

**THE RELATIONSHIP BETWEEN WORKING CAPITAL MANAGEMENT AND
PROFITABILITY OF MOBILE PHONE NETWORK OPERATORS IN KENYA**

By

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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS**

ADMINISTRATION OF THE UNIVERSITY OF NAIROBI

AUGUST, 2014

DECLARATION

It is to my declaration that this research project is my own work and effort and that it has not been submitted anywhere for any award. Where other sources of information have been used, they have been acknowledged.

Signature Date

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D61/63027/2010

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

MR. BARASA JOSEPH LUMUMBA

Signature Date

DEDICATION

TO:

My father the late Joseph Massawe and my Mother Anthonia Joseph Massawe

(You have always wanted me to go beyond limits; I dedicate this work to appreciate your efforts)

TO:

My beloved wife

Jesca Loshiro Massawe

(Your encouragement, warmth support was invaluable)

And to

My precious sweet daughter

Lyra Anthonia

(That you may excel beyond this)

ACKNOWLEDGEMENT

The completion of this study has been made possible through indispensable assistance and encouragement of a number of people.

First and foremost I wish to acknowledge and thank my supervisor Mr. Barasa Joseph Lumumba for his encouragement and guidance at every stage and his valuable suggestions which enabled me to complete the project.

I also take this opportunity to express my deep sense of gratitude to the former Executive Director for Fairtrade Africa, Mr. Michael Kwame Nkonu for allowing me time-off during working hours for me to complete my studies and this project.

I am obliged to managers of Safaricom, Airtel, Essar and Telkom, for the valuable information provided by them during data collection for this project. I am grateful for their cooperation during the period of my assignment.

I would also wish to pass my gratitude to all those who participated in the project by giving the necessary information and data for utilization in the project.

Most importantly I'm thanking Almighty God for granting me the opportunity and strength to successfully complete the project.

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ABBREVIATIONS AND ACRONYMS

AP	Account Payable
APD	Accounts Payable Turnover in Days
AR	Account Receivable
ARD	Accounts Receivable Turnover in Days
CASA	Current Assets to Sales
CCC	Cash Conversion Cycle
CCK	Communication Commission of Kenya
CDMA	Code division multiple access
CLTA	Current Liabilities to Total Assets
CoGS	Cost of Goods Sold
EAIT	Earnings After Interest and Tax
EBIT	Earnings Before Interest and Tax
GPRS	General packet radio service
GSM	Global System for Mobile communications
LTD	Limited

ABSTRACT

Working capital management involves the relationship between a firm's short-term assets and its short-term liabilities. A firm is required to maintain a balance between liquidity and profitability while conducting its day to day operations. 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 the one hand and avoid excessive investment in these assets on the other hand. The ultimate objective of any firm is to maximize the profit. To examine the relationship between working capital management and profitability of mobile phone network operators in Kenya. This research used descriptive research designs. The target population of this study comprised of all the 4 mobile phone network operators in Kenya for the 5-year period 2009 – 2013. Census was carried out due to the small number of mobile phone network operators in Kenya. The data for this research shall be collected from secondary sources. The financial reports were obtained from company's publications and websites. Descriptive data analysis techniques were used to analyze the data. To test the relationship between working capital management and profitability, the following was considered where profitability is dependent upon working capital management parameters. The study found out that, there is no significant relationship between Accounts Receivable Turnover in Days and profitability. The study found out existence of negative correlation between Return on Assets and the firms Accounts Receivable Turnover in Days. However, the study findings suggest that there is a positive correlation between Current assets to sales, Accounts Payable Turnover in Days, Current Liabilities to Total Assets and Return on Assets. The study recommends a longer credit period for the firms to realize higher profitability. The mobile operators firms should be cautious in formulating working capital policy.

CHAPTER ONE

INTRODUCTION

1.1. Background

Working capital is usually referred to in terms of net working capital. Net working capital is the difference between current assets and current liabilities. This means that by for example shortening the time of collecting company receivables, deferring payments and keeping a minimal inventory, a company can reduce its net working capital. Working capital encompasses cash management, for example how to invest idle cash funds without losing out on liquidity. Cote and Latham (1999) argued that management of receivables; inventory and accounts payable have tremendous impact on cash flows, which in turn affect the profitability of firms

There have been a number of researches in the field of working capital management and how it can influence corporate profitability. For example Shin and Soenen (1998), Lazaridis and Tryfonidis (2006) found out that the more liquid company can invest its capital in something more productive than working capital the more profitable the company is. Also capital efficiency adds to shareholder value, as the net present value of cash flows increases. Makori and Jogongo (2013) found out that firms are capable of gaining sustainable competitive advantage by means of effective and efficient utilization of the resources of the organization through a careful reduction of the cash conversion cycle to its minimum. In so doing, the profitability of the firms is expected to increase. They further noted that working capital management plays a significant role in improved profitability of firms. Firms can achieve optimal management of working capital by making the trade-off between profitability and liquidity.

1.1.1 Working Capital Management

Working capital management involves the relationship between a firm's short-term assets and its short-term liabilities. The management of short term assets and liabilities refers to management of Working Capital Khan (2002). The goal of working capital management is to ensure that a firm is able to continue its operations and that it has sufficient ability to satisfy both maturing short-term debt and upcoming operational expenses. The management of working capital involves managing inventories, accounts receivable and payable, and cash. To produce the best possible returns, the firm should keep no unproductive assets and should finance with the cheapest available sources of funds. It is often advantageous for the firm to invest in short-term assets and to finance with short-term liabilities Scherr (2007). The Management of Working Capital plays an important role in maintaining the financial health of the firm during the normal course of business.

A firm is required to maintain a balance between liquidity and profitability while conducting its day to day operations. Liquidity is a precondition to ensure that firms are able to meet their short-term obligations and their continued flow can be guaranteed for a profitable venture Padachi (2006). Working Capital Management includes maintaining optimum balance of working capital components – receivable, inventory and payables and using the cash efficiently for day-to-day operations. Working Capital position of mobile phone network operators can be assessed by current ratio, quick ratio, net working capital to total assets, net working capital turnover, debtors turnover and current assets turnover.

1.1.2 Profitability of firms

Profitability is the primary goal of all business ventures. Without profitability the business will not survive in the long run. So measuring current and past profitability and projecting future

profitability is very important. The term profitability refers to the ability of a firm to earn profit. Profit is determined by matching revenue against cost associated with it Salauddin (2001). Profit of an enterprise in absolute figure gives an idea about the result of its operation. Profitability is a widely used financial measure of performance. People often mistakenly believe that a profitable business will not encounter cash flow problems. Although closely related, profitability and cash flow are different. An income statement lists income and expenses while the cash flow statement lists cash inflows and cash outflows. An income statement shows profitability while a cash flow statement shows liquidity. Profitability of the mobile phone network operators can be assessed by gross profit margin ratio, net profit ratio, return on investment, operating profit ratio, return on capital employed and return on total assets.

