

**THE EFFECT OF WORKING CAPITAL MANAGEMENT ON
FINANCIAL PERFORMANCE OF MANUFACTURING FIRMS LISTED
IN NAIROBI SECURITY EXCHANGE**

BY

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DECLARATION

This Research Project is my original work and has not been presented in any other institution.

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DEDICATION

I dedicate this work to my beloved parents Mrs Esther Wanja Mbute and Mr. Nicholas Kipsang Maswai who have tirelessly brought me up to be who I am today. I owe you my success. I also dedicate this work to my younger sister Grace, because of whom my patience has been strengthened.

God bless you all.

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LIST OF ABBREVIATIONS AND ACCRONYMS

ACP	Average Collection Period
BAT	British American Tobacco
CCC	Cash Conversion Cycle
EABL	East African Breweries Limited
ECM	Efficiency of Cash Management
EIM	Efficiency of Inventory Management
ERM	Efficiency of Receivables Management
ICP	Inventory Collection Period
NWC	Net Working Capital
NSE	Nairobi Securities Exchange
PAT	Profit After Tax
ROA	Return on Asset
WCM	Working Capital Management

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ABSTRACT

The main objective of this study was to ascertain the effect of working capital management on financial performance of manufacturing firms listed in Nairobi Security Exchange. This study employed descriptive research design with the targeted population constituting of ten manufacturing firms listed in the NSE. However, the study only covered 8 of the targeted manufacturing companies, data could not be collected for 2 of the companies. The study used secondary data obtained from the firms published financial statements in their respective websites for a period of 5 years, 2010-2014. Multiple regression and correlation analysis were carried out on the data to determine the relationships between components of working capital management and the profit after tax of the firms. The study established that there is a positive relationship between ROA on the current liabilities to total liabilities ratio, Current Asset to Total Asset ratio and the current ratio of manufacturing firms evaluated. The hypothesis test done on the slope of ROA against each indicator of working capital management pointed out that the relationship between the WCM and ROA is insignificant. The study therefore recommends that managers should focus on conservative policy requiring high cash balances and high stock reserves. This is because there is positive relationship between return on assets and current ratio for the Kenyan manufacturing industry.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Management of working capital aims at maintaining an optimal balance between all of the working capital components which are; cash, receivables, inventory and payables. These are a fundamental part of the overall corporate strategy to create value and are important sources of competitive advantage in businesses (Deloof, 2003). In practice, it has become one of the most important issues in organizations with many financial executives struggling to identify the basic working capital drivers and the appropriate level of working capital to hold so as to minimize risk, effectively prepare for uncertainty and improve the overall performance of their businesses Lamberson (1995). Thus, working capital management is a very important component of corporate finance because it directly affects the liquidity and profitability of the company. It deals with current assets and current liabilities.

In manufacturing firms, current assets account for more than half of its total assets. Excessive levels of current assets can easily result in a firm realizing a substandard return on investment, however, when the level of current assets is low the firm may incur shortages and its operations will be affected, Horne and Wachowiz (2005). The firm is responsible to pay off its current liabilities as and when they fall due. Efficient working capital management controls current assets and liabilities in a manner that eliminates the risk of inability to meet the short term obligations and avoid excessive investment in current assets.

This management of short-term assets is as important as the management of long-term financial assets, since it directly contributes to the maximization of a business's profitability, liquidity and

total performance. Consequently, businesses can minimize risk and improve the overall performance by understanding the role and drivers of working capital (Lamberson, 1995). It is important that a firm preserves its liquidity to enable it meet its short term obligations when due. Increasing profits at the cost of liquidity exposes a company to serious problems like insolvency and bankruptcy. While on the other hand, too much working capital results in wasting cash and ultimately the decrease in profitability (Chakraborty, 2008). Liquidity is thus also very important for a company. A tradeoff between these two objectives of the firms should be obtained so as to ensure that one objective is not met at cost of the other yet both are equally important. If a firm does not care about profit, it cannot survive for a longer period. On the other hand, if it does not care about liquidity, it faces the problem of insolvency or bankruptcy. For these reasons working capital management should be given proper consideration for this will ultimately affect the profitability of the firm.

1.1.1 Working Capital Management

In accounting and financial statement analysis, working capital is defined as the firm's current assets and current liabilities. Net working capital represents the excess of current assets over current liabilities and is an indicator of the firm's ability to meet its short-term financial obligations. Effective working capital management consists of applying the methods which reduce the risk and lack of ability to pay short term commitments and prevent over investment in current assets by planning and controlling current assets and liabilities (Lazaridis and Tryfonidis, 2006).

Management of working capital has profitability and liquidity implications and proposes a familiar front for profitability and liquidity of the company, Hampton and Wagner (1989) stated that working capital policy is a function of two decisions: the appropriate level of investment in

currents assets and the chosen methods of financing the investment. He explained further that the level of company's current assets and working capital, in respect of the company's total corporate structure and flow of funds is a tradeoff between profitability and risk. Thus, if there were little risk, an aggressive working capital would be used whereby the company should maintain a minimum level of cash, securities, debtors and stocks. However, if there is little stability, a more conservative policy will be called for, requiring high cash balances and high stock reserves.

