Non-current assets						

**Appendix III: Companies listed on the Nairobi Securities Exchange as at 31st Dec. 2014**  
**Main Investment Market Segment**

**Agriculture**

1. Kakuzi Limited
2. Rea Vipingo Plantations Limited
3. Sasini Limited
4. Eaagads Ltd
5. Kapchorua Tea Co. Ltd
6. The Limuru Tea Co. Ltd
7. Williamson Tea Kenya Ltd

**AUTOMOBILES & ACCESSORIES**

8. Car & General Limited
9. Marshalls (E.A.) Limited
10. Sameer Africa Limited

**BANKING**

11. Barclays Bank of Kenya Limited
12. CFC Stanbic Holdings Limited

13. Diamond Trust Bank Limited
14. Equity Bank Limited
15. Housing Finance Limited
16. Kenya Commercial Bank Limited
17. National Bank of Kenya Limited
18. National Investment Corporation Bank Limited
19. Standard Chartered Bank Limited
20. Cooperative Bank of Kenya Limited
21. I&M Holdings Ltd

#### **COMMERCIAL & SERVICES**

22. Atlas Development & Support Services Ltd
23. Express Kenya Limited
24. Longhorn Publishers Ltd
25. Hutchings Biemer Limited
26. Kenya Airways Limited
27. Nation Media Group Limited
28. Scangroup Limited
29. Standard Group Limited
30. TPS EA (Serena) Limited
31. Uchumi Supermarket Limited

#### **INVESTMENT**

- 32 Centrum Investment Limited
- 33 Home Afrika Ltd
- 34 Kurwitu Ventures Ltd
- 35 Olympia Capital Holdings Limited
- 36 Trans-Century Ltd

#### **INVESTMENT SERVICES**

- 37 Nairobi Securities Exchange

#### **MANUFACTURING & ALLIED**

- 38 A. Baumann & Co. Limited
- 39 B.O.C Kenya Limited
- 40 BAT Kenya Limited
- 41 Carbacid Investments Limited
- 42 East African Breweries Limited
- 43 Eveready EA Limited
- 44 Flame Tree Group Holdings Ltd
- 45 Kenya Orchards Limited
- 46 Mumias Sugar Co Limited.
- 47 Unga Group Limited

#### **Construction & Allied**

- 48 Athi River Mining Limited
- 49 Bamburi Cement Limited
- 50 Crown Berger Limited

51 E.A. Cables Limited

52 E.A. Portland Limited

### **ENERGY & PETROLEUM**

Kengen Limited

53 KenolKobil Limited

54 Kenya Power and Lighting co. Limited

55 Total Kenya Limited

56 Umeme Ltd

### **INSURANCE**

57 British-American Investments Co.(Kenya)

58 CIC Insurance Group Ltd

59 Jubilee Holdings Ltd

60 Kenya Re Insurance Corporation Ltd

61 Liberty Kenya Holdings Ltd

62 Pan Africa Insurance Holdings Ltd

### **TELECOMMUNICATION & TECHNOLOGY**

63 Safaricom Limited

#### **Appendix IV: List of companies in the sample**

1. Kapchorua Tea Co. Limited
2. Kenya airways
3. Mumias sugar
4. Sameer Africa Limited

5. Total Kenya Limited
6. TPS EA (Serena) Limited
7. Williamson Tea Kenya Limited
8. Sasini Limited
9. East African Breweries Limited
10. Car & General limited
11. Rea Vipingo Plantations Limited
12. Kakuzi Limited
13. Nation Media Group Limited
14. E.A. Cables Limited
15. BAT Kenya Limited
16. Marshalls (E.A.) Limited
17. Athi River Mining Limited
18. Limuru Tea Company Limited
19. Unga Group Limited
20. KenolKobil Limited