1.1.3 Working capital management and profitability

Management of Working capital is important due to many reasons. Excessive levels of current assets can easily result in a firm's realizing a substandard return on investment. However firms with too few current assets may incur shortages and difficulties in maintaining smooth operations, as of which many firms try to achieve the optimal level of investment in each component of current assets and liabilities. 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 the one hand and avoid excessive investment in these assets on the other hand. The ultimate objective of any firm is to maximize the profit. But, preserving liquidity of the firm is an important objective too. The problem is that increasing profits at the cost of liquidity can bring serious problems to the firm. Therefore, there must be a tradeoff between these two objectives of the firms. One objective should not be at cost of the other because both have their importance Makori and Jogongo (2013).

1.1.4 Mobile network operation in Kenya

Historically, mobile telephones were first introduced in the Kenyan market in 1992, but the real diffusion of this technology and of affordable services started in 1999 when the Communications Commission of Kenya (CCK) was established and the newly privatized company Safaricom and Celtel Kenya (previously known as KenCell Communications) were licensed by CCK to provide mobile services. These two operators, those currently providing mobile connectivity in Kenya, have covered gradually the majority of the populated areas, and they are still continuing in this trend of growth. Currently there are four mobile network operators in Kenya namely Safaricom, Telkom Kenya Ltd (Orange), Airtel Networks Kenya Limited and Essar Telecom Kenya Limited (Yu).

Safaricom was set up in 1997 and became a joint venture vehicle between Telekom Kenya and the Vodafone Group in 2000. Safaricom offers mobile voice services using GSM-900 and GSM-1800 technologies. It launched GPRS services in July, 2004, and Enhanced Data Rates for GSM Evolution (EDGE) services in June, 2006. Safaricom was granted Kenya's first license to install and operate 3G system and services in October 2007. Telkom Kenya, the fixed-line operator in Kenya, launched fixed wireless services based on CDMA-2000 technology in the 800MHz frequency band in July 2007. Telkom Kenya offers these services using a license, which allows it to offer wireless telephone services within a restricted area.

Celtel won a GSM-900 license in January 2000 and launched services in August of the same year. The company launched under the KenCell brand and took on the Celtel banner in November 2004. In April 2005 the company was acquired by and became a subsidiary of Zain (formerly the Mobile Telecommunications Company). On 8, June 2010 the company was purchased by Bharti Airtel from Zain. On 22 November 2010, it was rebranded as 'airtel'. Essar

Telecom Kenya is Kenya's fourth mobile cellular network under the brand "yuMobile", launched in December, 2008.

Statistics released by CCK as of Dec 31st 2013 and published on its website reveals that of 31.3 million mobile network subscribers, 21.2 mil, 5.2 mil, 2.6mil and 2.3mil subscribed to Safaricom, Airtel, Essar and Telkom Kenya respectively.

1.2. Research Problem

Wang (2002) examined the relationship between working capital management and firm profitability and found that lesser the investment in working capital which leads to increase the profitability of the firm. Smith (1980) said short term assets and liabilities are managed carefully by working capital management (WCM) for the growth of the firm's profitability. For creating good worth of the share in front of shareholders, firms have to manage working capital efficiently and effectively. Shin and Soenen (1998) revealed, Working capital management process starts from the purchase of raw material up to the sales of the goods. It creates significant impact on the profitability and liquidity of the firms.

Eljelly (2004) tested the tradeoff between profitability and liquidity by using correlation and regression analysis. By taking a sample of 929 companies of Saudi Arabia he found a significant negative relationship between the firm's profitability and liquidity. He explicated that firms' liquidity management depends upon effective planning and controlling of current assets and current liabilities in a way that ends the risk of meeting short term obligations without investing much in current assets. He found that cash conversion cycle is a better measure of liquidity than current ratio and liquidity has a negative relation with profitability.

Hill, Kelly and Highfield (2010) studied the components of working capital. They analysed panel data of 3343 companies over the period of 1996-2006. This study emphasized on working capital requirement. It was found that there is inverse relationship between working capital requirement and growth in sales and cost of externally raised capital and a positive relationship with operating cash flows and access to capital market.

Afza and Nazir (2007) investigated the relationship between working capital policies and profitability for 208 companies listed on Karachi Stock Exchange for a period of 1998 to 2005. By using regression analysis it was found that there is an inverse relationship between companies' profitability and working capital policies which validates the study of Carpenter and Johnson (1983) and was found that there is not any significant relation between firms' risk and level of current assets and current liabilities.

A number of studies has also been carried out in Kenya on the relationship between WCM and profitability of firms in Manufacturing and construction, banking and other financial institutions but limited studies have paid significant attention to pure service industry (Firms with no stock) and more particular to the Mobile network service industry in Kenya. There is contradicting conclusions on the relationship between working capital management and profitability of firms in different industry which gives a wider gap that call for more research in the field.

1.3. Research objectives

To examine the relationship between working capital management and profitability of mobile phone network operators in Kenya.

1.4. Value of the study

The study would contribute valuable knowledge to the field of corporate finance in general. The study would be beneficial to corporate managers as its focus is on working capital management which is core to operations of corporate firms and business as a whole. Mobile money operator managers would be able to know how to effectively handle issues of working capital management and be able to formulate policies around it. The managers of Mobile network operators would be furnished with relevant information regarding working capital management and its impact on profitability of their companies.

The study is expected to contribute to the broader area of working capital management, corporate finance and profitability. The study would add value to the academic research and also suggest research areas that can be further explored.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter focuses on theoretical, empirical and general discussions on the concepts of financial intermediation, interest, principal – agent relationship and existing deposit security as far as financial institutions are concerned focusing on Mobile money in Kenya

2.2 Theoretical Review

2.2.1 Working Capital Theories

In the area of corporate finance working capital plays a vital role. The reason for this is that working capital management directly affects the liquidity and profitability of a company Raheman and Nasr (2007). Working capital management is the management of current assets (resources in cash or easily converted into cash) and current liabilities (organizational commitments which soon require cash) Hill et al., (2010). It is about maintaining an optimal balance between the individual working capital components: receivables, inventory and payables Nazir and Afza (2009). Successfully managing these components largely influences the performance of a company Raheman et al., (2010); Filbeck and Krueger (2005). According to Deloof (2003) efficient working capital management, trying to maintain an optimal level of working capital is a fundamental part of maximizing shareholder value. If working capital management is efficient it can ultimately increase the profitability of a company Raheman and Nasr (2007).

Maximizing profit or shareholder value are the ultimate objectives for a company, however preserving liquidity is important too. A company needs to care about profit for their continuity,

but at the same time a company needs to focus on liquidity to prevent insolvency or bankruptcy. This presents a trade-off between these two objectives, focusing on maximizing profits should not be at the cost of liquidity, and calls for effective working capital management Raheman and Nasr (2007). Nevertheless, the authors did not reveal what the efficient way of managing working capital is for each sector. The question of the level of efficiency rises because it is not clear what efficiency means for a company. Is it efficient to give more credit to customers and gain more sales or rather reduce the trade receivables in order to prevent a cash gap in the cash conversion cycle? Is it efficient to have higher inventories to prevent stock-out or is it efficient to keep a low level of inventories to prevent cash-lock in working capital? Is it efficient to delay the payment to suppliers or not, keeping in mind that delaying can result in damaging reputation.

