THE EFFECT OF WORKING CAPITAL MANAGEMENT ON THE PROFITABILITY OF AGRICULTURAL FIRMS LISTED IN NAIROBI SECURITIES EXCHANGE

BY

LUCY MMBONE LUCHINGA

A RESEARCH PROJECT PRESENTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

NOVEMBER   2014

DECLARATION

I declare that this research proposal is my original work and it has not been presented in any other university or institution for academic credit.

Signature……………………………….   Date……………………………

Lucy Mmbone Luchinga

D61/75896/2012

Declaration by the Supervisor

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

Mr Odipo Khoya

Lecturer, Department of Finance and Accounting, School of Business, University of Nairobi

Signature…………………………………… Date………………………………..

DEDICATION

I dedicate this research work to my lovely family Breanna and Ivan, for their patience and encouragement throughout the period.

ACKNOWLEDGEMENT

This research work has been made possible through the contribution of various people. I wish to thank God for providence and for my MBA course. I thank my two supervisors Mr. Odipo Khoya and Mr. Mirie Mwangi, for going through various drafts and eventually making this a reality

I extend special thanks to my two children Breanna and Ivan who prayed for me diligently as I went through this project. I am greatly indebted to my best friend Emanuel Orangi for support throughout the MBA course and this project. God Bless you all.

ABSTRACT

Working Capital Management involves management of current assets and liabilities of an institution. Proper management is critical in order for a firm to improve on its productivity. The main objective of the study was to establish the effect of working capital management and financial performance of agricultural firms listed in NSE. The research used both descriptive and quantitative research design. The population for the study constituted all agricultural companies quoted at the NSE for the period of four years from 2009 to 2012 which are seven in number. The quantitative research approach was used. The study found out that inventory turnover in days has negative relationship with Return on Assets from the regression model, which means that companies 'financial performance can be increased by reducing inventory in days. Cash Conversion period and Net payment period shows significant negative relation with Return on Equities showing that firms 'financial performance can be increased with reducing the number of days in both of them. The study therefore recommends that there should be a proper trade-off between profitability and risk. The profitability of agricultural firms listed in the NSE is dependent on great working capital management. The study recommends that managers of these firms should work on reducing their cash conversion cycles, negotiate for better payment terms with suppliers and collect receivables as soon as possible from their clients in order to be more profitable.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

BVA- Book Value of Assets

CCC- Cash Conversion Cycle

FP-   Financing Policy

MNC- Multinational Corporation

NSE- Nairobi Securities Exchange

ROA- Return on Assets

TCL- Total Current Liabilities

TL-   Total Liabilities

WC-   Working Capital

WCM- Working Capital Management

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

Working capital also known as net working capital is a financial metric that represent the amount of day-to-day operating liquidity available to the business. Charles Schwab defines working capital as current assets minus current liabilities. Horne (1977) defines working capital requirements as cash, accounts receivable, marketable securities and account payable.

Working capital (WC) is considered a part of operating capital. It is calculated as current assets minus current liabilities. A company can be endowed with assets and profitability but short of liquidity, if these assets can not readily be converted into cash. Current assets and current liabilities include three accounts: accounts receivable (current assets), inventory (current assets), and accounts payable (current liability) which are of special importance. These accounts represent the areas of the business where managers have direct impact. According to Emery (1978), Working capital refers to the net working capital. Net working capital is the excess of current assets over current liabilities.

Current assets refers to those assets, which in the ordinary course of business can be or will be turned into cash within one year without undergoing a diminution in value and without disrupting the operations of the firm. On the other hand, current liabilities are those liabilities that are intended at their inception to be paid in the ordinary course of business within a year out of the current assets and earnings of the concern. Current assets include sundry debtors, bills receivable, cash and bank balances and inventories which include raw materials and components, work in progress, finished goods, marketable securities, loan advances extended for a short-term period. Current liabilities include sundry creditors, bills payable, advance payments, short-term borrowing, bank overdraft, dividends payable, accrued or outstanding expenses, provision for taxation and dividend unclaimed acceptances. Working capital management (WCM) is important because of its effects on firm's profitability and risk and consequently its value, other importance of working capital are; it's essential to run the day business activities, adequate working capital is required to continue

uninterrupted business operations, maximization of firm's wealth and increasing the rate of return among others.

1.1.1 Working Capital Management

Working capital represents the amount of day-by-day operating liquidity available to a business. Along with fixed assets such as plant and equipment, Working capital is considered a part of operating capital. It is calculated as current assets minus current liabilities. Working capital management is important because of its effects on the firm's profitability and risk, and consequently its value Smith (1987). Working capital investments involves a trade-off between profitability and risk. Decisions that tend to increase profitability tend to increase risk and conversely, decisions the focus on risk reduction will tend to reduce potential profitability. Decisions about how much to invest in the customer and inventory accounts, and how much credit to accept from suppliers are reflected in the firm's cash conversion cycle, which represent the average number of days between the date when the firm must start paying its suppliers and the date when its begin to collect payment from its customers. Working Capital cannot be reduced to a minimum without operational compromises. Companies need to optimize their working capital in a way that they don't have to compromise on future sales and profits. An example is when companies decide to shorten payment terms to clients; they may eventually have difficulty in selling their products especially if their competitors are offering better payment terms.

Firms must have a good balance between long and short term financing in order to be able to manage their short term obligations as and when they fall due. Firms can be liquidated with the inability to manage their obligations especially on payment to suppliers. Firms should therefore maintain a proper balance of cash flow against investment so that they don't carry too much cash at the expense of investing which will enable them to earn more income. The trade-off between risk and profitability is therefore inherent.