**Appendix IV: Variables used in the study for each company**

**Variable**

**Year**

<b>COMPANY NAME: KAPCHORUA TEA CO. LTD</b>									
<b>1</b>	<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
	<b>VARIABLE</b>								
	ACP	81	85	111	15	125	68	84	
	APP	89	96	105	71	126	95	38	
	ITD	36	49	43	69	57	48	51	
	CCC	28	38	49	13	56	21	97	
	CR	5.1	2.12	1.65	2.1	1.64	1.68	1.77	
	LOS	13.99	14.12	14.16	14.68	13.93	13.52	13.26	
	FATA	0.01	0.01	0.02	0.002	0.002	0.03	0.01	
	DR	0	0	0	0	0.0625	0.02	0.01	
	BI	0	0	-4.65	-0.39	0.23	0.03	0.01	
<b>COMPANY NAME: KENYA AIRWAYS</b>									
<b>2</b>	<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
	<b>VARIABLE</b>								
	ACP	47	38	35	47	47	46	44	
	APP	41	35	31	41	39	41	44	
	ITD	8	9	16	31	8	11	9	
	CCC	14	12	20	37	16	16	9	
	CR	0.46	0.56	0.92	1.06	0.87	0.9	1.52	
	LOS	11.57	11.50	11.5	11.36	11.17	11.18	17.92	
	FATA	0.19	0.16	0.03	0.004	0.007	0.01	0.01	
	DR	0.6	0.51	0.35	0.32	0	0	0	
	BI	0.94	-3.08	0.22	-0.11	0.33	0.11	0	
<b>COMPANY NAME: MUMIAS SUGAR LIMITED</b>									
<b>3</b>	<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
	<b>VARIABLE</b>								

	<b>ACP</b>	<b>71</b>	<b>115</b>	<b>108</b>	<b>89</b>	<b>78</b>	<b>101</b>	<b>80</b>	
	<b>APP</b>	<b>146</b>	<b>170</b>	<b>97</b>	<b>71</b>	<b>88</b>	<b>109</b>	<b>87</b>	
	<b>ITD</b>	<b>53</b>	<b>73</b>	<b>47</b>	<b>38</b>	<b>30</b>	<b>41</b>	<b>38</b>	
	<b>CCC</b>	<b>-22</b>	<b>18</b>	<b>58</b>	<b>56</b>	<b>20</b>	<b>33</b>	<b>31</b>	
	<b>CR</b>	<b>0.41</b>	<b>0.83</b>	<b>1.25</b>	<b>2.2</b>	<b>2</b>	<b>1.36</b>	<b>1.35</b>	
	<b>LOS</b>	<b>16.56</b>	<b>16.58</b>	<b>16.56</b>	<b>16.58</b>	<b>16.56</b>	<b>16.28</b>	<b>16.3</b>	
	<b>FATA</b>	<b>0.02</b>	<b>0.02</b>	<b>0.01</b>	<b>0.01</b>		<b>0.05</b>	<b>0.08</b>	
	<b>DR</b>	<b>0.24</b>	<b>0.22</b>	<b>0.2</b>	<b>0.13</b>	<b>0.14</b>	<b>0.19</b>	<b>0.07</b>	
	<b>BI</b>	<b>2.2</b>	<b>0.85</b>	<b>-0.05</b>	<b>-0.04</b>	<b>-0.002</b>	<b>5.9</b>	<b>-0.02</b>	
<b>4</b>	<b>COMPANY NAME: SAMEER AFRICA</b>								
	<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
	<b>VARIABLE</b>								
	<b>ACP</b>	<b>91</b>	<b>90</b>	<b>112</b>	<b>88</b>	<b>89</b>	<b>48</b>	<b>76</b>	
	<b>APP</b>	<b>68</b>	<b>32</b>	<b>53</b>	<b>58</b>	<b>45</b>	<b>21</b>	<b>37</b>	
	<b>ITD</b>	<b>179</b>	<b>146</b>	<b>114</b>	<b>103</b>	<b>103</b>	<b>148</b>	<b>155</b>	
	<b>CCC</b>	<b>202</b>	<b>204</b>	<b>173</b>	<b>133</b>	<b>147</b>	<b>175</b>	<b>194</b>	
	<b>CR</b>	<b>2.52</b>	<b>3.37</b>	<b>2.83</b>	<b>3.02</b>	<b>2.71</b>	<b>2.97</b>	<b>2.14</b>	
	<b>LOS</b>	<b>15.14</b>	<b>15.21</b>	<b>15.20</b>	<b>15.12</b>	<b>15.02</b>	<b>15</b>	<b>14.92</b>	
	<b>FATA</b>	<b>0.08</b>	<b>0.08</b>	<b>0.09</b>	<b>0.11</b>	<b>0.06</b>	<b>0.28</b>	<b>0.33</b>	
	<b>DR</b>	<b>0.16</b>	<b>0.16</b>	<b>0.14</b>	<b>0.17</b>	<b>0.17</b>	<b>0.16</b>	<b>0.22</b>	
	<b>BI</b>	<b>1.87</b>	<b>0.41</b>	<b>0.12</b>	<b>-0.002</b>	<b>-0.03</b>	<b>-0.42</b>	<b>0</b>	
<b>5</b>	<b>COMPANY NAME: TOTAL KENYA</b>								
	<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
	<b>VARIABLE</b>								
	<b>ACP</b>	<b>18</b>	<b>19</b>	<b>21</b>	<b>33</b>	<b>37</b>	<b>109</b>	<b>45</b>	
	<b>APP</b>	<b>18</b>	<b>21</b>	<b>23</b>	<b>29</b>	<b>68</b>	<b>106</b>	<b>30</b>	
	<b>ITD</b>	<b>32</b>	<b>39</b>	<b>46</b>	<b>45</b>	<b>54</b>	<b>73</b>	<b>33</b>	
	<b>CCC</b>	<b>32</b>	<b>37</b>	<b>44</b>	<b>49</b>	<b>23</b>	<b>76</b>	<b>48</b>	