According to Hill et al (2010), Nazir and Afza (2009) the optimal level of working capital is the one that ensures a balance between risk and efficiency. This requires a constant monitoring of the working capital components to maintain a suitable level. On the one hand higher sales might be generated with a large inventory and a generous trade credit, since the chance of a stock-out is reduced and customers can assess the quality of a product before paying. On the other hand large inventories and trade credit keep cash locked up in working capital. The same dilemma counts for accounts payable. Delaying payments presents companies with a possible flexible and inexpensive source of financing, and it offers the possibility to assess the quality of the products bought Deloof (2003). Concerning an optimal level of working capital, Hill et al (2010) highlighted the need to consider financial characteristics besides industry affiliation when examining working capital levels for optimality. This author also did not outline what optimal management is.

Gill et al (2010) stated that a long conversion cycle can increase the profitability because of the higher sales accomplished. On the other hand, the profitability can reduce due to the cash conversion cycle when the investments in working capital is higher than the benefits attained from holding more inventories and extending more trade credit to customers. This implies that the longer the cash conversion cycle will be the less profit the company will have. The shorter the cash conversion cycle is, the higher the profit the company will generate.

2.2.2 Bankruptcy Theory

Schwartz (2005) explains that formal bankruptcy theory began with the recognition that a bankruptcy system is sometimes necessary to solve a collective action problem among the creditors of an insolvent firm. Insolvency may be a function of economic distress, financial distress, or both. Economic distress occurs when the firm cannot earn revenues sufficient to cover its costs, exclusive of financing costs. Such a firm has negative economic value. A firm is only in financial distress if it would have positive earnings were it not required to service its debt. Because a firm's debt is sunk when insolvency occurs, the existence of debt is irrelevant to the question of whether the firm should continue or not.

Schwartz (2005) further explained, creditors are less interested in saving firms than in whether assets exist to satisfy their claims. If assets exist, creditors will attempt to seize them, which commonly will yield a piecemeal liquidation. When a firm is experiencing only financial distress, however, the creditors' total insolvency-state payoff would be maximized were the firm continued. Creditors due to their panic may force a firm with strong long-term assets base into bankruptcy if working capital is not efficiently managed and creditors' payments are delayed.

2.2.3 Fisher separation theorem

A theory which suggests that a firm will attempt to maximize its present value, no matter what the firm owners may think are their personal objectives. The separation theorem hypothesizes that firm owners will make decisions to first maximize the present value, and only then make decisions which will bring them closer to reaching their personal goals. This theorem was developed by the well-known economist Irving Fisher. The theorem therefore separates management's "productive opportunities" from the entrepreneur's "market opportunities."

In corporate finance law, questions of funding and investment are, for four reasons, very often connected. First, the providers of funding also provide ancillary services who holds the claim in general matters. Some investments are not possible without the ancillary services of certain finance providers. Second, the firm cannot acquire any asset without funding. (a) Very often the acquisition and funding are part of the same contractual framework. Such cases range from simple purchases of supplies or equipment and simple financial leasing transactions to asset-backed or structured finance, and generally to large transactions in which the availability of funding is a typical condition precedent to closing. Third, when choosing the funding mix, part of the firm's risk management is to take into account the assets being financed. Firms that are safe, produce steady cash flows, and have easily re-deployable assets that they can pledge as collateral can afford high debt-to-equity ratios. Fourth, a funding transaction can be someone else's investment transaction, and the legal framework of the transaction must address the concerns of both parties.

2.2.4 Liquidity Preference Theory

Keynes (1937) said that people value money for both "the transaction of current business and its use as a store of wealth." Thus, they will sacrifice the ability to earn interest on money that they

want to spend in the present, and that they want to have it on hand as a precaution. On the other hand, when interest rates increase, they become willing to hold less money for these purposes in order to secure a profit.

According to the liquidity preference theory, there are three primary reasons for holding on to cash: (1) transaction – everyday purchases of goods and services performed by individuals as well as businesses; (2) precautionary – the world is full of uncertainty, and in order to hedge against unexpected significant spending (ex. legal troubles) or interruptions in income streams (ex. layoffs) cash reserves are kept; (3) speculative – arises from uncertainty about the future prices of bonds, and results in demand for money to rise during times of greater uncertainty, as cash eliminates risk associated with interest rate fluctuations. The total demand for money in the economy is the sum of transaction, precautionary, and speculative demands.

Liquidity preference theory, in *The General Theory*, consists in the statement that “the rate of interest at any time, being the reward for parting with liquidity, is a measure of the unwillingness of those who possess money to part with their liquid control over it. The rate of interest is the ‘price’ which equilibrates the desire to hold wealth in the form of cash with the available quantity of cash...” Keynes (1964). The reasons to have preference for liquidity were discussed in chapter 15 of *The General Theory*: one needs money because one has expenditure plans to finance, or is speculating on the future path of the interest rate, or, finally, because one is uncertain about what the future may have in store so it is advisable to hold some fraction of one’s resources in the form of pure purchasing power.

2.2.5 Time-Preference Theory of Interest

This theory examines the nature of consumerism, and the factors that influence consumers to delay current consumption or expenditures in anticipation of greater future returns. The rate of time preference itself can be quantified as the amount of money required to compensate the consumer for foregoing current consumption. This theory also attempts to tie interest rates into the equation by comparing the perceived value of expected future returns with the rate of interest paid on current savings.

Carl Menger (1871) explained that the consumer's rate of time preference, and therefore the interest required, will probably rise as the consumer's savings increase. This means that the consumer is likely to restrict his or her savings to a level at which the rate of time preference equals the rate of interest paid on savings.

This theory can be used to explain that savings tend to lose value with time in which case the security of the cash savings is compromised if interest is not to be given. Fisher (1930) saw that subjective economic value is not only a function of the amount of goods and services owned or exchanged, but also of the moment in time when they are purchased. A good available now has a different value than the same good available at a later date; value has a time as well as a quantity dimension. The relative price of goods available at a future date, in terms of goods sacrificed now, is measured by the interest rate.

2.2.6 Portfolio Theory

Wikipedia explains that 'Modern portfolio theory (MPT) is a theory of finance that attempts to maximize portfolio expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of

various assets'. According to the theory, it's possible to construct an "efficient frontier" of optimal portfolios offering the maximum possible expected return for a given level of risk. This theory was pioneered by Harry Markowitz in his paper "Portfolio Selection," published in 1952 by the Journal of Finance. There are four basic steps involved in portfolio construction which are security valuation, asset allocation, portfolio optimization, and performance measurement. As the mobile money operators defines strategies on their portfolio construction, the need for cash and maximization of profit and owners' wealth is definitely in the equation.

2.3 Empirical studies

Wang (2002) examined the relationship between working capital management and firm profitability and found that lesser the investment in working capital which leads to increase the profitability of the firm. Smith (1980) said short term assets and liabilities are managed carefully by working capital management (WCM) for the growth of the firm's profitability. For creating good worth of the share in front of shareholders, firms have to manage working capital efficiently and effectively.