1.1.2 Profitability of Agricultural Firms Listed in NSE

The profitability of Agricultural firms listed in NSE can be improved by effectively managing WC requirements of the firms. The firms need to be able to meet their short term obligations as and when they fall due. The management of the firms can

implement policies that may encourage improvement in sales. These may include giving enough number of days to their customers to pay them on their receivables. There should however be a good balance between the number of days issued and when they have to pay their suppliers so that they don't get into financial distress where they are unable to pay their short term obligations as and when they fall due. A firm can only maximize its value if it survives in the short run.

1.1.3 Relationship between WCM and Profitability of Agricultural Firms Listed in NSE

The efficiency of WCM can be determined by use of the financing policy which determines whether the firm is using aggressive or conservative policies. The study will test how the variables of WCM affect profitability of agricultural firms listed on the NSE and their effect on shareholder value. There is significant evidence that by effectively managing each part of WC, we can increase the net present value of cash flows and therefore add to shareholder value.

1.1.4 Agricultural Firms Listed in NSE

There are seven agricultural firms listed in NSE as at December 2013. The agricultural sector is one of the most important sectors in the Kenyan economy. Apart from providing food for the Kenyan economy, this sector provides a huge percentage of our export market. Most of the firms in the agricultural sector provide non-commercial services such as corporate social responsibility, ethical investing, resource management and community social investment.

It is critical for the agricultural firms to ensure that they manage the elements of working capital so that they are able to meet their short term obligations as and when they fall due. Proper management of WC has an effect on the profitability of the firms. Most managers deal with day to day issues of the organization including payment of suppliers, negotiating payment terms, and follow up on debtors and ensuring that they collect debts as soon as possible.

1.2 Research Problem

Working capital management is an important element in the agricultural sector that can't be ignored. Mishandling working capital can lead to the collapse of these institutions. This study therefore aims at investigating the role of working capital management on profitability of agricultural firms listed in the NSE whereby it tries to solve problems caused by mismanagement of working capital. Poor management of working capital can be either because these companies over invest or under invest in working capital requirements. Over investment in working capital will reduce returns by increasing the amount of funds tied up in non-interest earnings short-term assets.

On the other hand, insufficient investment in working capital, that is, overtrading, increases the company's risk of financial distress and may lead to a company being technically insolvent as it may not be able to meet its obligations such as paying their debts on time, paying salaries, electricity bills, tax, water bills, and other expenses that they incur in the course of doing business.

According to Dunn (2001), such mismanagement leads to overcapitalization and therefore waste through under utilization of resources and hence poor returns or it can also lead to overtrading (trying to maintain levels of sales which are high than working capital can sustain-for businesses which extend credit terms, more sales means more debtors and higher working capital demands).Overtrading leads to escalating debtors and creditors and if unchecked ultimately, to cash starvation.

WCM is essential for any firm to survive because of its effects on a firm's profitability and consequently its value (Smith, 1980). Studies have been conducted both locally and abroad on how various WC elements impact on a firm's profitability. Nganga (2009) did a research on the relationship between WC and profitability of listed companies at the NSE and found that differences do exist in mean profitability, activity, leverage and liquidity ratios among industry groups. Kimani (2009) did a research on the relationship between a firm's profitability and its size and the book to market value. She found that the growth in sales of a firm is positively related to the firm's profitability. She further concluded that as managers increase their sales output, their revenue increases and as a result they have more funds available for further expansion. Filbeck and Krueger (2005) indicated the importance of efficient WCM by analyzing the WCM policies of 32 non-financial industries in the US. As per their

findings, significant differences exist among industries in WC practices overtime. Weinraub and Visscher (1998) discussed the issue of aggressive and conservative WCM policies by using quarterly data for the period 1984-93 of the US firms. They studied 10 diverse industry groups to examine the relationship between their aggressive and conservative WCM policies.

It is clear that no study has been carried out exclusively on the impact of WCM on the profitability of agricultural firms listed in NSE in Kenya. Agricultural firms are in the crucial agricultural sector of our economy today. This study therefore seeks to bridge the gap on the impact of WCM on profitability of agricultural firm listed in NSE.

1.3 Objective of The Study

The objective of the study is to determine the impact of working capital management on the profitability of agricultural firms listed in NSE.

1.4 Value of Study

This study is considered important for various reasons;

Investors

It will be useful to both potential and eligible investors in gauging the performance of agricultural firms listed in NSE to avoid serious losses on investment. Investors are keen on getting a high rate of return on their investment.

Management of Agricultural Firms

The management of agricultural firms listed in NSE will want to know the correct level of current assets and liabilities to maintain so that they can meet their short term obligations as and when they arise. The management has to adopt an appropriate credit policy that will lead to an optimal liquidity position and lower the opportunity cost of carrying cash, this eventually maximises shareholders wealth and eventually profitability. By studying the business position of the company, management can be able to know if it has the necessary resources to expand internally. It is an explanatory study that will throw light on the importance of working capital management in improving profitability and or efficiency of agricultural firms listed in NSE and business in general. The management of a business can use this to foresee financial difficulties that may arise.

Lenders

Lenders such as commercial banks, which insist that firms should maintain a minimum level of net working capital, will find the project useful in assessing the creditworthiness of the firms and to gauge the ability of the company as to weather difficult financial periods.

Scholars

This study will increase to the body of knowledge on the scholars on the optimal working capital and the influence on the performance of agricultural firms listed in NSE. It may encourage further research on other factors influencing working capital and may be a base used by other researchers interested on the same topic.

CHAPTER TWO
2.0 LITERATURE REVIEW

2.1 Introduction

This chapter covers literature review. It covers information on publications on topics related to the research problem. It consists of an overview of working capital, Theoretical foundation, Main types of current assets and liabilities, Working capital policies, Empirical Review and Trade-off between profitability and risks.