In many organizations, liquidity position is a major issue that must be put into consideration by financial managers. Therefore, risk and return tradeoff is inherent in alternative working capital policies. High risk, high return working capital investment and financing strategies are referred to as aggressive; lower risk and return strategies are called moderate or matching; still lower risk and return is called conservative (Moyer, McGuigan and Kretlow 2005);(Brigham and Gapenski, 1987). A firm may choose an aggressive working capital management policy with a low level of current assets as percentage of total assets, or it may also be used for the financing decisions of the firm in the form of high level of current liabilities as percentage of total liabilities (Afza and Nazir,2007). Sathamoorthi (2002) states that increase in current asset to total asset has a negative effect on profitability, while an increase in current liabilities to total liabilities will have a positive effect on profitability. Keeping an optimal balance among each of the working capital components is the main objective of working capital management. Working capital to total assets of the firm ratio will indicate the liquidity position of the firm as at a given point in time. Business success heavily depends on the ability of the financial managers to effectively manage receivables, inventory, and payables (Filbeck and Krueger, 2005)

1.1.2 Financial Performance

Financial Performance is a measure of the results of a firm's policies and operations in monetary terms. These results are reflected in the firm's return on investment, return on assets, shareholder value, accounting profitability and its components. Financial Performance of an entity refers to the subjective measure of how well a firm can use assets from its primary mode of business and generate revenues and create value for its shareholders.

Performance of a firm is affected by multiple external and internal factors. It is important to note that the external factors affecting a firm are across the board and they are beyond a firm's control. These include government rules and regulations, market preference and perception and economy of the country. The internal factors that might affect the performance of a company are corporate governance practices of the company, ownership structure, and risk management of the firm, capital structure of the firm and firm's characteristics and policies.

Classical indicators of a company's financial performance include the rates of return, Return on asset, return on investment, Return on Equity, Gross profit margin, debt ratio, current ratio and the acid test ratio. Modern indicators of a company's financial performance are the economic value added, Market value added, that were developed by Stern Stewart and Company (2002) and the total shareholder return, rate of return on cashflow, developed by Boston Consulting Group (1996) economic margin earnings per share and the market value ratio. However, we cannot use all of the above ratios given that most have other factors influencing them other than the working capital of a firm.

As per the DuPont model, generated by Dupont Corporation (1920s), return on assets (ROA) is the product of net income per sales, usually called the operating profit margin, and sales per total assets, usually called the asset turnover. Total assets include fixed assets and current assets, but

current assets constitute gross working capital. Hence, working capital management decisions directly impacts the assets turnover, which consequently affects the overall return on assets.

Financial performance in manufacturing firms is greatly impacted by working capital decisions a firm undertakes given the fact that working capital primarily constitutes current assets and current liabilities. Some of the key current asset instruments that are encountered on daily basis include inventories, cash and accounts receivables. The effectiveness with which a firm manages its inventory has direct impact on the overall sales, and consequently sales revenues, therefore, maintaining low levels of inventory may lead to stock outs leading loss of sales, on the other hand, high levels of inventory may result in huge amounts of capital tied up thus leading to loss of investment opportunities or high costs of short term financing, Horne and Wachowiz (2005).

1.1.3 Effect of WCM on Financial Performance

The Working Capital Management of a firm in part affects its profitability. The ultimate objective of any firm is to maximize the shareholders' value preserving however, 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 Shin and Soenen (1998). Therefore, an optimal balance between liquidity and profitability must be archived for a firm to continue being a going concern. When profitability is pursued without looking into liquidity the firm may become insolvent and finally bankrupt causing it to shut down also without profits the objective of the firm (increasing the firms' value) cannot be archived. For these reasons working capital management should be given proper consideration and will ultimately affect the profitability of the firm. Firms may have an optimal level of working capital that maximizes their value (Afza and Nazi,2007)

Efficient management of various working capital components carries a direct influence on a firm's financial performance. Working capital policy that ensures a shorter cash conversion cycle with low number of days is preferred for profitability as it is expected to reduce the need for external financing. Inventories form a core element in working capital, this therefore call for effective management of inventory levels. Manufacturing firms have three main types of inventory: raw materials, work in progress and finished goods. Therefore to effectively manage their inventory, manufacturing firms are expected to apply a number of procedures for example just-in-time, make to order and lean manufacturing initiatives in order to improve on their processes. This ensures that the inventory levels are maintained at optimum and thus ensuring minimum financing costs due reduced levels of short term capital held. Proper management of inventory is hence expected to enhance financial performance by improving on revenues and reducing on capital costs, (Deloof and Jegers, 1996).

1.1.4 Manufacturing Firms Listed at the Nairobi Securities Exchange

There are currently 10 manufacturing firms listed at the NSE .The manufacturing sector in Kenya has been identified as a key player for achieving a sustained annual growth in GDP of 10% in the past 10 yrs. Manufacturing sector real output expanded by 3.4% compared to the growth of 2013 at 5.6%. The sectors volume of output increased by 4.5% in 2014 (Economic Survey Report, 2015)

The Kenyan manufacturing sector is considered as one of the key segments of the economy. In addition, the Kenyan vision 2030 blue print, one of the key pillars of the attainment of the objectives of the strategy is the need for the manufacturing sector to grow at the rate of 8 per cent over a period of 20 years. This can only be achieved if there is growth in the profits of the sector and this will depend upon identifying all the variables that can influence profit of a firm

including the management of working capital. The inability of a firm to meet its obligations will lead to the disruption of its manufacturing process by actions such as labor strikes and blacklisting by suppliers. Further these firms are characterized by high intensive working capital requirement and high competition because of high technology changes (Kenya's Economic Outlook, 2011).