	<b>CR</b>	<b>1.49</b>	<b>1.28</b>	<b>1.3</b>	<b>1.1</b>	<b>1.15</b>	<b>1.12</b>	<b>1.24</b>	
	<b>LOS</b>	<b>18.95</b>	<b>18.85</b>	<b>18.6</b>	<b>18.48</b>	<b>18.19</b>	<b>17.53</b>	<b>17.61</b>	
	<b>FATA</b>	<b>0.06</b>	<b>0.05</b>	<b>0.01</b>	<b>0.05</b>	<b>0.41</b>	<b>0.42</b>	<b>0.35</b>	
	<b>DR</b>	<b>0.22</b>	<b>0.06</b>	<b>0.13</b>	<b>0.35</b>	<b>0.33</b>	<b>0.42</b>	<b>0.35</b>	
	<b>BI</b>	<b>-0.18</b>	<b>0.22</b>	<b>0.09</b>	<b>0.23</b>	<b>-1.9</b>	<b>0.03</b>	<b>0.03</b>	
<b>6</b>	<b>COMPANY NAME: TPS SERENA LTD</b>								
	<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
	<b>VARIABLE</b>								
	<b>ACP</b>	<b>83</b>	<b>80</b>	<b>99</b>	<b>109</b>	<b>81</b>	<b>85</b>	<b>98</b>	
	<b>APP</b>	<b>105</b>	<b>98</b>	<b>86</b>	<b>76</b>	<b>99</b>	<b>62</b>	<b>110</b>	
	<b>ITD</b>	<b>31</b>	<b>27</b>	<b>30</b>	<b>28</b>	<b>27</b>	<b>26</b>	<b>31</b>	
	<b>CCC</b>	<b>9</b>	<b>9</b>	<b>43</b>	<b>61</b>	<b>9</b>	<b>45</b>	<b>19</b>	
	<b>CR</b>	<b>0.8</b>	<b>0.86</b>	<b>1.01</b>	<b>1.5</b>	<b>1.41</b>	<b>1.54</b>	<b>1.23</b>	
	<b>LOS</b>	<b>15.66</b>	<b>15.73</b>	<b>15.49</b>	<b>15.51</b>	<b>15.31</b>	<b>15.22</b>	<b>14.99</b>	
	<b>FATA</b>	<b>0.06</b>	<b>0.06</b>	<b>0.07</b>	<b>0.05</b>	<b>0.02</b>	<b>0.38</b>	<b>0.38</b>	
	<b>DR</b>	<b>0.12</b>	<b>0.11</b>	<b>0.16</b>	<b>0.16</b>	<b>0.14</b>	<b>0.22</b>	<b>0.21</b>	
	<b>BI</b>	<b>-1.02</b>	<b>-0.36</b>	<b>0.06</b>	<b>-0.05</b>	<b>-0.005</b>	<b>-0.03</b>	<b>0.01</b>	
<b>7</b>	<b>COMPANY NAME: WILLIAMSON TEA KENYA LIMITED</b>								
	<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
	<b>VARIABLE</b>								
	<b>ACP</b>	<b>91</b>	<b>91</b>	<b>123</b>	<b>92</b>	<b>134</b>	<b>122</b>	<b>145</b>	
	<b>APP</b>	<b>48</b>	<b>107</b>	<b>94</b>	<b>93</b>	<b>152</b>	<b>92</b>	<b>77</b>	
	<b>ITD</b>	<b>85</b>	<b>76</b>	<b>51</b>	<b>42</b>	<b>75</b>	<b>68</b>	<b>60</b>	
	<b>CCC</b>	<b>128</b>	<b>60</b>	<b>80</b>	<b>41</b>	<b>57</b>	<b>60</b>	<b>98</b>	
	<b>CR</b>	<b>8.2</b>	<b>3.63</b>	<b>2.41</b>	<b>3.38</b>	<b>2.03</b>	<b>2.74</b>	<b>2.18</b>	
	<b>LOS</b>	<b>15.07</b>	<b>15.06</b>	<b>15.1</b>	<b>15</b>	<b>14.82</b>	<b>14.21</b>	<b>13.91</b>	
	<b>FATA</b>	<b>0.09</b>	<b>0.11</b>	<b>0.09</b>	<b>0.13</b>	<b>0.15</b>	<b>0.09</b>	<b>0.2</b>	
	<b>DR</b>	<b>0.02</b>	<b>0.0007</b>	<b>0.01</b>	<b>0.009</b>	<b>0.02</b>	<b>0.02</b>	<b>0.2</b>	