Empirical evidence relating working capital management and profitability in general supports the fact that aggressive working capital policies enhance profitability Jose (1996); Shin and Soenen, (1998); for US companies; for Beglian firms; Wang (2002) for Japanese and Taiwanese firms. This suggests that reducing working capital investment is likely to lead to higher profits

Working capital requirements include current assets and current liabilities. According to Hawawini (1986) current assets refers to a balance sheet account that represent the value of all assets that are reasonably expected to be converted into cash within one year in the normal course of business. Current assets include cash, accounts receivable, inventory, marketable securities, prepaid expenses and other liquid assets that can be readily converted to cash. In personal finance, current assets are all assets that a person can readily convert to cash to pay outstanding debts and other cover liabilities without having to sell fixed assets. Hawawini (1986) defines current liabilities as a company's debts or obligations that are due within one year. Current liabilities appear on the company's balance sheet and include short-term debt, accounts payable, accrued liabilities and other debts. Essentially, these are bills that are due to creditors and suppliers within a short period of time. Normally, companies withdraw or cash current assets in order to pay their current liabilities. Analysts and creditors will often use current ratio, (which divides current assets by current liabilities), or the quick ratio, (which divides current assets minus inventory by current liabilities), to determine whether a company has the ability to pay off its current liabilities.

Eugene et al (1992), states that there is a trade-off between risk and profitability. He assumed that the greater the amount of net working capital, the more the risky the firm is. In other words, the more the net working capital, the more the liquid the firm and therefore the less likely it is to become technically insolvent. The effect of changes in current assets on the firm's profitability-risk trade-off can be demonstrated using the ratio of current assets to total assets. Firms can choose between the relative benefits of two basic types of strategies for net working capital management; they can minimize working capital investment or they can adopt working capital policies designed to increase sales. Thus, the management of the firm has to evaluate the trade-off between expected profitability and risk before deciding the optimal level of investment in current assets. Horne (2001) suggests that in the determination of appropriate amount or levels of current assets, management must put into consideration the above trade-off between profitability and risk.

Lawrence (1985) in the study of fortune 100 firms says that at a glance, it seems that working capital seems not as important as capital budgeting, dividend policy and other decisions that chart firm's long-term decisions. He however said that in today's world of intense competition, working capital management is receiving increasing attention from managers striving for peak efficiency. Zero working capital proponents claim that a movement towards this goal is only to generate cash but also speed up production and help business make more timely decisions and operate more efficiently. This study suggests that working capital management is increasingly becoming important and hence the need of more studies in this field. Ramamoorthy (1976), states that there are no set of rules or formulae to determine working capital requirements of the firms. A large number of factors influence working capital needs of the firms. All factors changes for a firm over time. Therefore, an analysis of relevant factors should be made in order to determine total investment in working capital.

2.2 Theoretical Review

2.2.1 Keynesian Theory of Money

Keynes (1936) identified three reasons why liquidity is important, the transaction, speculative and precautions motive. The transaction motive is the need to have cash on hand to pay bills. The speculative motive is the need to hold cash to be able to take

advantage of any favourable exchange fluctuations or better pricing and finally precautionary motive is the need for a safety supply to act as a financial reserve.

2.2.2 Baumol Inventory Model

Baumol (1952) developed the inventory development model. The model is based on the Economic Order Quantity. Most firms try to minimize the sum of the cost of holding cash and the cost of converting marketable securities to cash. Baumol's cash management model helps in determining a firm's optimum cash balance under certainty. There are however certain assumptions which include; The firm is able to forecast its cash requirements with certainty and receive a specific amount at regular interval, The firm's cash payments occur uniformly over a period of time, The opportunity cost of holding cash is known and does not change over time. Cash holding incur an opportunity cost in the form of opportunity foregone and the firm will incur the same transaction cost whenever it converts securities to cash i.e each transaction incurs a fixed and variable cost. The assumptions are a major limitation of the Baumol model.

2.2.3 Quantity Theory of Money

In the quantity theory, money is held only for the purpose of making payments for current transactions. (Keynes 1936). Ivan Fishers proposed this in 1911 where he used the model MV=PT where M is the nominal stock of money in circulation and V is the transaction velocity of circulation of money.

2.3 Empirical Review

The review of prior literature reveals that there exists a significant relation between WCM and profitability of firms by using different analysis. These studies evaluate WCM, by trying to determine the effect of a firm's working capital management on its profitability. They argue that a WCM, which resulted in the highest profitability, must be the best way of managing working capital that can be implemented. All these studies have used regression analyses using different independent variables for profitability. They mainly used independent variable operationalizing WCM is the

Cash Conversion Cycle (CCC). CCC basically shows how long a firm takes to convert resource inputs into cash flows (Quayyum, 2012).

Deloof (2003), Shin and Soenen (1998), Laziridis and Tryfonidis (2006), Garcia-Teruel and Martinez-Solano (2007), Samiloglu and Demirgunes (2008), Karaduman et al. (2011), Uyar (2009) and Wang (2002), whom did research in respectively Belgium, USA, Greece, Spain, Turkey, Turkey, Turkey and Japan and Taiwan all found a negative relation between WCM, using the CCC, and firm profitability. This means that having a WCM policy which results in a low as possible accounts receivables and inventories and the highest amount of accounts payables leads to the highest profitability.

Contradicting evidence is found by Gill et al. (2010), whom did research in the USA and found a positive relation between CCC and a firm's profitability. But they did find a highly significant negative relation between accounts receivables and a firm's profitability. They suggest that a firm can enhance their profitability by keeping their working capital to a minimum. This is because they argue that less profitable firms will pursue a decrease of their accounts receivables in an attempt to reduce their cash gap in the CCC (Gill et al., 2010).

Other studies have mainly focussed on emerging market. These studies are Raheman and Nasr (2007), Zariyawati et al. (2009), Falope and Ajilore (2009), Dong and Su (2010), Mathuva (2010) and Quayyum (2012) whom did research in respectively Pakistan, Malaysia, Nigeria, Vietnam, Kenya and Bangladesh. All these studies have found a significant negative relation between the cash conversion cycle and a firm's profitability. This means that managers can create value for their firms, by keeping their working capital to a reasonable minimum.