Shin and Soenen (1998) investigated the relationship between working capital management and shareholders' wealth maximization. It was found that management of working capital had significant relationship with liquidity and profitability of companies. This study was done to find relationship between net trade cycle and profitability, net trade cycle was used by them as a measure of WCM. By using regression and correlation analysis it was found that there is a negative relationship between profitability net trade cycles.

Kamath (1989) investigated the study on retailing firms and concluded that there was inverse association between cash conversion cycle and profitability. It means profitability enhanced by

decreasing the cash conversion cycle. Lazardidis and Tryfonidis (2006) have investigated the relationship between profitability and working capital management in the Stock Exchange Market of Athens throughout 2001-2004. The objective of this research was to study the relationship between access profitability and the cycle of cash transformation and its components. Results indicate that a significant relationship existed between gross operational profit and the cash transformation cycle. Moreover managers can generate a good profit for the company using the right management techniques for the cash transformation cycle and its components.

Deloof (2003) studied the relationship between profitability and management of working capital for 1009 Belgian firms for period of 1992-1996. It was found that most of companies had invested huge amount of cash in their working capital, so it can be expected that working capital has a strong correlation with profitability. So check this concept he used regression and correlation analysis. According to his results inventory period and collection period have negative relationship with profits and payment period has a positive relationship with profitability. This study provides a base for managers in creating value for shareholders by implementing the applications of this study. Managers can add value to wealth of shareholders by reducing receivable period and inventory period and cash conversion cycle.

Eljelly (2004) tested the tradeoff between profitability and liquidity by using correlation and regression analysis. By taking a sample of 929 companies of Saudi Arabia he found a significant negative relationship between the firm's profitability and liquidity. He explicated that firms' liquidity management depends upon effective planning and controlling of current assets and current liabilities in a way that ends the risk of meeting short term obligations without investing

much in current assets. He found that cash conversion cycle is a better measure of liquidity than current ratio and liquidity has a negative relation with profitability.

Ramachandran and Janakirama (2006) studied the firm's efficiency in WCM in the paper industry in India. They analysed the relationship between working capital management efficiency and earnings before interest and taxes (EBIT). Using regression analysis it was found that there is an inverse relationship between EBIT and CCC, positive relation between Payable Period and EBIT, which means profitable firms delay their payables. It was further found that there is a positive relationship between collection period and EBIT. This means credit facility increases sales of firm which ultimately increases profitability.

Raheman and Nasr (2007) studied the relationship between working capital and profitability of Pakistani firms. They analysed the data of 94 firms listed on stock exchange for period of six years (1999-2004). It was found that most of the firms invest huge amount of cash in their working capital. Results showed that profitability is inversely related to receivable collection period, average inventory period, cash conversion cycle and payment deferral period.

Garcia-Teruel and Martinez-Solano analyzed the panel data of 8872 small and medium enterprises from Spain for the period of 1996-2002. They investigated the impact of working capital on profitability of firms. It was found that profitability is inversely related with inventory period and cash conversion cycle. Therefore managers can increase shareholders wealth by reducing inventory and receivable period.

Lazaridis and Tryfonidis (2005) studied 131 companies listed on Athens Stock Exchange for 2001 to 2004 to investigate the impact of profitability and managing working capital. By using regression and correlation analysis it was found that there is significant relation between

profitability and components of working capital. They found a significant positive relationship between profit margins and inventory and a negative relationship between receivable days and profitability. Furthermore it was found that there is positive relationship between payment period and profitability, this means profitable firms delay their payments. Therefore managers can increase shareholders wealth by reducing inventory and receivable period.

Mathuva tested 15 year data of 30 firms of Kenya to investigate the relationship between profitability and management of working capital. Data were analyzed using Pearson and Spearman's correlations. He found a significant positive relationship between profit margins and inventory and negative relationship between receivable days and profitability. Furthermore it was found that there is positive relationship between payment period and profitability, this means profitable firms delay their payments.

Banos-Caballero, Garcia-Teruel and Martinez-Solano (2009) analyzed the factors influencing cash conversion cycle for small and medium enterprises (SMEs). They used panel data of 4076 Spanish SMEs from 2001-2005. From this study it was found that every SME has a target CCC period and they adjust themselves to that target very quickly. Results showed that older companies had longer CCC and growing companies used more aggressive working capital policy so ultimately had shorter CCC.

Afza and Nazir (2007) investigated the relationship between working capital policies and profitability for 208 companies listed on KSE for a period of 1998 to 2005. By using regression analysis it was found that there is an inverse relationship between companies' profitability and working capital policies which validates the study of Carpenter and Johnson (1983) and was

found that there is not any significant relation between firms' risk and level of current assets and current liabilities.

Hill, Kelly and Highfield (2010) studied the components of working capital. They analysed panel data of 3343 companies over the period of 1996-2006. This study emphasized on working capital requirement. It was found that there is inverse relationship between working capital requirement and growth in sales and cost of externally raised capital and a positive relationship with operating cash flows and access to capital market.

Ghosh and Maji (2003) studied the firm's efficiency in WCM in the cement industry in India. They analysed the relationship between working capital management efficiency and earnings before interest and taxes (EBIT). Using regression analysis it was found that there is an inverse relationship between EBIT and CCC, positive relation between Payable Period and EBIT, which means profitable firms delay their payables. It was further found that there is a positive relationship between collection period and EBIT. This means credit facility increases sales of firm which ultimately increases profitability.

2.4 Conclusion

Shin and Soenen (1998) found out that management of working capital has significant relationship with liquidity and profitability of companies. Lazaridis and Tryfonidis (2005) found that there is significant relation between profitability and components of working capital. They found a significant positive relationship between profit margins and inventory and a negative relationship between receivable days and profitability. They also found that there is positive relationship between payment period and profitability. This means that different components of WCM can have different impact to the profitability of a firm. Ghosh and Maji (2003) came up

with similar findings that different components will differently relate with the profitability. According to various theories explained above it shows the importance of working capital management in ensuring liquidity is maintained which will avoid bankruptcy that may be driven by suppliers. Managers should be keen in choosing their capital structure as far as short term debts and assets are concerned. For short term liability that attracts interest should also be well observed to exploit the Modigliani and Miller capital structure theory.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter consists of the research methodology including data collection designs and the procedures under the following subheadings; Research design, target population, sample and sampling procedures, research instruments, validity of instruments, reliability of instruments, data collection, procedures and data analysis.

3.2 Research design

This research used descriptive research designs. Anastas (1999) defines descriptive research designs as a scientific method that provide answers to the questions of who, what, when, where, and how associated with a particular research problem; a descriptive study cannot conclusively ascertain answers to why. Descriptive research is used to obtain information concerning the current status of the phenomena and to describe "what exists" with respect to variables or conditions in a situation Anastas (1999). Descriptive design has been selected to systematically and accurately describe the relationship between working capital management and profitability of mobile phone network operators in Kenya.

3.3 Population

According to Borg and Gall (1989) a target population is defined as all members of real set of people, events or objects to which a research wishes to generalize the results of the study.