	<b>BI</b>	<b>-0.31</b>	<b>-0.2</b>	<b>3.2</b>	<b>0.12</b>	<b>0.11</b>	<b>0.02</b>	<b>0.01</b>	
<b>8</b>	<b>COMPANY NAME: SASINI LIMITED.</b>								
	<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
	<b>VARIABLE</b>								
	<b>ACP</b>	<b>77</b>	<b>67</b>	<b>54</b>	<b>48</b>	<b>51</b>	<b>45</b>	<b>68</b>	
	<b>APP</b>	<b>92</b>	<b>96</b>	<b>88</b>	<b>102</b>	<b>97</b>	<b>67</b>	<b>111</b>	
	<b>ITD</b>	<b>60</b>	<b>72</b>	<b>78</b>	<b>77</b>	<b>68</b>	<b>68</b>	<b>93</b>	
	<b>CCC</b>	<b>45</b>	<b>43</b>	<b>44</b>	<b>23</b>	<b>22</b>	<b>46</b>	<b>50</b>	
	<b>CR</b>	<b>2.32</b>	<b>1.77</b>	<b>1.90</b>	<b>2.13</b>	<b>2.37</b>	<b>2.56</b>	<b>2.69</b>	
	<b>LS</b>	<b>14.83</b>	<b>14.85</b>	<b>14.83</b>	<b>14.8</b>	<b>14.65</b>	<b>14.6</b>	<b>14.18</b>	
	<b>FATA</b>	<b>0.001</b>	<b>0.002</b>	<b>0.002</b>	<b>0.002</b>	<b>0.002</b>	<b>0</b>	<b>0</b>	
	<b>DR</b>	<b>0</b>	<b>0.02</b>	<b>0.006</b>	<b>0.02</b>	<b>0.01</b>	<b>0</b>	<b>0</b>	
	<b>BI</b>	<b>-0.03</b>	<b>0.22</b>	<b>2.06</b>	<b>1.91</b>	<b>0.28</b>	<b>4.2</b>	<b>0.02</b>	
<b>9</b>	<b>COMPANY NAME: EAST AFRICAN BREWERIES LIMITED</b>								
	<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
	<b>VARIABLE</b>								
	<b>ACP</b>	<b>46</b>	<b>55.72</b>	<b>53.84</b>	<b>57.45</b>	<b>51.66</b>	<b>44</b>	<b>46</b>	
	<b>APP</b>	<b>145</b>	<b>132.74</b>	<b>152.8</b>	<b>182.06</b>	<b>185.41</b>	<b>193</b>	<b>2020</b>	
	<b>ITD</b>	<b>101</b>	<b>86.39</b>	<b>101.35</b>	<b>70.34</b>	<b>65.91</b>	<b>138</b>	<b>138</b>	
	<b>CCC</b>	<b>2</b>	<b>9.37</b>	<b>2.39</b>	<b>-54.28</b>	<b>-67.89</b>	<b>-11</b>	<b>-16</b>	
	<b>CR</b>	<b>0.72</b>	<b>1.43</b>	<b>1.25</b>	<b>1.12</b>	<b>0.67</b>	<b>2.01</b>	<b>1.98</b>	
	<b>LOS</b>	<b>17.93</b>	<b>16.17</b>	<b>16.68</b>	<b>14.5</b>	<b>14.13</b>	<b>17.35</b>	<b>17.3</b>	
	<b>FATA</b>	<b>0.003</b>	<b>0.003</b>	<b>0.05</b>	<b>0.002</b>	<b>0.004</b>	<b>0.05</b>	<b>0.04</b>	
	<b>DR</b>	<b>0.55</b>	<b>0.19</b>	<b>0.37</b>	<b>0.08</b>	<b>0.14</b>	<b>0</b>	<b>0</b>	
	<b>BI</b>	<b>-0.02</b>	<b>0.02</b>	<b>-0.01</b>	<b>-0.0007</b>	<b>0.0014</b>	<b>0.15</b>	<b>0.02</b>	
<b>10</b>	<b>COMPANY NAME: CAR AND GENERAL.</b>								