Contradicting evidence is found in India by Sharma and Kumar (2011). They found evidence of a positive relation, which means that loosening the three parts of a firm working capital management leads to higher profit. They argue that this is caused by the fact that India is an emerging market and reputations of creditworthiness of firms are not fully developed and therefore many companies loosen their working capital management. Another reason they state is that only profitable firms can loosen their working capital and therefore it's because these firms are profitable, that they loosen their working capital management and not the other way around.

Contradicting evidence is found on the effect of accounts payables on the profitability of a firm. According to the cash conversion cycle, the number of days accounts payables needs to be as large as possible. But researchers such as Deloof (2003), Sharma and Kumar (2011), Lazaridis (2006), Baños-Caballero (2010) and Karaduman (2011) have all found a negative relation between account payables and profitability. The first reason for this could be that more profitable firms pay earlier than less profitable firms, which in turn would affect the profitability and not the other way round. An alternative reason is given by Deloof (2003); by arguing that if a firm waits too long to pay their bills they have to pay without a discount. By speeding up these payments a firm could receive this discount and which will increase the profitability.

As mentioned before, authors have also studied the three parts of the CCC individually. These parts are the number of days accounts receivables, inventories and accounts payables. Sharma and Kumar (2011) argued that the positive relation they found between accounts receivables and profitability is caused by the fact that Indian firms have to grant more trade credit to sustain their competitiveness with their foreign competitors, which have superior product and services.

Mathuva (2010) found contradicting evidence with the management of inventories in Kenya. He argued that companies increase their inventory levels to reduce the cost of possible production stoppages and the possibility of no access to raw materials and other products. He further stated the findings of Blinder and Maccini (1991), which indicate that higher inventory levels reduces the cost of supplying products and also protects against price fluctuations caused by changing macroeconomic factors.

Also contradicting evidence is found by Mathuva (2010) with the management of account payables. He found a positive effect of the number days accounts payables on a firm's profitability in Kenya. He explained this positive relation with two reasons, first he argued that more profitable firms wait longer to pay their bills. These firms use these accounts payables as a short-term source of funds. The second argument why firms increase their accounts payables is that these firms are able to increase their working capital levels and thus increasing their profitability. This is in line with theory of a negative effect of the Cash Conversion Cycle (CCC) on the profitability of a firm. This is caused by the fact that the number of days accounts payables needs to be add in the measurement of the CCC. Thus a higher amount of a number of days

accounts payables leads to a higher profitability with a negative relation between the CCC and a firm's profitability.

The literature focussing on working capital policies is, compared to the two other methods, somewhat smaller. In this literature, there is a long debate between the risk and return of the different working capital policies (Pinches, 1991; Brigham and Ehrhardt, 2004; Moyer et al., 2005; Gitman, 2005). The more aggressive approach, where the working capital is minimized, is associated with lower risk and return. The relaxed approach, with high cash reserves and high inventory, is associated with higher risk and return (Gardner et al., 1986; Weinraub and Visscher, 1998).

The studies focussing on WCM policies are trying to determine the effect of a policy on a firm's risk and profitability. This is effect is for example studied by Afza and Nazir in 2007. They operationalize the policies by calculate the ratio of total current assets divided by total assets, where a lower ratio means a relatively aggressive policy. The accounts payables are operationalized by calculating the ratio of current liabilities divided by total assets, where a higher ratio means a relatively aggressive policy (Afza and Nazir, 2007). The effect of these two variables are tested on a firm's risk, measured with the standard deviation of sales and a firm's profitability using return on assets, return on equity and Tobin's q. The results of Gardner et al. (1986) and Weinraub and Visscher (1998), shows that a relatively aggressive approach leads to higher profitability of a firm. Contradicting evidence is found by Afza and Nazir (2007) which found a negative relationship between the aggressiveness of working capital policies and a firm's profitability. They argue that this phenomenon may be attributed to the inconsistent and volatile economic conditions of Pakistan. The studies Carpenter and Johnson (1983) and Afza and Nazir (2007) didn't find a significant relationship between the working capital policies of firms and their operating and financial risk. Therefore the theory that indicates that a relaxed approach leads to higher risk is not proven.

Nyaga (2007) WCM policies are crucial instruments of success factors. He notes that it is only when a firm is profitable that it will see the light of the market share and progress through product and industry life cycles. Ochieng (2006) on his studies on effects of the relationship between WC of firms listed at the NSE and the economic

activity in Kenya finds that the liquidity of firms as measured by the current and quick ratios increases the economic expansion and decreases during economic showdowns.

Sumaira Tutail (2013) studied the impact of WCM on the profitability of Textile Sector in Pakistan. She found out that the aggressiveness of WCM policies is inversely related to profitability. Hina Agha (2014) studied the impact of WCM on profitability. He found out that there is a positive relationship between debtors' turnover and ROA, between inventory turnover and ROA and between creditors' turnover and ROA. Daniel Makori (2013) studied the impact of WCM and firm profitability. He noted that the management of WC has a significant impact on profitability of firms.

2.4 Conclusion

WCM impacts a business performance on its profitability. The use of either long or short term financing to fund working capital requirement has a different impact on profitability of firms. Use of short term financing enhances a firm's return because the firm will enjoy the advantage of cheap funding from current liabilities offered by trade creditors (Sayaduzzaman,2003).