The target population of this study comprised of all the 4 mobile phone network operators in Kenya for the 5-year period 2009 – 2013. Census was carried out due to the small number of

mobile phone network operators in Kenya. There are only 4 mobile phone network operators. All these companies were included in the study and thus a census of the mobile phone network industry will be done.

3.4 Data collection

The data for this research shall be collected from secondary sources. The secondary source includes records, past research and documents. Secondary data was extracted from annual financial reports of the sampled firms for the period 2009 – 2013. The financial reports were obtained from company's publications and websites. The end result was information detailing working capital management (current ratio, quick ratio, net working capital to total assets, net working capital turnover, debtors turnover and current assets turnover) and profitability (Return on total assets (ROA)). The study will collect the following data from the financial reports of each company total asset, Net sales, total current assets, Account Receivable, Account Payable, total current liability, Net annual credit sales, and total supplier purchases.

3.5 Data Analysis

Data was analyzed in five stages. Stage one involved compiling data to isolate variables that was used in the regression mode. Stage two, involved computation of ratios, averages and standard deviations described under data collection stage. Descriptive data analysis techniques were used to analyze the data. This involved descriptive tools such as means, mode, variance, standard deviation and frequency distribution. Stage three involved running the regression model. Stage four involved testing the significance of the relationship between variables in the model. In stage five, regression model actual results of the parameters was compared with the theoretical prediction model and conclude by interpretation.

3.5.1 Model of Analysis

To test the relationship between working capital management and profitability, the following was considered where profitability is dependent upon working capital management parameters.

The profitability as the dependent variable was measured by the Return on Assets (ROA). The reason for choosing this variable is that the ROA represents the ratio of how much a firm has earned on its asset base Melicher and Leach, (2009). ROA has been used as dependent variable by Garcia-Teruel and Martinez-Solano (2007), Karaduman et al (2004), Padachi (2006), Enqvist et al (2011) and, Sharma and Kumar (2011). Consistently, the ROA will also be used in this study as dependent variable because accordingly the net profit in relation to the company asset base is a good way to measure the extent of returns on investments made in the company.

WCM is the working capital management measured with the help of account receivable turnover in Days, Account payable in days, current assets to Sales, and current liabilities to total assets.

Thus the model to be used is below;

$$ROA = f(ARD, APD, CASA, CLTA)$$

$$ROA_{it} = \beta_0 + \beta_1 ARD_{it} + \beta_2 APD_{it} + \beta_3 CASA_{it} + \beta_4 CLTA_{it} + \varepsilon_{it}$$

Where,

i denotes mobile operators ranging from 1 to 4, and t denotes years (time series dimension) ranging from 1 to 5.

$\beta_0, \beta_1, \beta_2, \beta_3$ and β_4 are regression coefficients

The variables are ROA= Return on Total Assets,

ARD = Accounts Receivable Turnover in Days, APD= Accounts Payable Turnover in

Days, CASA= Current Assets to Sales, CLTA= Current Liabilities to Total Assets.

Table 1: Operationalization of the variables

Type of Variable	Variable	Measure	Measurement Level	Tools of Analysis
Dependent	Profitability	ROA = net income/total assets	Scale	Descriptive
Independent	WCM	Accounts Payable Turnover in Days (APD) = $365 / \text{Accounts Payable Turnover Ratio}$ Accounts Payable Turnover Ratio = Total supplier purchases / (Beginning accounts payable + Ending accounts payable) / 2	Scale	Descriptive
		Accounts Receivable Turnover in Days (ARD) = $365 / \text{Accounts Receivable Turnover Ratio}$ Accounts Receivable Turnover Ratio = Net Annual Credit Sales / (Beginning Accounts Receivable + Ending Accounts Receivable) / 2	Scale	Descriptive
		Current assets to sales (CASA) = Total current assets / Net sales	Scale	Descriptive
		Current Liabilities to Total Assets = Total current liability / Total assets	Scale	Descriptive

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the information processed from the data collected during the study on the relationship between working capital management and profitability of mobile phone network operators in Kenya. The chapter is set out as follows data and variables and empirical analysis.

4.2 Data and Variables

Data for this study was collected from all the 4 mobile phone network operators in Kenya for the 5-year period 2009 – 2013. The required financial data of these firms was obtained from the companies' annual reports. Consequently, the sample data begins in 2009 and ends in 2013 in order to ensure accuracy of the collected data and a number of filters were applied. Observations of items from the balance sheet and profit and loss accounts showing signs contrary to reasonable expectations were removed.

In order to examine the relationship between working capital management and profitability of mobile phone network operators in Kenya, profitability is measured by Return on Assets (ROA), which is defined as the ratio of earnings before interest and tax to total assets. ROA is used as a dependent variable. ROA has been used by Samiloglu and Demirgunes (2008) and Nazir and Afza (2009).

The Accounts Payable Turnover in Days (APD), Accounts Receivable Turnover in Days (ARD), Current assets to sales (CASA) and Current Liabilities to Total Assets (CLTA) are used as the independent variables and are considered for measuring working capital management.

4.3 Descriptive Statistics

Descriptive analysis shows the mean, and standard deviation of the different variables of interest in this study. It also presents the minimum and maximum values of the variables which help in getting a picture about the maximum and minimum values a variable has achieved.

Table 2: Descriptive Statistics of Variables for Mobile Phone Network Operators

Variable	Mean	Median	SD	Minimum	Maximum
ROA	0.157	0.135	0.104	-0.052	0.379
ARD	56.535	52.812	32.476	8.747	174.390
APD	96.503	86.099	49.846	18.969	264.555
CLTA	0.439	0.426	0.165	0.144	0.881
CASA	0.161	0.149	0.185	-0.313	0.926

Table 2 presents the summary statistics of the variables used in the present study for 4 mobile phone network operators in Kenya. The mean value of return on assets is 15.7% with a standard deviation of 10.8%. The mean Accounts Receivable Turnover in Days is 56.535 days with a standard deviation of 32.476 days. The table also shows that on average the firms take 96.503 days to pay its creditors with a standard deviation of 49.846 days. The table further shows that mean Current assets to sales is 0.161. The mean Current Liabilities to Total Assets is 0.439.

4.4 Regression Analysis

In order to test the hypotheses, regression analysis has been conducted to determine the whether there is significant relationship between working capital management and profitability. Results in tables below provide results for the models tested in the present study. In order to check the presence of autocorrelation and multicollinearity in the data, Durbin Watson (D-W) and Variance Inflation Factor (VIF) statistics was analyzed respectively.

4.4.1 Safaricom ltd

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig. F Change	Durbin-Watson
1	0.579a	0.335	0.248	2.6055	0.335	3.864	0.022	0.968

Predictors: (Constant), CASA, CLTA, ARD and APD

Dependent Variable: ROA

The adjusted R-square of the model indicates 33.5% variation in ROA of mobile phone network operators that can be explained by the regression model. The unexplained part of the model is the error term. The Durbin-Watson test indicates that there exists no auto-correlation in the model in which the value of D-W statistic is 0.968.