	YEAR	2014	2013	2012	2011	2010	2009	2008	
	VARIABLE								
	ACP	88	75	64	58	66	59	77	
	APP	115	120	112	104	90	73	129	
	ITD	144	148	175	145	77	134	157	
	CCC	117	103	127	99	53	120	105	
	CR	1.2	1.11	1.16	1.12	1.31	1.3	1.29	
	LOS	15.93	15.78	15.56	15.62	15.38	15.29	14.91	
	FATA	0.27	0.27	0.28	0.25	0.17	0.31	0.22	
	DR	0.31	0.28	0.3	0.34	0.3	0.31	0.22	
	BI	-0.033	-0.02	-0.24	-0.03	0.02	0	0.03	
<b>11</b>	<b>COMPANY NAME: REA VIPINGO PLANTATIONS LIMITED</b>								
	YEAR	2014	2013	2012	2011	2010	2009	2008	
	VARIABLE								
	ACP	72	63	52	54	57	46	70	
	APP	40	37	41	59	59	59	61	
	ITD	115	116	130	149	122	258	149	
	CCC	147	142	141	144	120	245	158	
	CR	6.5	4.72	3.41	2.10	1.34	2.24	1.45	
	LOS	14.81	14.76	14.76	14.56	14.18	14.13	14.12	
	FATA	0.03	0.03	0.02	0.08	0.29	0.09	0.27	
	DR	0.009	0.02	0.06	0.12	0.17	0.09	0.27	
	BI	1.56	0.1	-0.64	-2.12	-0.2	-0.09	0.03	
<b>12</b>	<b>COMPANY NAME: KAKUZI</b>								
	YEAR	2014	2013	2012	2011	2010	2009	2008	

	<b>VARIABLE</b>								
	<b>ACP</b>	<b>28</b>	<b>47</b>	<b>46</b>	<b>42</b>	<b>24</b>	<b>26</b>	<b>35</b>	
	<b>APP</b>	<b>48</b>	<b>20</b>	<b>28</b>	<b>123</b>	<b>106</b>	<b>28</b>	<b>36</b>	
	<b>ITD</b>	<b>22</b>	<b>28</b>	<b>50</b>	<b>69</b>	<b>41</b>	<b>13</b>	<b>11</b>	
	<b>CCC</b>	<b>2</b>	<b>55</b>	<b>68</b>	<b>-12</b>	<b>-41</b>	<b>11</b>	<b>10</b>	
	<b>CR</b>	<b>6.66</b>	<b>6.52</b>	<b>8.47</b>	<b>3.35</b>	<b>2.07</b>	<b>1.50</b>	<b>1.07</b>	
	<b>LOS</b>	<b>14.34</b>	<b>14.14</b>	<b>14.26</b>	<b>14.68</b>	<b>14.56</b>	<b>14.51</b>	<b>14.29</b>	
	<b>FATA</b>	<b>0.02</b>	<b>0.02</b>	<b>0.005</b>	<b>0.006</b>	<b>0.05</b>	<b>0.06</b>	<b>0.08</b>	
	<b>DR</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.12</b>	
	<b>BI</b>	<b>-0.003</b>	<b>-0.41</b>	<b>-2.124</b>	<b>-0.59</b>	<b>-0.03</b>	<b>-0.09</b>	<b>0.03</b>	