1.2 Research Problem

Padachi (2006) indicated that efficient management of working capital is vital for the success and survival of the manufacturing in sector which needs to be embraced to enhance performance and contribution to economic growth .Management of working capital which aims at maintaining an optimal balance between each of the working capital components, that is, cash, receivables, inventory and payables, is a fundamental part of the overall corporate strategy to create value and is an important source of competitive advantage in businesses (Deloof, 2003).

The primary objective of a firm is to increase shareholders' value. One of the major determinants of the shareholders' value is its profitability; working capital management affects the profitability of the firm, its risk and consequently its value (Smith, 1980). Working capital is focal point in maintaining liquidity, survival, solvency and profitability of a firm Mukhopadhyay (2004). This study has established a framework that incorporates various working capital components in a manner that optimizes profitability and liquidity with the aim of shareholders' wealth maximization.

Many researchers have conducted studies on working capital management and its effect on profitability of companies, however not much research has been done on its effects on profitability of manufacturing firms. Some local studies include but are not limited to "effect of

WCM on shareholder value _case study is NSE market. Waithaka (2012) Researched on effect of WCM on performance of agricultural companies listed in the NSE. Using a correlation analysis she established that there was a positive relationship between WCM and profitability of an agricultural firm, however the research was on agricultural firms listed in the NSE. Mutungi (2010) studied the relationship between working capital management and financial performance of oil marketing firms in Kenya. From the correlation analysis, the study concluded an existence of aggressive working capital policy in the oil sector.

International researches Onodje (2014) Effect of working capital management on selected Nigerian manufacturing firms_ from his regression models he established that efficient working capital and debt management are critical to improved manufacturing company's performance in Nigeria. Given that very few studies have been done on the relationship between working capital management and firms' performance in the manufacturing sector in Kenya, this study has helped to bridge the gap by undertaking a study on the same. The question that this study seeks to answer is whether there is a relationship that exists between working capital management practices employed by the firm and the financial performance of that particular firm. This study has mainly focused on the effect of the levels of current assets and currents liabilities measured against total assets and total liabilities respectively affect profitability of the manufacturing firms listed in the Nairobi Securities exchange. This has shed some light onto which among the Deloof and Jegers, (1996) theory on inventory and trade credit policy, Current asset to total assets ratio theory and, Zariyawati, Annuar, Taufiq and Abdul (2009) theory of risk and return best describes the effect of working capital in manufacturing firms' performance in the listed manufacturing companies in Kenya?

1.3 Objective of the Study

To establish the effect of working capital management on profitability of manufacturing firms listed in the Nairobi Securities Exchange.

1.4 Value of the Study

The study will shed more light on how a firm is affected by the WCM and what steps can be taken to ensure the firm achieves its main objective which is maximizing shareholder wealth.

The study will shed more light on how a firm is affected by the WCM and what steps can be taken to ensure the firm achieves its main objective which is maximizing shareholder wealth. Management of the firms can use this research to effectively manage their WC to enhance financial performance. This will build up on existing knowledge and theories on the working capital management of manufacturing companies.

This study will be of use to security analysts, financial analysts, stock brokers and other parties whose knowledge of the relationship between working capital management and the financial performance is an important input into investment analysis and portfolio investments.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter entails theoretical review, determinants of firms' performance as well as empirical studies on the effect of working capital on performance of firms. The chapter summary at the end highlight key observations from theoretical review as well as gaps noted in the review of empirical studies that this particular study seeks to fill.

2.2 Theoretical Review

In theoretical review, this paper reviews four major theories namely contingency, configurational, risk-return trade off and asset profitability theories.

2.2.1 Contingency Theory

Developed by Saxberg (1979), Contingency theory of working capital management states that the effectiveness of working capital is highest where the structure fits the contingencies, hence only those organizations that align their working capital with the current environment achieve maximum output. The theory therefore advocates that in determining the level/approach of working capital management to approach, firms must put into consideration the strategically significant external variables such as include economic conditions, demographic trends, sociocultural trends political/legal factors and industry structure. The theory further notes that there is no level of working capital and is said to be constantly optimal in any particular industry. Rather, given that external factors may change rapidly, managers must constantly adopt their organizations levels and approaches of working capital management to the new situation to

ensure effectiveness. The Contingency Theory therefore implicitly treats organizations as loosely coupled aggregates whose separate working capital components may be adjusted or fine-tuned.

2.2.2 Configurational Theory

The Configurational Theory was initially developed by Shortell (1977), who introduced an approach that lists different context variables and internal design forms. The theory states that a social entity take their meaning from the whole and cannot be understood in isolation and therefore, the optimal level or approach to working capital must is an outcome of alignment of different design parameters in the organization and its environmental context. Similar to contingency theory, Configurational Theory emphasizes that match between organizational design parameters and context variables will determine which level and approach to working capital management is effective and efficient for the organization. Unlike contingency theory, Configurational Theory further states that internal organizational design parameters such as work specifications, reward/incentive systems and coordination systems likewise affects the level of optimal working capital.