Table 4: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			Sig.
		B	Std. Error	Beta	t		
1	(Constant)	5.476	1.675		3.269	0.003	
	CASA	0.02	0.03	0.298	0.733	0.471	
	CLTA	-0.05	0.02	-0.301	-1.757	0.092	
	ARD	-0.02	0.011	-0.784	-1.922	0.067	
	APD	0.03	0.02	0.371	0.541	0.001	

Dependent Variable: ROA

The above table indicates the coefficient of the regression equation. From the table it can also be inferred that the variables have a coefficient that are significant with 1% level of significance. Another thing is that the variables in the model are free from Multicollinearity.

4.4.2 Orange ltd

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig. F Change	Durbin-Watson
1	0.481a	0.231	0.131	2.8022	0.231	2.302	0.104	0.85

Predictors: (Constant), CASA, CLTA, ARD and APD

Dependent Variable: ROA

The adjusted R-square of the model indicates 23.1% variation in ROA of mobile phone network operators that can be explained by the regression model. The unexplained part of the model is the error term. The Durbin-Watson test indicates that there exists no auto-correlation in the model in which the value of D-W statistic is 0.850.

Table 6: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		T	Sig.
		B	Std. Error	Beta			
1	(Constant)	6.009	1.907			3.151	0.004
	CASA	-0.04	0.037	-0.542		-1.079	0.292
	CLTA	-0.04	0.029	-0.272		-1.475	0.154
	ARD	0.01	0.019	0.14		0.278	0.783
	APD	0.02	0.03	0.264		0.702	0.002

Dependent Variable: ROA

The above table indicates the coefficient of the regression equation. From the table it can also be inferred that the variables have a coefficient that are significant with 1% level of significant. Another thing is that the variables in the model are free from Multicollinearity.

4.4.3 Airtel ltd

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig.F Change	Durbin-Watson
1	0.567a	0.321	0.233	2.632	0.321	3.633	0.028	0.762

Predictors: (Constant), CASA, CLTA, ARD and APD

Dependent Variable: ROA

The adjusted R-square of the model indicates 32.1% variation in ROA of mobile phone network operators can be explained by the regression model. The unexplained part of the model is the error term. The Durbin-Watson test indicates that there exists no auto-correlation in the model in which the value of D-W statistic is 0.762.

Table 8: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		T	Sig.
		B		Std. Error	Beta		
1	(Constant)	4.683		1.801		2.601	0.016
	CASA	-0.05		0.015	-0.627	-2.98	0.007
	CLTA	-0.02		0.03	-0.142	-0.767	0.451
	ARD	0.02		0.01	0.397	1.777	0.089
	APD	0.04		0.02	0.247	0.165	0.003

Dependent Variable: ROA

The above table indicates the coefficient of the regression equation. From the table it can also be inferred that the variables have a coefficient that is significant with 1% level of significant.

Another thing is that the variables in the model are free from Multicollinearity.

4.4.4 Yu ltd

Table 9: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig. F Change	Durbin-Watson
1	0.652a	0.425	0.35	2.4225	0.425	5.672	0.005	0.901

Predictors: (Constant), CASA, CLTA, ARD and APD

Dependent Variable: ROA

The adjusted R-square of the model indicates 42.5% variation in ROA of mobile phone network operators that can be explained by the regression model. The unexplained part of the model is the error term. The Durbin-Watson test indicates that there exists no auto-correlation in the model in which the value of D-W statistic is 0.762.

Table 10: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		T	Sig.
		B	Std. Error	Beta			
1	(Constant)	3.481	1.759			1.979	0.06
	CASA	0.04	0.027	0.528		1.425	0.168
	CLTA	-0.02	0.026	-0.133		-0.803	0.43
	ARD	-0.02	0.007	-1.041		-2.807	0.01
	APD	0.03	0.029	0.481		1.392	0.01

Dependent Variable: ROA

The above table indicates the coefficient of the regression equation. From the table it can also be inferred that the variables have a coefficient that are significant with 1% level of significant. Another thing is that the variables in the model are free from Multicollinearity.

4.5 Summary

Table 11: Variance Inflation Factor

Dependent Variable: Return on Assets (ROA)					
Parameter	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	-0.306 (0.053)	-0.459	-0.166 (0.170)	-0.128 (0.476)	-0.115 (0.440)
ARD	-3.98E-005 (0.894)				-0.0003 (0.130)
APD			0.001 (0.000)		0.001 (0.000)
CLTA	0.003 (0.468)	0.008 (0.067)	0.002 (0.511)	0.002 (0.722)	0.004 (0.319)
CASA	0.163 (0.001)	0.157 (0.001)	0.170 (0.001)	0.168 (0.001)	0.170 (0.000)
Adjusted R2	0.312	0.444	0.540	0.333	0.547
F-Value	9.989 (0.000)	16.780 (0.000)	24.273 (0.000)	10.874 (0.000)	18.045
D-W Statistic	0.847	1.137	1.217	0.836	1.282

It is evident that the statistics are within the limit, leading to the conclusion that there is no presence of autocorrelation and multicollinearity in the data. D-W statistics value was found to be 1.137 in model 2, which was highest in all five models. Durbin-Watson statistic ranges in value from 0 to 4 with an ideal value of 2 indicating that errors are not correlated, although values from 1.75 to 2.25 may be considered acceptable. Further some authors (Makridakis & Wheelwright, 1978) consider D-W value between 1.5 and 2.5 as acceptable level indicating no presence of collinearity.

Model 1 tests the hypothesis that there is no significant relationship between Accounts Receivable Turnover in Days and profitability. The regression results indicates that the coefficient of ARD is negative with -3.98E-005, but it is not significantly different from zero (p-value =0.894). Thus, Ho1 hypothesis is not rejected and is concluded that ARD is not statistically significant at 1% significance level ($p > 0.01$). This suggests that, though short ARD

is good for explaining the financial success mobile operators firms in Kenya, it is not a critical factor to consider when taking decision to improve profitability. The result is consistent with Raheman, Afza, Qayyum, & Bodla (2010); and Sharma and Kumar (2011) but significantly differs from those conducted by Gakure, Cheluget, Onyango and Keraro (2012); Mathuva (2010); and Filbeck, *et al.* (2005) which found a significant relationship between average collection period and profitability. However, the overall model is statistically significant, as it is indicated by the F-value of 9.989 ($p < 0.01$). The model's adjusted R² implies that 31.2% of the variation in the profitability of the firms can be explained by the model. The coefficients of the other variables included in the model are also highly significant. Return on Assets increases with Current assets to sales and decreases with Current Liabilities to Total Assets.

Model 2 tests the hypothesis that there is a significant relationship between Current assets to sales and profitability ROA. This finding is consistent with studies carried out on conservative working capital policies (Mathuva, 2010). This means that maintaining high Current assets reduces the cost of possible interruptions in the supply process and the loss of business due to scarcity of products. The other variables in model 2 are also significant. The model's adjusted R² is 44.4% with an F-value of 16.780 which is highly significant ($p < 0.01$).