The results of empirical studies show that there is no working capital policy that is superior to others. There seems to be no conclusive agreements as to which WCM policy guarantees a higher profitability. The study is an attempt to close the knowledge gap by analyzing the impact of WCM on the profitability of agricultural firms listed in NSE.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out a description of the research methodology. It sets out ways to evaluate the relationship between working capital management and profitability of agricultural firms listed in the NSE. Research methodology provides details regarding the procedures to be used in conducting the study, (Mugenda & Mugenda, 2003). Mutai (2000) states that research methodology is a specific plan for studying the research problem and constitutes the blue print for the proposed data collection, measurement and analysis of the data. Included in the methodology section are descriptions of the research design, the population, the sample and sampling techniques, and a description of instruments or tools used to collect data, the measurement of variables and the techniques to be used in analyzing the data.

3.2   Research Design

The main purpose of this research is to determine the impact of WCM on the profitability of agricultural firms listed in the NSE. It will be done for a period of five years from 2009 to 2013. This period is considered adequate for establishing a relationship between WCM and profitability of agricultural firms listed in NSE.

3.3   Target Population

The population of the study will consist of all agricultural firms listed in NSE. As at 31/12/2013 there were 7 agricultural firms listed in NSE. The target population of this study therefore will be the 7 agricultural firms listed in NSE (Appendix II)

3.4   Data collection

The research study will use secondary data. Data on WC policy and profitability will be extracted from the audited financial statements of all agricultural firms listed in NSE. The audited balance sheets and profit and loss accounts will be used from year 2009 to 2012. The data to be collected will be sales turnover, profit after tax, current assets, current liabilities, fixed assets, accounts receivable, inventory, accounts payable as well debt and equity for each year.

3.5   Data analysis and presentation

The data gathered will be used to determine the WCM financing policy adopted by the agricultural firms listed in NSE and their effects on profitability. The data will be analyzed using regression and correlation analysis.

3.5.1 Dependent Variable

The dependent variable will be Return on Assets (ROA) which will be calculated as profit after taxes (PAT) divide by the book value of assets (BVA).

3.5.2 Independent Variable

The independent variable will be financing policy (FP) which will be calculated by dividing total current liabilities (TCL) by total liabilities (TL).

3.5.3   Control Variable

The control variables will be the size of the firm as measured by the logarithm of total assets, the growth of the firm measured by variation in annual sales value with reference to previous year's sales and the financial leverage taken as the debt to equity ratio of the firms for each year under consideration.

The equation will be as follows:

$$ROET_{it} = o + B1ACP_{it} + B2ITID_{it} + B3APP_{it} + B4CC_{it} + B5CR_{it} + B6DR_{it} + B7LOS_{it} + e$$

Where:

   ROE: Return of equity

   ROEit: Return of Equity of firm I at time (i=1,2…7 agricultural firms)

   BO, 1….7: Constants representing the extent each variable influences performance

   ACP   : Average collection period

   APP   : Average collection period

   ITID   : Inventory turnover period

   CR   : Current ratio

15

DR   : Debt ratio

CCC   : Cash conversion cycle

FATA : Financial assets to total assets

LOS   : Natural Logarithm of sales

e   : Error term

T   : Time=1, 2….3 years

Xit   : The independent variables of firm i at time t

CHAPTER FOUR
DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

In this chapter, the study provided two types of data analysis; namely descriptive analysis and inferential analysis. The descriptive analysis helps the study to describe the relevant aspects of the phenomena under consideration and provide detailed information about each relevant variable. For the inferential analysis, the study used the Pearson correlation, the panel data regression analysis and the t-test statistics. While the Pearson correlation measures the degree of association between variables under consideration, the regression estimates the relationship between working capital management and firms' financial performance. Furthermore, in examining if the working capital management is significantly different from that of firms financial performance, the Chi-Square Test statistics was used.

4.2 Data Analysis and Findings

Secondary data on 7 agricultural companies was considered in the analysis. The study provided two types of data analysis; namely descriptive analysis and inferential analysis. In descriptive statistics mean, standard deviation, minimum and maximum of the sample characteristic variables were determined. The study also carried out inferential statistics to determine in depth relationship between the variables i.e. correlation, regression and tested the hypothesis using Pearson correlation coefficient.

4.2.1 Descriptive Statistics

The study first found it necessary to evaluate the performance of the firm's financial performance variables under consideration i.e Inventory Turnover period (in Days), Average Payment Period (in Days), Cash Conversion period, Debt Ratio, Average collection period, Current Ratio, Financial assets to total assets and Return on equities. Their mean, standard deviation, minimum and maximum values were determined as indicated in

Table 4.1: Summary Statistics of Financial Performance Variables

Variables	Mean	Std deviation	Minimum	Maximum
Inventory Turnover period	30.15	29.12	0.001	113.45
Average Payment period(days)	108.20	98.33	9.00	598.286
Cash Conversion Period	29.80	77.86	392.231	194.121
Debt Ratio	0.54	0.61	0.087	7.125
Average collection period	40.1	0.410	0.043	4.948
Current ratio	1.762	1.520	0.159	13.147
Natural log of sales	0.581	0.579	0.421	0.321
Financial assets to total assets	0.115	0.108	-0.412	0.5871
Return on Equity	0.261	0.321	-1.587	2.5123

Source: *Computed by the researcher from annual reports of listed firms (2009-2012)*

The above table 4.1 shows the results of summary statistics of all the taken variables in the analysis. It provides the information about number of observation included and mean its dispersion and variability in the data. From the findings inventory turnover period and average payment period is averagely 30.15 days and 108.20 days respectively, cash conversion period had a mean of 29.80 debt ratio (0.54), average collection period (40.1) current ratio (1.762) financial assets to total assets (0.115) and the overall return on equity recorded a mean of 0.261.

4.2.2 Correlation Analysis

In this section, the study measured the degree of association between the working capital management and the firms' financial performance (Inventory Turnover period (in Days), Average Payment Period (in Days), Cash Conversion period, Debt Ratio, Average collection period, Current Ratio, Financial assets to total assets and Return on equities) will increase financial performance of listed firms. From the a priori stated in the previous chapter, a positive relationship is expected between the working capital management and firm's financial performance.