Therefore, with regard to working capital management, the Configurational Theory claims that available parameters have to be set according to the contextual variables of the firm, such as the economic situation, industry structure, supplier variables, and demand behavior. However, it is not enough merely to align the contextual variables with working capital parameters. To maximize overall organizational efficiency and effectiveness, working capital parameters themselves must be aligned with the other relevant organization parameters. Based on the Configurational theory there exist only one distinctive configuration of manufacturing performance, supply chain performance, working capital levels, and the firms supply chain risk

level that maximizes a firm's performance. As such the basic question emerges how do the different drivers correlate with each other and finally what is the configuration that maximizes a firm's performance. And this is what informs the need for this study to establish whether or not it is true that in deed, working capital has any effect on performance of the firm Shortell (1977).

2.2.3 Risk and Return Theory

Zariyawati et al. (2009) theory of risk and return states that investment with a higher risk may create a higher return, thus a firm with a high liquidity in working capital will have a low risk of failing to meet its obligations, and low profitability at the same time. That is, the greater the amount of NWC, the less risk-prone the firm is and the greater the NWC, the more liquid is the firm therefore, the less likely it is to become technically insolvent. Conversely, lower of NWC and liquidity are associated with increasing levels of risk. The relationship between liquidity, NWC and risk is such that if either NWC or liquidity increases, the firm's risk decreases (Zariyawati et al, 2009).

2.2.4 Asset Profitability Theory

Asset profitability theory by Sathamoorthi (2002) states that increase in current asset to total assets ratio has a negative effect on firms' profitability, while on the other hand, increase in current liabilities to total liabilities ratios has a positive effect on profitability of firms. This theory notes that decrease in current asset to total assets ratio as well as increase in the ratio of current liabilities to total liabilities ratios, when considered independently, lead to an increased profitability coupled with a corresponding increase in risk. Increase in the ratio of current assets to total assets decline in profitability because it is assumed that (i) current assets are less

profitable than fixed assets; and (ii) short-term funds are less expensive than long-term funds. Decrease in the ratio of current assets to total assets will result in an increase in profitability as well as risk. The increase in profitability will primarily be due to the corresponding increase in fixed assets which are likely to generate higher returns because corresponding increase in fixed assets which are likely to generate higher returns (Sathamoorthi, 2002).

On the other hand, Sathamoorthi (2002) points that effect of an increase in the ratio of current liabilities to total assets would be that profitability will increase. The reason for the increased profitability lies in the fact that current liabilities, which are a short-term source of finance, will increase, whereas the long-term sources of finance will be reduce. As short-term sources of finance are less expensive than long-run sources, increase in the ratio will mean substituting less expensive sources for more expensive sources of financing. There will therefore be a decline in cost and a corresponding rise in profitability.

In summary, what informs the needs for this research is the contradicting approach and theoretical argument of the effect of working capital on firms profitability by Deloof and Jegers, (1996) and (Sathamoorthi, 2002). While Deloof and Jegers, (1996) states that large inventory and a generous trade credit policy may lead to high profitability because it stimulates sales, Sathamoorthi (2002) on the other side argues that increase in proportion of current assets to total assets leads to decrease in profitability because fixed assets are likely to generate higher returns. Deloof and Jegers, (1996) seems to support the aggressive policy of working capital management. An aggressive policy with regard to the level of investment in working capital means that a company chooses to operate with lower levels of inventory, trade receivables and cash for a given level of activity or sales. An aggressive policy will increase profitability since less cash will be tied up in current assets, but it will also increase risk since the possibility of

cash shortages or running out of inventory is increased. An aggressive funding policy uses short-term funds to finance not only fluctuating current assets, but some permanent current assets as well. This policy carries the greatest risk to solvency, but also offers the highest profitability and increases shareholder value.

This study therefore seeks to determine whether there is increase or decrease in the level of assets that leads to increase in firm's profitability.

2.3 Determinants of Financial Performance

Financial performance of a firm is mainly affected by four main factors that are unique to the firm. These are working capital management, asset utilization, leverage and size of the firm, as highlighted below.

2.3.1 Working Capital Management

According to Deloof (2003) majority of the firms invested significant amount of cash in working capital and using trade payable as a key source of financing. So the way it is handled can have a significant impact on the profitability of the firm. Lazaridis and Tryfonidis (2006) indicated that operating profitability will indicate how the management will respond in terms of managing the working capital components. This is because they identified a negative relationship between the working capital components and the profitability. Ganeshan (2007) further argues that profitability of the firms can be increased through efficient management of working capital. Vishnani (2007) further stressed that each and every company has to be careful when investing huge amount of funds in working capital, this is because it can reduce the profitability of the company significantly.

Binti and Binti (2010) did a study on the effect of market valuation and profitability in Malaysia and found that current ratio is negatively significant to financial performance of Malaysian firms. Eljelly (2004) did an empirical study on the relationship of liquidity and profitability as measured by current ratio and cash gap on stock companies in Saudi Arabia and found significant negative relation between the firm's profitability and its liquidity level, as measured by current ratio using correlation and regression analysis.