Model 3 tests the hypothesis that there is a significant relationship between Accounts Payable Turnover in Days and Profitability. The coefficient of APD shows a very significant positive relation between ROA and APD. This positive relation confirms the positive correlation between ROA and APD in Table 4.2. Ho₃ hypothesis is rejected and is concluded that APD is statistically significant ($p < 0.01$). This suggests that, an increase in the number of day's accounts payable by 1 day is associated with an increase in profitability. Contrary to Deloof (2003), Raheman and Nasr (2007), Sharma and Kumar (2011) and Padachi (2006), this finding holds that more profitable

firms wait longer to pay their bills. This implies that they withhold their payment to suppliers so as to take advantage of the cash available for their working capital needs. The other variables in the model except current ratio are significant. The model's adjusted R² is 54.0% with an F-value of 24.273 which is highly significant ($p < 0.05$).

Model 4 tests the hypothesis that there is a significant relationship between Current Liabilities to Total Assets and profitability. The regression coefficient indicates a significant positive relation between Current Liabilities to Total Assets and ROA. Ho₃ hypothesis is rejected and is concluded that Current Liabilities to Total Assets is statistically significant ($p < 0.1$). This supports the notion that the Current Liabilities to Total Assets is positively related with profitability. The other variables in the model are also statistically significant except current ratio. The model's adjusted R² is 33.3% with an F-value of 10.874 which is highly significant ($p < 0.01$).

Model 5 acts as a control model for the variables under study. The model was run so as to provide an indicator as to the most significant variables affecting the study. The model shows that all the variables included are highly significant at 1% level with an exception of ARD and CLTA which are not significant. In this model, the ARD is negatively related with the firm's profitability while all the other variables exhibit a positive relationship. The model's adjusted R² is 54.7% with an F-value of 18.045 which is highly significant ($p < 0.01$).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, conclusion, recommendations for policy, limitations and suggestion for further research. The data was presented in a prose form.

5.2 Summary

The purpose of the study is to examine the relationship between working capital management and profitability of mobile phone network operators in Kenya. This was an analytical study that adopted a time series or longitudinal approach, supplemented by cross-sectional comparisons. The study used data from NSE for the period (2009-2013) which was exposed to sensitivity analysis using regression.

The study found out that, there is no significant relationship between Accounts Receivable Turnover in Days and profitability. There is a significant relationship between Current assets to sales and profitability. There is a significant relationship between Accounts Payable Turnover in Days and Profitability. There is a significant relationship between Current Liabilities to Total Assets and profitability. This implies that they withhold their payment to suppliers so as to take advantage of the cash available for their working capital needs.

5.3 Conclusion

Most of the Kenyan mobile phone network operators firms have large amounts 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. The study found out existence of negative correlation between Return on Assets and the firms Accounts Receivable

Turnover in Days. However, the study findings suggest that there is a positive correlation between Current assets to sales, Accounts Payable Turnover in Days, Current Liabilities to Total Assets and Return on Assets. These results suggest that managers can create value for their shareholders by reducing the number of day's accounts receivable and increasing the accounts payment period and current assets to a reasonable maximum.

From the correlation matrix it is clear that there is positive correlation between working capital efficiency and profitability ratios of the mobile companies with some exceptions where the correlation is negative. From the profitability ratios it is clear that the performance of the mobile phone network operators under the study period is not satisfactory. On the other hand, from the working capital ratios it is clear that the working capital position is not also satisfactory. From the regression and correlation analysis it can be concluded that the poor management of working capital is one of the important causes for poor performance or poor profitability position of the selected mobile phone network operators under the study period.

5.4 Recommendations for Policy

The results shows that for overall mobile phone network operators sectors, Working Capital Management has a significant impact on profitability of the firms and plays a key role in value creation for shareholders. The negative association of Average Collection Period with Return on Assets, a measure of profitability, helps the management in setting credit policy for the sector in general for the firms in mobile phone network sector in Kenya. The study recommends a longer credit period for the firms to realize higher profitability. There exists positive association between Current assets to sales and Return on Assets for the mobile phone network operators sectors in Kenya as a whole. Similarly there is a positive relationship between Accounts payment period and Return on Assets of mobile phone network operators firms in Kenya. The study

recommends that the longer the accounts payable, the better the profitability this could be due to good name created by suppliers and suppliers will not interrupt supplies to the firm which in turn leads to smooth operation during the year and ends up with better profitability.

Mobile phone network operators play a vital role in the economic development of the country. It is found from the study that the working capital management of mobile industry is inefficient. This is evident from the study that working capital plays an important role in the overall performance of the industry. The liquidity position of the mobile phone network operators is not satisfactory due to poor turnover of Current Assets and Debtors. The collection of receivables is not good due to inefficient credit and collection policy. The mobile operators firms should be cautious in formulating working capital policy.

Monthly performance evaluation should be done. Fund flow statement should be prepared periodically. Cost audit should be done continuously. For cash management, cash budget, cash flow statement, cost minimizing model like Baumol Model, Miller-Orr, etc. Model should be used. Account Receivable turnover in days should be reduced. Investment in Current Assets should be increased. Current Liabilities should be reduced.

5.5 Limitations of the Study

Confidentiality and sensitivity of financial institution matters was a major limitation since respondents may fear revealing important and confidential organizational information. In order to address this limitation, the researcher requested for an introduction letter from the University to support the research work.

The use of a questionnaire alone was a major limitation since the questionnaire may not be able to capture all the required data. To address this limitation, the researcher targeted the use of secondary data from the firm's annual reports.

The researcher had to make proper arrangements with firms to avail their annual reports for the study. The researcher also had to exercise utmost patience and care and in view of this the researcher had to make every effort possible so as to acquire sufficient data from the respondents.

Assessing the annual reports and financial statements of the firms was a major limitation. To curb this, the researcher presented a letter from the university indicating that the data will only be used for academic purposes.

The data from Yu and Orange mobile operators for 2011, 2010 and 2009 were not obtained and therefore the researcher had to rely on the available data to make conclusions. At least 75% of intended data was collected.

5.6 Suggestion for Further Research

This paper examines the relationship between working capital management and profitability of mobile phone network operators in Kenya. Because of data unavailability, it was not possible to include all the service companies in the country. Therefore I suggest further research on the relationship between working capital management and profitability of mobile phone network operators in Kenya to be done in other service companies.

In addition, it would be interesting to examine the information content of the spread in terms of forecasting macroeconomic variables such as investment, cash conversion period and growth to find out the relationship between the working capital management and profitability.

The study focused on mobile phone network operators in Kenya thus another study should be done to examine the relationship between working capital management and profitability of mobile phone network operators in East Africa.

Another study should be done on the impact of working capital management on profitability in Kenya manufacturing industry to find out if the same results will be found.

Additionally research can also be carried out to find the factors determining the working capital policy of the company. For example sales, economic situation, political stability of the country and etc. Assume country x is having high level of inflation, in that case the interest rate will be very high. So the companies will be under pressure to use its working capital components to finance its short term requirements.