Table 4.2 presents the correlation coefficients for all the variables considered in this study.

Variables		Return on Equity
Inventory Turnover period (Days)	Correlation	-0.279
	p-value	(0.00)
Average payment period(Days)	Correlation	-0.211
	p-value	(0.00)
Cash conversion period	Correlation	-0.275
	p-value	(0.00)
Debt ratio	Correlation	-0.182
	p-value	(0.00)
Average collection period	Correlation	(0.002)
	p-value	(0.00)
Current ratio	Correlation	0.612
	p-value	(0.00)
Natural log of sales	Correlation	0.047
	p-value	(0.00)
Financial assets to total assets	Correlation	0.173
	p-value	(0.00)

Source: Computed by the researcher from annual reports of listed firms (2009-2012)

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

Table 4.2 displays the correlation analysis among the Firms 'financial performance variables. The result shows that firm's financial performance variable Return on Equity has significantly affected on Current Ratio with positive correlation of 0.612 and Inventory Turnover with negative correlation of 0.279 .Net collection period is also negative correlated by Return on Equity. Firm's Return on Equity is also found to be negatively associated by significant correlation with two most important dimensions working capital management, i-e, Cash Conversion period and average payment period in Days with the value of 0.275 and 0.211 respectively.

19

4.2.3 Regression Analysis

The researcher conducted a multivariate linear regression analysis so as to determine whether there exists a relationship between the working capital management and financial performance of agricultural firms listed at the NSE.

The regression equation will therefore be:

ROE it =11.14+B1 0.241+B2 0.331+B3 0.564+B4 0.751+B5 0.651+B6 0.633+B7 0.558+B8 0.621+e

Table 4.3: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
	Beta	Std Error	Beta	T	Sig
Constant	12.223	0.342		2.416	0.031
Inventory Turnover period (in days)	0.24	0.68	0.002	1.623	0.094
Average Payment period (in days)	0.331	0.342	0.084	1.325	0.031
Cash Conversion Period	0.564	0.278	0.062	1.622	0.0523
Debt Ratio	0.752	0.290	0.026	2.146	0.014
Average collection period	0.642	0.285	0.036	1.512	0.035
Current ratio	0.652	0.281	0.024	1.321	0.025
Natural log of sales	0.591	0.246	0.026	0.314	0.045
Financial assets to total assets	0.661	0.231	0.331	0.512	0.081

Source: *Computed by the researcher from annual reports of listed firms (2012)*

According to the regression equation established, taking all factors into account (Inventory Turnover period (in Days), Average Payment Period (in Days), Cash Conversion period, Debt Ratio, Average collection period, Current Ratio, Financial assets to total assets and Return on equities financial performance measured by ROE will be 12.223. The Standardized Beta Coefficients give a measure of the contribution of each variable to the model. A large value indicates that a unit change in this predictor variable has a large effect on the criterion variable.

The t and Sig (p) values give a rough indication of the impact of each predictor variable –a big absolute t value and small p value suggests that a predictor variable is having a large impact on the criterion variable. At 5% level of significance and 95% level of confidence, interest rate spread had a 0.082 level of significance, regulated saving had a 0.023 level of significance, operating efficiency had a 0.054 level of significance and liquidity risk had a 0.015 level of significance.

4.3 Summary of Findings and Interpretations

The study provided two types of data analysis; namely descriptive analysis and inferential analysis. The descriptive analysis helps the study to describe the relevant aspects of the phenomena under consideration and provide detailed in formation about each relevant variable. For the inferential analysis, the study used the Pearson correlation, the panel data regression analysis.

The study first evaluated the performance of the financial performance variables under consideration i.e. Inventory Turnover period (in Days), Average Payment Period (in Days), Cash Conversion period, Debt Ratio, Average collection period, Current Ratio, Financial assets to total assets and Return on equities. Their mean, standard deviation, minimum and maximum values were determined. The findings showed that inventory turnover period and average payment period is averagely 30.15 days and 108.2 days respectively, cash conversion period had a mean of 29.80, debt ratio (0.541), average collection period (40.1) current ratio (1.762) financial assets to total assets (0.115) and the overall return on equity recorded a mean of 0.261. Furthermore the maximum inventory turnover period is 113.45 with average payment period of 598.29 recording the highest. The study further measured the degree of association between the working capital management and the firms' financial performance(Inventory Turnover period (in Days), Average Payment Period (in Days), Cash Conversion period, Debt Ratio, Average collection period, Current Ratio,

Financial assets to total assets and Return on equities) will increase financial performance of listed firms. The result showed that firms'financial performance variable Return on Equity has significantly affected on Current Ratio with positive correlation of 0.612 and Inventory Turnover with negative correlation of 0.279. Net collection period is also negative correlated by Return on Equity. Firm's Return on Equity is also found to be negatively associated by significant correlation with two most important dimensions working capital management, i.e. Cash Conversion period and average payment period in Days with the value of 0.275 and 0.211 respectively.

Therefore basing on these findings the study rejected the null hypothesis that there is no relationship between working capital management and firms'financial performance of companies listed on NSE in Kenya and accepted the alternative hypothesis that there exists a relationship between working capital management and firms'financial performance and profitability of agricultural firms companies listed on NSE in Kenya.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

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

5.2 Conclusions

The study has investigated the effect of working capital management on the profitability of agricultural firms listed in Nairobi Securities Exchange. Data have been analyzed by applying both descriptive and inferential statistics for the time period of 2009to 2012. It was found that inventory turnover in days has negative relationship with Return on Equity which means that companies financial performance can be increased by reducing inventory in days. APP is found to be significant positive association with Return on Equities, indicating that if time period of supplier's payment is increased then overall firms' financial performance also improves. Cash Conversion period and Net payment period shows significant negative relation with Return on Equities showing that firms' financial performance can be increased with short size of both of them. Lastly liquidity (Current Ratio) is positively associated with ROE.