2.3.2 Asset Utilization

According to Ellis (1998), asset utilization measures which assets are capable of producing and what they actually produce. Conversely, asset dis-utilization represents losses in revenue in relation to the investment that may be attributable to the inefficient use of assets. Fleming, Heaney and Mc Cosker (2005) pointed out that asset dis-utilization may increase agency costs because managers do not act in the best interests of the owners. Further, Jose, Hongman Gao, Xiaochuan, Bahram and Haibo (2010) pointed out asset utilization has a significant effect on firm's financial performance.

2.3.3 Leverage

According to Rajan and Zingales (1995), leverage can be defined as the ratio of total liabilities to total assets. It can be seen as alternative for the residual claim of equity holders. Aquino (2010) studied the capital structure of listed and unlisted Philippine firms. His study showed that high debt ratio is positively associated with the firm's growth rate and profitability. Joshua (2005) research paper revealed significant relationship between the ratio of total debt to total assets and ROE. The results of Aivaziana (2005) examined the impacts of financial leverage on the investment decisions and found that there is a negative relationship.

2.3.4 Firm Size

Vijayakumar and Tamizhselvan (2010) found a positive relationship between firm size and profitability. Papadogonas (2007) conducted analysis on a sample of 3035 Greek manufacturing firms and revealed that for all size classes, firms' profitability is positively influenced by firm size. Lee (2009) examined the role that a firms' size plays in profitability. Results showed that the firm size plays an important role in explaining profitability. Amato and Burson (2007) tested size-profit relationship for firms operating in the financial services sector. With the linear specification in firm size, the authors revealed negative influence of firm size on its profitability. Ammar, Hanna, Nordheim, and Russell. (2003) found no significant relationship between firm size and gross operating profit ratio. The study of Falope and Ajilore (2009) also found no significant variations in the effects of working capital management between large and small firms in Nigeria using a sample of 50 quoted companies.

2.4 Empirical Evidence

This chapter will look at the international and locally done studies on working capital management and its effect on financial performance of a firm. It will also cover the gaps found in these studies that lead to the undertaking of this study.

2.4.1 International Evidence

Ani et al. (2012) studied on the effects of working capital management on profitability: evidence from the top five beer brewery firms in the world. They focused on working capital management as measured by the cash conversion cycle (CCC), and how the individual components of the CCC influence the profitability of world leading beer brewery firms. Multiple regression

equations were applied to a cross sectional time series data. The study found that working capital management as represented by the cash conversion cycle, sales growth and lesser debtors' collection period impacts on beer brewery firms' profitability. His study only focused on the inventory, payables and receivables turnover ratios and not their levels or their proportion to the total assets and liabilities. The study also only looked at only top five beer companies in the world and therefore this may not be representation of all manufacturing firms. This study also is not representative of African Manufacturing firms.

Melita, Elfani and Petros (2010) empirically investigated the effect of working capital management on firm's financial performance in an emerging market. Their data set consisted of firms listed in the Cyprus Stock Exchange for the period 1998-2007. Using multivariate regression analysis, our results revealed that working capital management leads to improved profitability. Specifically, results indicate that the cash conversion cycle and all its major components; namely, days in inventory, day's sales outstanding and creditors' payment period – are associated with the firm's profitability. This study covered all firms and not specifically on manufacturing firms. Different industries have their own specific characteristics and therefore, what favours one industry may not favour the other industry. For instance, manufacturing firms have to consider manufacturing plants that convert raw materials into finished good while commercial industries don't have plants since they only deal with finished goods. Also, unlike manufacturing industry, raw materials are never part of inventories for the commercial industry. Therefore, assuming that the effect of working capital on profitability is the similar for each is misleading.

Gamze, Ahmet and Emin. (2012) investigated the relationship between working capital management and the firms' performance for a sample of 75 manufacturing firms in Turkey,

listed on Istanbul Stock Exchange (ISE) market for the period of 9 years from 2002 to 2009. The area of focus was the relationship between working capital management components and performance of the firms by using dynamic panel data analysis. The findings were that firms can increase profitability measured by gross operating profit by shortening collection period of accounts receivable and cash conversion cycle. The study further established that leverage has a significant negative relationship with firms' value and profitability, meaning that increase in the level of leverage leads to decline in the profitability of the firm and the value of the firm. Leverage is given by total liabilities/total assets. Therefore, by looking at the effect of leverage on firms performance fails to bring out the exclusive effect of current assets and liabilities on firms' performance. The study also considered the collection period of accounts receivable and cash conversion cycle who effect on performance may not necessarily be the same as effect of the level of current assets and liabilities on performance.

Abbasali and Milad (2012) did an empirical study on the impact of working capital management on profitability and Market evaluation of the companies listed in Tehran Stock Exchange. They studied a sample of companies listed in Tehran Stock Exchange during the years 2006 to 2010. Their study used variables of return on assets ratio and return on invested capital ratio to measure the profitability of companies, variable of Tobin Q ratio to measure the market value of companies. They also used variables of cash conversion cycle, current ratio, current assets to total assets ratio, current liabilities to total assets ratio and total debt to total assets ratio as working capital management criteria. The findings of the study indicated a significant relationship between the working capital management and profitability of company. They also found that there is no significant relationship with the criterion of market value of company. They also found that management can increase the profitability of company through reducing

cash conversion cycle and total debts to total assets ratio. By considering the effect of current assets and liabilities to the total assets and liability, their empirical study was almost similar to this study. Nevertheless they failed to breakdown the analysis per industry. As earlier noted, different industries have their own specific characteristics and therefore, what favors one industry may not favor the other industry.