Further research can also be carried out amongst unlisted companies to identify how the working capital component is playing the role. This is because family business is not facing the pressure faced by listed companies, so there may be several opportunities to increase the profitability of the company or to identify how the private companies utilising the working capital components. Compared with the listed companies, the capital available to private companies are limited so better uses of working capital can increase the profitability.

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APPENDICES

APPENDIX I: RAW DATA

No.	Name of Company	Net Sales	Net annual credit sales	Total Assets	Purchases	Total Account Receivable	Total Account Payable	Total current liabilities	Total current assets
2013									
1	safaricom	125bn	42bn	128bn	56bn	16bn	24bn	27bn	18bn
2	Airtel	28.31bn	7bn	67bn	580bn	15bn	12bn	20bn	-5bn
3	Orange	40bn	4bn	171bn	17bn	9bn	14.6bn	45bn	27bn
4	Yu	24bn	5bn	67bn	320bn	19bn	13bn	15bn	-4.6bn
2012									
1	safaricom	109bn	38bn	123bn	54bn	14bn	20bn	21bn	12bn
2	Airtel	27.72bn	5bn	63.5bn	409bn	23bn	14bn	16bn	6.3bn
3	Orange	36bn	2bn	152bn	14bn	5bn	12bn	34bn	26.3bn
4	Yu	20bn	3bn	65bn	310bn	16bn	10bn	12bn	5.2bn
2011									
1	safaricom	92bn	34bn	115bn	45bn	11bn	19bn	18bn	13bn
2	Airtel	22.75bn	4.27bn	54.3bn	351bn	12.5bn	10bn	16.6bn	-4.6bn
3	Orange	-	-	-	-	-	-	-	-
4	Yu	-	-	-	-	-	-	-	-
2010									
1	safaricom	85bn	30bn	102bn	40bn	9bn	17bn	15bn	15bn
2	Airtel	42.59bn	2bn	41.7bn	287bn	10bn	5bn	12.9bn	-3.6bn
3	Orange	-	-	-	-	-	-	-	-
4	Yu	-	-	-	-	-	-	-	-
2009									
1	safaricom	70bn	26bn	87bn	38bn	6bn	11bn	13bn	10bn
2	Airtel	60.46bn	1.62bn	35.3bn	241bn	10.4bn	7.7bn	13.8bn	-4bn
3	Orange	-	-	-	-	-	-	-	-
4	Yu	-	-	-	-	-	-	-	-

APPENDICES

APPENDIX II: REGRESSION MODELS (TABLES 12 – 20)

Table 12: Regression model Safaricom ltd

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	. 0.456a	0.208	-0.131	6.22E+05		
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.52E+11	4	6.29E+10	0.163	.002a
	Residual	9.66E+12	25	3.86E+11		
	Total	9.91E+12	29			
Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.762701	1.409662		0.541	0.593
	2009	0.071717	0.836238	0.018	0.086	0.932
	2010	-0.31728	0.435241	-0.157	-0.729	0.473
	2011	0.171432	0.368602	0.096	0.465	0.646
	2012	0.133117	0.28073	0.088	0.474	0.639
	2013	-2.44747	1.47848	-0.311	-1.655	0.11

Table 13: Regression model Airtel

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.342a	0.117	-0.073	1.09E+06		
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.41E+12	4	6.02E+11	0.508	.026a
	Residual	2.96E+13	25	1.19E+12		
	Total	3.20E+13	29			
Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-0.71968	1.728962		-0.416	0.681
	2009	0.118021	0.244966	0.097	0.482	0.634
	2010	-0.54693	1.030134	-0.107	-0.531	0.6
	2011	0.505282	0.631537	0.17	0.8	0.431
	2012	0.067303	0.111623	0.128	0.603	0.552
	2013	0.133117	0.28073	0.088	0.474	0.639

Table 14: Regression model Orange

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.400a	0.16	0.025	1.25E+06		
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.44E+12	4	1.86E+12	5.189	.012a
	Residual	3.91E+13	25	1.57E+12		
	Total	4.66E+13	29			
Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.052739	1.949611		0.027	0.979
	2013	0.133117	0.28073	0.088	0.474	0.639
	2012	-2.44747	1.47848	-0.311	-1.655	0.11

Table 15: Regression model Yu ltd

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.312a	0.097	-0.047	1.34E+06		
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.83E+12	4	1.21E+12	4.672	.017a
	Residual	4.50E+13	25	1.80E+12		
	Total	4.98E+13	29			
Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.539638	2.060741		1.232	0.229
	2013	0.40725	0.327595	0.264	1.243	0.225
	2012	-0.48127	0.46203	-0.202	-1.042	0.308

Table 16: Regression 2013

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.678 ^a	0.46	0.126	0.48087

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32619.315	2	16309.658	9.817	.000 ^a
	Residual	76426.644	10	1661.449		
	Total	109045.959	12			

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.972	2.229		1.702	0.096
	CASA	0.897	0.921	0.013	0.341	0.231
	CLTA	2.717	0.197	0.002	0.065	0.002
	ARD	0.131	0.028	0.014	0.438	0.032
	APD	0.521	0.361	0.125	0.214	0.004

Table 17: Regression 2012

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.742 ^a	0.551	0.142	68.76087		
Model	Sum of Squares		df	Mean Square	F	Sig.
1	Regression			16309.658	9.817	.001 ^a
	Residual			1661.449		
	Total					
		43561.315	2			
		76346.644	10			
		123245.959	12			
Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.	
		B	Beta			
		Std. Error				
1	(Constant)	2.252		1.122	0.096	
	CASA	0.375	0.016	0.231	0.231	
	CLTA	0.157	0.128	1.015	0.021	
	ARD	0.229	0.204	0.142	0.053	
	APD	0.351	0.247	2.909	0.059	

Table 18: Regression 2011

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.763 ^a	0.582	0.132	36.43087

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	26719.315	2	16309.658	9.817	.004 ^a
	Residual	84326.644	10	1661.449		
	Total	97245.942	12			

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	
	B	Beta			
1	(Constant)	2.422	2.229	1.702	0.096
	CASA	0.782	0.231	0.341	0.261
	CLTA	0.078	2.243	0.297	0.002
	ARD	0.036	0.094	1.284	0.014
	APD	0.787	0.023	1.302	0.065

Table 19: Regression 2010

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.792 ^a	0.627	0.146	27.76087

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	28919.315	2	16309.658	9.817	.001 ^a
Residual	47326.644	10	1661.449		
Total	96745.959	12			

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Beta		
1 (Constant)	3.461		1.702	0.005
CASA	0.246	0.013	0.341	0.131
CLTA	0.058	1.03	0.52	0.318
ARD	0.916	1.08	0.07	0.007
APD	0.889	0.26	0.24	0.208

Table 20: Regression 2009

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.802 ^a	0.643	0.621	28.8487

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	456.315	2	16309.658	9.817	.004 ^a
Residual	48926.644	10	1661.449		
Total	56745.959	12			

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Beta		
1 (Constant)	291.52		1.702	0.096
CASA	0.162	0.013	0.341	0.046
CLTA	0.088	0.103	0.067	0.202
ARD	0.502	0.461	1.015	.006
APD	0.491	0.393	0.307	.0314