**13 COMPANY NAME: NATION MEDIA GROUP.**

	<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
	<b>VARIABLE</b>								
	<b>ACP</b>	<b>67</b>	<b>57</b>	<b>23</b>	<b>26</b>	<b>68</b>	<b>65</b>	<b>71</b>	
	<b>APP</b>	<b>365</b>	<b>336</b>	<b>342</b>	<b>254</b>	<b>365</b>	<b>243</b>	<b>351</b>	
	<b>ITD</b>	<b>111</b>	<b>189</b>	<b>255</b>	<b>146</b>	<b>94</b>	<b>119</b>	<b>124</b>	
	<b>CCC</b>	<b>-187</b>	<b>-90</b>	<b>-64</b>	<b>-82</b>	<b>-203</b>	<b>-59</b>	<b>-156</b>	
	<b>CR</b>	<b>2.48</b>	<b>2.65</b>	<b>2.25</b>	<b>2.31</b>	<b>1.99</b>	<b>2.13</b>	<b>1.85</b>	
	<b>LOS</b>	<b>9.5</b>	<b>7.23</b>	<b>9.42</b>	<b>9.33</b>	<b>9.17</b>	<b>15.92</b>	<b>15.93</b>	
	<b>FATA</b>	<b>0.02</b>	<b>0.13</b>	<b>0.13</b>	<b>0.57</b>	<b>0.14</b>	<b>0.18</b>	<b>0.17</b>	
	<b>DR</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
	<b>BI</b>	<b>0.00588</b>	<b>-0.02</b>	<b>0.04</b>	<b>-0.11</b>	<b>0.06</b>	<b>-0.02</b>	<b>0</b>	

**14 COMPANY NAME: EAST AFRICA CABLES LIMITED**

	<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
	<b>VARIABLE</b>								
	<b>ACP</b>	<b>209</b>	<b>223</b>	<b>174</b>	<b>121</b>	<b>110</b>	<b>127</b>	<b>104</b>	
	<b>APP</b>	<b>116</b>	<b>124</b>	<b>167</b>	<b>79</b>	<b>75</b>	<b>80</b>	<b>49</b>	

	<b>ITD</b>	<b>80</b>	<b>100</b>	<b>102</b>	<b>69</b>	<b>97</b>	<b>149</b>	<b>122</b>	
	<b>CCC</b>	<b>173</b>	<b>207</b>	<b>109</b>	<b>111</b>	<b>132</b>	<b>199</b>	<b>177</b>	
	<b>CR</b>	<b>1.17</b>	<b>1.30</b>	<b>1.20</b>	<b>1.16</b>	<b>1.28</b>	<b>1.36</b>	<b>1.66</b>	
	<b>LOS</b>	<b>15.44</b>	<b>15.32</b>	<b>15.65</b>	<b>15.42</b>	<b>15.1</b>	<b>14.85</b>	<b>15.18</b>	
	<b>FATA</b>	<b>0.04</b>	<b>0.04</b>	<b>0.05</b>	<b>0.04</b>	<b>0.04</b>	<b>0.31</b>	<b>0.34</b>	
	<b>DR</b>	<b>0.26</b>	<b>0.27</b>	<b>0.18</b>	<b>0.23</b>	<b>0.25</b>	<b>0.31</b>	<b>0.34</b>	
	<b>BI</b>	<b>0.38</b>	<b>-0.07</b>	<b>0.51</b>	<b>-0.005</b>	<b>0.1</b>	<b>-0.02</b>	<b>0.02</b>	
<b>15</b>	<b>COMPANY NAME: BRITISH AMERICAN TOBACCO.</b>								
	<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
	<b>VARIABLE</b>								
	<b>ACP</b>	<b>28</b>	<b>26.78</b>	<b>24.25</b>	<b>20.88</b>	<b>43.16</b>	<b>30</b>	<b>36</b>	
	<b>APP</b>	<b>138</b>	<b>113.68</b>	<b>117.2</b>	<b>73.35</b>	<b>64.85</b>	<b>125</b>	<b>136</b>	
	<b>ITD</b>	<b>130</b>	<b>134.39</b>	<b>144.54</b>	<b>102.03</b>	<b>102.59</b>	<b>105</b>	<b>104</b>	
	<b>CCC</b>	<b>20</b>	<b>47.49</b>	<b>51.60</b>	<b>49.56</b>	<b>80.9</b>	<b>10</b>	<b>4</b>	
	<b>CR</b>	<b>1.25</b>	<b>0.8</b>	<b>0.85</b>	<b>0.77</b>	<b>0.85</b>	<b>0.92</b>	<b>1.05</b>	
	<b>LOS</b>	<b>17.34</b>	<b>17.13</b>	<b>14.51</b>	<b>14.52</b>	<b>17.82</b>	<b>16.75</b>	<b>16.67</b>	
	<b>FATA</b>	<b>0.13</b>	<b>0.15</b>	<b>0.17</b>	<b>0.04</b>	<b>0.03</b>	<b>0.16</b>	<b>0.12</b>	
	<b>DR</b>	<b>0.17</b>	<b>0.15</b>	<b>0.05</b>	<b>0.09</b>	<b>0.09</b>	<b>0.16</b>	<b>0.12</b>	
	<b>BI</b>	<b>0.02</b>	<b>0.04</b>	<b>0.007</b>	<b>-0.55</b>	<b>-0.02</b>	<b>0.01</b>	<b>-0.03</b>	
<b>16</b>	<b>COMPANY NAME: MARSHALS (E.A.) LIMITED</b>								
	<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
	<b>VARIABLE</b>								
	<b>ACP</b>	<b>103</b>	<b>52</b>	<b>24</b>	<b>85</b>	<b>67</b>	<b>162</b>	<b>116</b>	
	<b>APP</b>	<b>570</b>	<b>422</b>	<b>361</b>	<b>325</b>	<b>130</b>	<b>181</b>	<b>109</b>	