Kulkanya (2012) study established Effects of Working Capital Management on the Profitability of Thai Listed Firms. The regression analysis was based on a panel sample of 255 companies listed on the Stock Exchange of Thailand from 2007 through 2009. The results revealed a negative relationship between the gross operating profits and inventory conversion period and the receivables collection period. The study concluded that managers can increase the profitability of their firms by shortening the cash conversion cycle, inventory conversion period, and receivables collection period, but cannot increase profitability by lengthening the payables deferral period.

Akoto, Awunyo and Angm (2013) examined the relationship between working capital management practices and profitability of listed manufacturing firms in Ghana. The study used secondary data collected from all the 13 listed manufacturing firms in Ghana covering the period from 2005-2009, and found a significantly negative relationship between profitability and accounts receivable days. It also found that the firms' cash conversion cycle, current asset ratio, size, and current asset turnover significantly positively influence profitability. The gap in this study is its failure to establish how the level of working capital affects the performance on the firm, since they only focused on the accounts receivable days and cash conversion cycle.

Ponsian, Kiemi, Gwatako and Halim (2014) carried out study is to find out the effect of working capital management on company profitability. The study aims at examining the statistical significance between company's working capital management and profitability. In light of this objective the study adopts quantitative approaches to test a series of research hypotheses. A sample of three manufacturing companies listed on the Dar es Salaam Stock Exchange (DSE) is used for a period of ten years (2002-2012) with the total of 30 observations. Data was analyzed on quantitative basis using Pearson's correlation and Regression analysis. Findings were that there exists a positive relationship between cash conversion cycle and profitability of the firm. It also established a negative relationship between liquidity and profitability showing that as liquidity decreases, the profitability increases. The third finding was that there exists a highly significant negative relationship between average collection period and profitability. It further found that there is a highly significant positive relationship between average payment period and profitability. The gap in this study is that the key focus was on payment period. Also, the sample was of only three manufacturing firms and it may not be representation of the entire industry in Tanzania, let alone Kenya.

2.4.2 Local Evidence

Kirwa (2012) did a study also on the effects of working capital management on the profitability of manufacturing firms listed on the Nairobi Securities Exchange. Data was obtained from document analysis of consolidated financial reports of years ending December: 2006, 2007, 2008, 2009 and 2010. Multiple regression and correlation analysis were carried out on the data to determine the relationships between components of working capital management and the gross operating profit of the firms. The study established that gross operating profit was positively

correlated with Average Collection Period and Average Payment Period but negatively correlated with Cash Conversion Cycle. It also established significant relationship between inventory Turnover in Days and gross operating profit. The gap in this study therefore was that it only focused on Average Collection Period, Average Payment Period and Cash Conversion Cycle and left out the effect of levels of working capital on firms' performance.

Waithaka (2012) as well did her study on the relationship between working capital management practices and financial performance of agricultural companies listed at the Nairobi securities exchange. The study adopted a Correlational or Prospective Research Design which attempted to explore the relationship between working capital management and financial performance to make predictions with the use of two or more variables for each. The findings of the study were that, financial performance was positively related to efficiency of cash management (ECM), efficiency of receivables management (ERM) and efficiency of inventory management (EIM). The gap in her study is that she focused on Agricultural firms. Further, just like Mwangi (2013), her study focused on Average Collection Period, Inventory Collection Period, Average Payables Period and Debt Ratio and not on the levels of current assets and liabilities.

Makori and Jagongo (2013) established the relationship of Working Capital Management and Firm Profitability, Empirical Evidence from Manufacturing and Construction Firms Listed on Nairobi Securities Exchange, for the period 2003 to 2012. Pearson's correlation and Ordinary Least Squares regression models were used to establish the relationship between working capital management and firm's profitability. The findings were that there is a negative relationship between profitability and number of day's accounts receivable and cash conversion cycle, but a positive relationship between profitability and number of days of inventory and number of day's payable. The study also found that the financial leverage, sales growth, current ratio and firm

size also have significant effects on the firm's profitability. However, the study only focused on current ratio, number of day's accounts receivable and cash conversion cycle, number of days of inventory and number of day's payables. It did not determine how levels of current assets and liabilities affect the profitability of the firm.

Mwangi (2013) did study on relationship between working capital management and financial performance of manufacturing companies quoted at the NSE for the period of five years from 2007 to 2011. The study found that inventory turnover in days has negative relationship with Return on Equity. It also found that Cash Conversion period and Net payment period showed significant negative relation with Return on Equities. This study on the average collection period demands, inventory turnover period, the average payment period, cash conversion period, current ratio and debt ratio. However, it did not evaluate whether independently, increase or decrease in current assets, current assets-to-total assets ratio, current liabilities as well as current liabilities/total liabilities ratio has any effect on profitability of the firm.