5.3 Recommendations

The study recommends that there should be proper inventory management system in agricultural firms to avoid over stock of inventory resulting efficient outcome of investment. Management of manufacturing firms should also make sure certain standards and levels which will stop piling up of inventory. The study further recommends that companies should engage in relationship with those suppliers who allow long credit time period and those customers who allow short payment period. There is also still need in the future to identify the sector wise relationship between working capital management and firms' financial performance among manufacturing firms in Kenya.

5.4 Limitations of the Study

Since the main purpose of this study was to determine the effect of working capital management and profitability of agricultural companies listed on Nairobi Securities Exchange, NSE considered some information sensitive and confidential and thus the researcher had to convince them that the purpose of information is for academic research only and may not be used for any other intentions. The findings of this study may not also be generalized to all agricultural companies but can be used as a reference to manufacturing companies in developing countries since they face almost the same challenges due to the same prevailing economic situations as opposed to agricultural companies in developed countries.

Working capital keeps on changing from period to period depending on prevailing economic situations and product market demand. The findings therefore may not reflect the true effect of working capital on financial performance of agricultural companies for a period considered.

5.5 Suggestions for Further Research

There is need for further studies to carry out similar study for a longer time period. A similar study should also be carried out on the working capital management and financial performance of agricultural companies in Kenya incorporating more financial and accounting variables and also taking into account the prevailing macroeconomic situation in the country as opposed to the current study which took into consideration only seven working capital management variables.

REFERENCES

Afza, T. & Nazir, M. S. (2007).Is it Better to be Aggressive or Conservative in Managing Working Capital? *Journal of Quality and Technology Management*, *3 (2),* pp.11-21.

Baumol, W.J., (1952). *Journal of Economics Vol LXVI. No 4*, pp. 67-75

Brennan et al (1998).Working Capital Management & Corporate Profitability" International Journal of Managerial Finance*,* pp.164-177

Brennan, M., Maksimovic, V. & Zechner, J. (1988).Vendor Financing. *Journal of Finance, 43,* pp.1127-1141.

Brigham, E. F. & Ehrhardt, M. C. (2004). "Financial Management: Theory and Practice". 11th Edition. New-York: South-Western College Publishers.

Carpenter, M. D. & Johnson, K. H. (1983).The Association between Working Capital Policy and Operating Risk. *Financial Review, 18(3*), pp.106-106*.*

Cramer and Howitt (2004). "Introduction to Statistics in Psychology". 3rd Revised Edition, pp.56-62

Deloof, M. & Jeger, M. (1996). "Trade Credit, Product Quality, and Intragroup Trade: Some European Evidence". *Financial Management, 25(3),* pp. 945-968.

Deloof, M. (2003). Does Working Capital Management Affect Profitability of Belgian Firms?. *Journal of Business Finance & Accounting, 30(3) & (4),* pp. 573 – 587.

Dong, H. P. & Su, J. (2010). The Relationship between Working Capital Management and Profitability: A Vietnam Case. *International Research Journal of Finance and Economics,* pp 49.59-67.

Dunn.E and J. Gordon (2001) "Microcredit and microenterprise performance,"2nd Edition, pp.102-105

Emery, G.W. (1984). A Pure Financial Explanation for Trade Credit. *Journal of Financial and Quantitative Analysis, 19,* pp.271-285.

Falope, O. I. & Ajilore, O. T. (2009). Working Capital Management and Corporate Profitability: Evidence from Panel Data Analysis of Selected Quoted Companies in Nigeria*. Research Journal of Business Management, 3(3),* pp.73-84.

Garcia-Teruel, J.P. & Martinez-Solano, P. (2007). Effects of Working Capital on SME profitability. *International Journal of Managerial Finance, 3(2),* pp 164 – 177.

Garcia-Teruel, J.P. & Martinez-Solano, P. (2010). Determinants of Trade Credit: A Comparative Study of European SMEs. *International Small Business Journal, 28(3).* pp. 215-233.

Gardner, M. J., Mills, D. L. & Pope, R. A. (1986). Working Capital Policy and Operating Risk: An Empirical Analysis. *Financial Review, 21(3), p. 31.*

Gitman, L. A. (2005). Principles of Managerial Finance. 11th Edition. New York: Addison Wesley Publishers.

Gitman (2000), "Principles of Managerial Finance" 11th Edition, New York: Addison Wesley Publishers

Gitman (1974), "Financial Activities of major US forms; A survey and analysis of fortuneslow financial management, pp.517-530

Hawawini et al., (1986) "International Finance", 3rd Ed, pp. 33-35

Hill, H. D., Wayne Kelly, G. & Highfield M. J. (2010). "Net Operating Working Capital Behaviour: A First Look. Financial Management Summer *2010,* pp.783 – 805.

Hina Agha., (2014) "Impact of WCM on profitability, Jan 2014 Edition"

Horne, James C Van (2001), "Fundamentals of Financial Management", 11th Ed. Prentice Hall Inc

Huyghebeart, N. (2006). On the Determinants and Dynamics of Trade Credit Use: Empirical Evidence from Business Start-ups. *Journal of Business Finance & Accounting, 33(1),*pp.305-328.

John Maynard Keynes (1936), "The General Theory of Employment, Interest and Money". London: Macmillan

Jose et al (1986) Impact of Working Capital Management..*Journal of Finance,* pp 57

Jose, M.L., Lancaster, C. & Stevens, J.L. (1996). Corporate Return and Cash Conversion Cycle. *Journal of Economics and Finance, 20(1),* pp. 33-46.