	<b>ITD</b>	<b>203</b>	<b>190</b>	<b>207</b>	<b>262</b>	<b>159</b>	<b>279</b>	<b>195</b>	
	<b>CCC</b>	<b>-264</b>	<b>-180</b>	<b>-130</b>	<b>22</b>	<b>96</b>	<b>260</b>	<b>202</b>	
	<b>CR</b>	<b>0.6</b>	<b>0.67</b>	<b>1.13</b>	<b>0.27</b>	<b>0.50</b>	<b>0.89</b>	<b>1.29</b>	
	<b>LOS</b>	<b>9.96</b>	<b>12.35</b>	<b>12.35</b>	<b>12.48</b>	<b>13.31</b>	<b>13.29</b>	<b>13.7</b>	
	<b>FATA</b>	<b>0.62</b>	<b>0.62</b>	<b>0.57</b>	<b>0.19</b>	<b>0.18</b>	<b>0.65</b>	<b>0.78</b>	
	<b>DR</b>	<b>0.09</b>	<b>0.06</b>	<b>0.0067</b>	<b>0.46</b>	<b>0.72</b>	<b>0.51</b>	<b>0.61</b>	
	<b>BI</b>	<b>-0.03</b>	<b>-0.01</b>	<b>-0.02</b>	<b>-2.87</b>	<b>0.12</b>	<b>-0.01</b>	<b>0.03</b>	

**17 COMPANY NAME: ATHI RIVER MINING LIMITED.**

<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
<b>VARIABLE</b>								
<b>ACP</b>	<b>99</b>	<b>72</b>	<b>62</b>	<b>83</b>	<b>109</b>	<b>98</b>	<b>75</b>	
<b>APP</b>	<b>143</b>	<b>82</b>	<b>114</b>	<b>125</b>	<b>90</b>	<b>125</b>	<b>97</b>	
<b>ITD</b>	<b>119</b>	<b>99</b>	<b>106</b>	<b>84</b>	<b>105</b>	<b>104</b>	<b>83</b>	
<b>CCC</b>	<b>75</b>	<b>89</b>	<b>54</b>	<b>42</b>	<b>124</b>	<b>77</b>	<b>61</b>	
<b>CR</b>	<b>0.47</b>	<b>0.95</b>	<b>1.22</b>	<b>0.84</b>	<b>1.32</b>	<b>1</b>	<b>1.02</b>	
<b>LOS</b>	<b>16.44</b>	<b>16.47</b>	<b>16.25</b>	<b>15.92</b>	<b>15.60</b>	<b>15.45</b>	<b>15.35</b>	
<b>FATA</b>	<b>0.0599</b>	<b>0.007</b>	<b>0.008</b>	<b>0.008</b>	<b>0.004</b>	<b>0.18</b>	<b>0.16</b>	
<b>DR</b>	<b>0.57</b>	<b>0.55</b>	<b>0.57</b>	<b>0.52</b>	<b>0.39</b>	<b>0.18</b>	<b>0.16</b>	
<b>BI</b>	<b>-0.0068</b>	<b>0.005</b>	<b>0.08</b>	<b>-0.142</b>	<b>0.02</b>	<b>0.01</b>	<b>0.06</b>	

**18 COMPANY NAME: LIMURU TEA COMPANY LIMITED**

<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
<b>VARIABLE</b>								
<b>ACP</b>	<b>491</b>	<b>447</b>	<b>389</b>	<b>322</b>	<b>245</b>	<b>225</b>	<b>177</b>	
<b>APP</b>	<b>59</b>	<b>36</b>	<b>50</b>	<b>30</b>	<b>32</b>	<b>77</b>	<b>13</b>	