Wamugo, Muathe and Kosimbei (2014) examined the Effects of Working Capital Management on Performance of Non-Financial Companies. A census of 42 non-financial companies listed in the Nairobi Securities Exchange, Kenya was taken. The data were extracted from the Nairobi Securities Exchange hand books for the period 2006-2012. Feasible Generalized Least Square (FGLS) regression results revealed that an aggressive financing policy had a significant positive effect on return on assets and return on equity while a conservative investing policy was found to affect performance positively. The gap in this study is its failure to segregates their findings on the Effects of Working Capital Management on Performance per industry. What favours manufacturing companies many not necessarily favour the trading companies because of the nature of their business. Manufacturing have raw materials in their inventory. Trading companies

don't. Trading companies such as supermarkets sell to individual customers whose buying behaviors can be unpredictable. Also, selling to individual customers may not favour credit sales. This is totally different in the case of manufacturing firms whose customers are trading firms that buy in bulk, are unlikely to default debt and have predictable buying behavior.

Nyarige and Olweny (2014) sought to determine the effect of working capital management on performance of firms listed at the Nairobi Securities Exchange in Kenya. A sample of 27 listed firms was used for the period 2003 to 2012. The results revealed that days of accounts receivables and cash conversion cycle have an indirect effect on performance measured by gross operating profit. Days of accounts payables and days in inventory have a significant and direct effect on performance. Results further established that various sectors have varying and somewhat same averages of working capital. Their study only focused on days of accounts receivables, receivables and cash conversion cycle. However, it did not determine how their levels affect firms performance.

Arthemion (2014) investigated the relationship between liquidity and profitability in manufacturing cement firms. Purposive sample design was applied in this study which suited to the selected samples of top cement companies of Kenyan Cement Industry namely Athi River Mining, Bamburi Cement and East African Portland Cement. Secondary data extracted from the income statements, balance sheets starting from 2008 to 2012 and was analyzed by use of descriptive statistics and relationship drawn using multiple regression analysis. The research findings revealed that the mean values of current ratio was 1.71 which is below the standard conventional rule of 2:1. The investigation using both correlation and regression analysis revealed that liquidity ratios measured by Current Ratio, Quick ratio and cash conversion cycle have a relationship with profitability measured by return on capital employed. The findings

revealed that Current Ratio and Quick Ratio were positively associated with return on capital employed while cash conversion cycle was negatively associated with Return on Capital Employed. The gap in this study was that it only focused on the current and quick ratios, which do not inform us on how the level of current assets and current liabilities measured against the level of total assets and total liabilities respectively affect profitability of the firm.

Ofunya (2015) did a census study that evaluated the relationship between Working Capital Management and Profitability of five Cement Companies in Kenya. Sample selection was purposive in that respondents for the study were the various heads of finance. Findings of the study indicate that indicate that efficient working capital management increases profitability, and hence a negative relationship exists between the measure of working capital management (cash conversion cycle, sales growth, debt ratio and credit ratio) and profitability variable. function from each of the cement companies.

2.5 Summary of the Literature Review

Theoretically, Deloof and Jegers, (1996) has urged that large inventory and a generous trade credit policy may lead to high profitability. On the other hand, Zariyawati et al. (2009) states that investment with a higher risk may create a higher return, thus a firm with a high liquidity in working capital will have a low risk of failing to meet its obligations, and low profitability at the same time, and Current asset to total assets ratio principle, Sathamoorthi (2002) further argues that that increase in current asset to total assets ratio has a negative effect on firms' profitability, while on the other hand, increase in current liabilities to total liabilities ratios has a positive effect on profitability of firms. Gap noted is that is the conflict between all these arguments whereby some are for high levels of currents assets while others are of contrary suggestion.

There is therefore need for study to establish which argument is applicable to manufacturing firms in Kenya.

Empirically, all the reviewed studies seem to focus on the effect of debt Collection Period, Inventory Collection Period, Payables Period and Debt Ratio on performance of the firm. Non has established whether or not and how the level of current assets and current liabilities affects firm's profitability. Further, others have only looked at the effects of Working Capital Management on Performance for all firms combined, without looking at industry per industry. Such findings are therefore misleading because industries are different, and this may affect how their profitability is affected by the working capital. Third, some studies took too small samples which may not be representative on the entire manufacturing industry. For instance, Ani et al. (2010) study only looked at only top five bear companies in the world and therefore this may not be representation of all manufacturing firms. This study also is not representative of African Manufacturing firms.

In light of the above, while evaluating the effect of working management on profitability of manufacturing firms listed in the Nairobi Securities Exchange, this study will mainly focus on the effect of the levels of current assets and currents liabilities measured against total assets and total liabilities respectively affect profitability of the manufacturing firms listed in the Nairobi Securities Exchange. This will shed as to which among the Deloof and Jegers, (1996) argument on inventory and trade credit policy, Current asset to total assets ratio theory and, Zariyawat, et al. (2009) argument on risk and return best describes the effect of working capital in manufacturing firms.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presented the methodology that was followed in the process of conducting the study. The chapter begins by setting out the research design that was used to enable the researcher achieve the objectives of the study. The target population, tools and techniques for data collection, data analysis and presentation are discussed.