Karaduman, H.A., Akbas, H.E., Caliskan, A.O. & Durer, S. (2011). The Relationship between Working Capital Management and Profitability: Evidence from an Emerging Market. *International Research Journal of Finance and Economics, 62(2011),* pp.61-67.

Lazaridis, I. & Tryfonidis, D. (2006). Relationship Between Working Capital Management and Profitability of Listed Companies in the Athens Stock Exchange. *Journal of Financial Management and Analysis, 19(1),* pp.26-35.

Mugenda & Mugenda (2003) *"Research Methods", Journal of Education pp 14*

Mutai (2000) *International Journal of Education and Research,* pp.19-20

Mathuva, D. M. (2010). The Influence of Working Capital Management Components on Corporate Profitability: A Survey on Kenyan Listed Firms. *Research Journal of Business Management, 4(1),* pp.1 – 11.

Moyer, R. C., McGuigan, J. R. & Kretlow, W. J. (2005). "Contemporary Financial Management". 10th Edition. New York: South-Western College Publication.

Nazir, M. S. & Afza, T. (2009). Working Capital Requirements and the Determining Factors in Pakistan. *ICFAI J Journal of Applied Finance, 15(4)*

Ng, C.K., Smith, J.K. & Smith, R.L. (1999). Evidence on the Determinants of Credit Terms Used in Interfirm Trade. *Journal of Finance, 54(3),* pp.1109-1129.

Pinches, G. E. (1991). "Essentials of Financial Management". 4th Edition. New York: HarperCollins College Division.

Raheman, A. & Nasr, M. (2007). Working Capital Management and Profitability-Case in Pakistani firms. *ICFAI Journal of Applied Finance, 54(3),* pp.279-300.

Ramamoorthy (1976), "Working Capital Management". 1st Edition, pp. 50-54

R.v Smith (1987)."Net operating working capital management behaviour", 1st Ed, pp 24-25

Samiloglu, F. & Demirgunes, K.(2008). The Effects of Working Capital Management on Firm Profitability: Evidence from Turkey. *The international Journal of Applied Economics and Finance, 2(1),* pp. 44 – 50.

Sharma, A.K. & Kumar, S. (2011). Effect of Working Capital Management on Firm Profitability: Empirical Evidence from India. Global Business Review, 12(1), pp.159 – 173.

Shin, H. & Soenen, L. (1998). Efficiency of Working Capital Management and Corporate Profitability. Financial Practice and Education *(Now named Journal of Applied Finance) 8.* pp 37 - 45.

Soenen, L. A. (1993). Cash conversion cycle & corporate profitability. *Journal of Cash Management, 13(4), 53-58*

Van Horne, J. C. & Wachowicz, J. M. (2000). "Fundamentals of financial management". Upper Saddle River, NY: Prentice Hall International.

Wang, Y.J. (2002). : Liquidity Management, Operating Performance, and Corporate Value: Evidence from Japan and Taiwan. *Journal of Multinational Financial Management. 12(2),* pp.159-169.

Weinraub, H. J. & Visscher, S. (1998). Industry Practice Relating to Aggressive Conservative Working Capital Policies. *Journal of Financial and Strategic Decisions, 11(2),* pp.11 – 18.

APPENDICES:

Appendix I: List of agricultural firms listed in NSE

1   Eaagads Limited
2   Kapchorua Tea Company Limited
3   Kakuzi Limited
4   Limuru Tea Company Limited
5   Rea Vipingo Plantations Limited
6   Sasini Limited
7   Williamson Tea Kenya Limited

 Source: (NSE HANDBOOK, 2013)

Appendix II: Raw Data Analysis

Company /Variables	2009	2010	2011	2012

Sasini Ltd

Average collection period	32	32	30	33
Inventory turnover period	30	28	31	30
Average payment period	622	618	615	600
Cash conversion period	32	30	38	21
Current ratio	1.6	1.5	1.4	1.5
Debt ratio	0.63	0.58	0.70	0.61
Natural logarithm of sales	0.59	0.55	0.42	0.39
Financial assets to total assets	0.37	0.34	0.41	0.48

Williamson Tea Ltd Kenya

Average collection period	36	29	35	31
Inventory turnover period	30	31	30	30
Average payment period	641	614	560	572
Cash conversion period	29	29	28	30
Current ratio	1.7	1.9	1.4	1.4
Debt ratio	0.75	0.54	0.58	0.64
Natural logarithm	0.42	0.55	0.56	0.57

of sales				
Financial assets to total assets	0.45	0.37	0.36	0.38

Rea Vipingo plantations Ltd

Average collection period	41	30	36	30
Inventory turnover period	31	29	31	34
Average payment period	592	622	606	611
Cash conversion period	28	30	30	26
Current ratio	1.5	1.4	1.5	1.6
Debt ratio	0.54	0.60	0.58	0.60
Natural logarithm of sales	0.56	0.58	0.53	0.73
Financial assets to total assets	0.34	0.34	0.36	0.44

Limuru Tea Co Ltd

Average collection period	34	28	30	28
Inventory turnover period	30	32	29	28
Average payment period	368	324	590	610
Cash conversion period	28	30	28	28
Current ratio	1.5	1.4	1.6	1.8
Debt ratio	0.44	0.54	0.40	0.62
Natural logarithm of	0.42	0.68	0.36	0.38

sales				
Financial assets to total assets	0.50	0.40	0.38	0.46

Kakuzi Ltd

Average collection period	38	28	33	27
Inventory turnover period	28	26	28	31
Average payment period	580	610	602	610
Cash conversion period	26	28	28	30
Current ratio	1.6	1.5	1.4	1.5
Debt ratio	0.63	0.58	0.74	0.62
Natural logarithm of sales	0.59	0.55	0.42	0.39
Financial assets to total assets	0.31	0.32	0.33	0.40