	<b>ITD</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
	<b>CCC</b>	<b>432</b>	<b>411</b>	<b>339</b>	<b>292</b>	<b>213</b>	<b>148</b>	<b>164</b>	
	<b>CR</b>	<b>8.08</b>	<b>16.86</b>	<b>12.41</b>	<b>18.29</b>	<b>7.97</b>	<b>3.84</b>	<b>3.95</b>	
	<b>LOS</b>	<b>11.43</b>	<b>11.55</b>	<b>11.66</b>	<b>11.53</b>	<b>11.73</b>	<b>11.42</b>	<b>11.15</b>	
	<b>FATA</b>	<b>0.58</b>	<b>0.59</b>	<b>0.58</b>	<b>0.46</b>	<b>0.41</b>	<b>0.19</b>	<b>1.52</b>	
	<b>DR</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
	<b>BI</b>	<b>-0.089</b>	<b>-0.872</b>	<b>0.54</b>	<b>-0.818</b>	<b>-7.98</b>	<b>0</b>	<b>0</b>	

19	<b>COMPANY NAME: UNGA GROUP LIMITED</b>								
	<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
	<b>VARIABLE</b>								
	<b>ACP</b>	<b>37</b>	<b>48</b>	<b>40</b>	<b>30</b>	<b>25</b>	<b>31</b>	<b>35</b>	
	<b>APP</b>	<b>49</b>	<b>81</b>	<b>49</b>	<b>22</b>	<b>19</b>	<b>27</b>	<b>36</b>	
	<b>ITD</b>	<b>63</b>	<b>69</b>	<b>51</b>	<b>61</b>	<b>75</b>	<b>64</b>	<b>56</b>	
	<b>CCC</b>	<b>51</b>	<b>36</b>	<b>42</b>	<b>69</b>	<b>81</b>	<b>68</b>	<b>55</b>	
	<b>CR</b>	<b>2.27</b>	<b>1.83</b>	<b>2.36</b>	<b>2.52</b>	<b>2.54</b>	<b>1.83</b>	<b>1.92</b>	
	<b>LOS</b>	<b>16.64</b>	<b>16.5</b>	<b>16.59</b>	<b>16.39</b>	<b>16.26</b>	<b>16.27</b>	<b>16.06</b>	
	<b>FATA</b>	<b>0.009</b>	<b>0.006</b>	<b>0.06</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	
	<b>DR</b>	<b>0.068</b>	<b>0.02</b>	<b>0</b>	<b>0</b>	<b>0.0016</b>	<b>0.001</b>	<b>0</b>	
	<b>BI</b>	<b>0.622</b>	<b>-0.04</b>	<b>-0.29</b>	<b>-0.78</b>	<b>0.12</b>	<b>0.56</b>	<b>0.15</b>	

20	<b>COMPANY NAME: KENOLKOBIL LIMITED</b>								
	<b>YEAR</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	
	<b>VARIABLE</b>								
	<b>ACP</b>	<b>39</b>	<b>36</b>	<b>25</b>	<b>21</b>	<b>40</b>	<b>30</b>	<b>33</b>	
	<b>APP</b>	<b>24</b>	<b>20</b>	<b>18</b>	<b>21</b>	<b>18</b>	<b>57</b>	<b>24</b>	
	<b>ITD</b>	<b>23</b>	<b>27</b>	<b>32</b>	<b>32</b>	<b>50</b>	<b>40</b>	<b>40</b>	
	<b>CCC</b>	<b>38</b>	<b>43</b>	<b>39</b>	<b>32</b>	<b>72</b>	<b>13</b>	<b>49</b>	
	<b>CR</b>	<b>0.95</b>	<b>0.93</b>	<b>0.97</b>	<b>1.22</b>	<b>1.38</b>	<b>1.30</b>	<b>1.30</b>	

	<b>LOS</b>	<b>18.33</b>	<b>18.51</b>	<b>19.08</b>	<b>19.22</b>	<b>18.44</b>	<b>16.27</b>	<b>18.72</b>	
	<b>FATA</b>	<b>0.005</b>	<b>0.005</b>	<b>0.0096</b>	<b>0.0051</b>	<b>0.0005</b>	<b>0.00056</b>	<b>0.003</b>	
	<b>DR</b>	<b>0.44</b>	<b>0.55</b>	<b>0.51</b>	<b>0.03</b>	<b>0.45</b>	<b>0.15</b>	<b>0.62</b>	
	<b>BI</b>	<b>-0.257</b>	<b>-1.348</b>	<b>-1.84</b>	<b>-0.3175</b>	<b>-0.0594</b>	<b>0.003</b>	<b>-0.124</b>	