3.2 Research Design

Research problem was studied through the use of a descriptive research design. According to Mugenda & Mugenda (2003) descriptive design is a process of collecting data in order to test hypothesis or to answer the questions of the current status of the subject under study. Descriptive design is ideal in this study since the sample was collected from the Nairobi Securities Exchange predetermined listed companies.

3.3 Population

According to Castillo (2009) a population is generally a large collection of individuals or objects a study is being carried on Kothari (2004). A census of 10 manufacturing companies listed in the Nairobi Securities Exchange as per appendix I has been used.

3.4 Data Collection

This study has used secondary data from the companies audited income statements and statement of financial position posted in their respective website. Use of data from audited financial statements gives an assurance on the validity and reliability of data collection method as well as the accuracy of data collected.

3.5 Data Analysis

This study used multiple linear regression analysis to determine the effect of the absolute level of working capital/ Total Asset the performance of a firm as measured by its Return on Asset. Kothari (2004), regression analysis is concerned with the study of how one or more variables affect changes in another variable.

3.5.1 Analytical Models

The linear regression model used to determine the effect of levels of working capital on performance is as follows

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e \quad \text{where;}$$

α = Independent Variable

Y = Firm's financial performance measured by Return on Assets (ROA)

B_i = coefficient of dependent variable which measures the changes in Y with a unit change working capital i

X_1 = Working Capital Management measured by Working Capital / Total Assets Ratio

X_2 = Leverage as measured by Debt Ratio

X_3 = Size of the firm as measured by natural log of total assets

e = Error Term

Working Capital = Current assets - Current Liabilities

Debt Ratio = Total Debt / Total Asset

3.5.2 Test of Significance

Coefficient of determination was used to determine the proportion of ROA that is affected by the changes in levels of current assets and current liabilities. Also using t-statistics, there was hypothesis testing to determine whether there is a significant linear relationship between an independent variable these levels and ROA.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

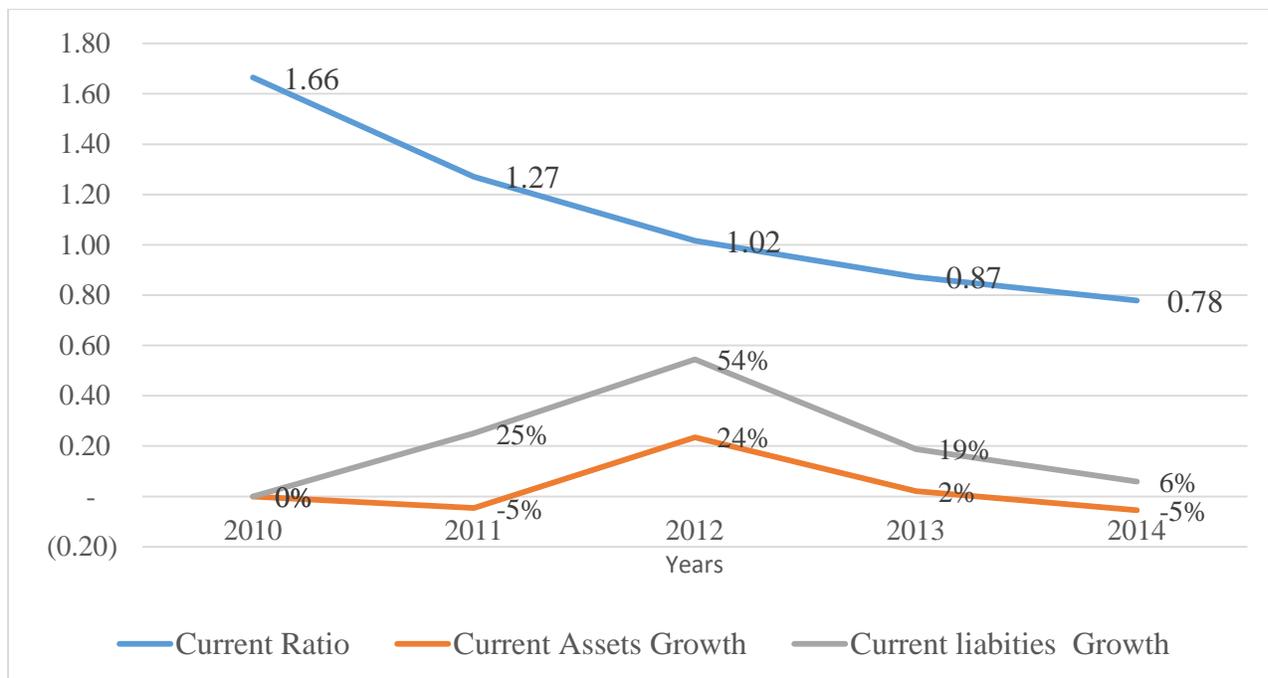
This section gives an analysis of data in terms of descriptive as well as inferential statistics. For descriptive statistic, the study shall focus on industry analysis of current ratio, current assets to total assets ratio as well as current liabilities to non-current liabilities ratio. For inferential statistics, correlation, regression and analysis of variance shall be used to determine in indeed and the extent to which ROA and working capital management are related.

4.2 Descriptive Statistics

4.2.1 Industry Analysis of Current Ratio

The figure below shows trend analysis of current ratio, current assets and current liabilities for the manufacturing industry in Kenya for the five year period.

Figure 4.1: Industry analysis of Current Ratio



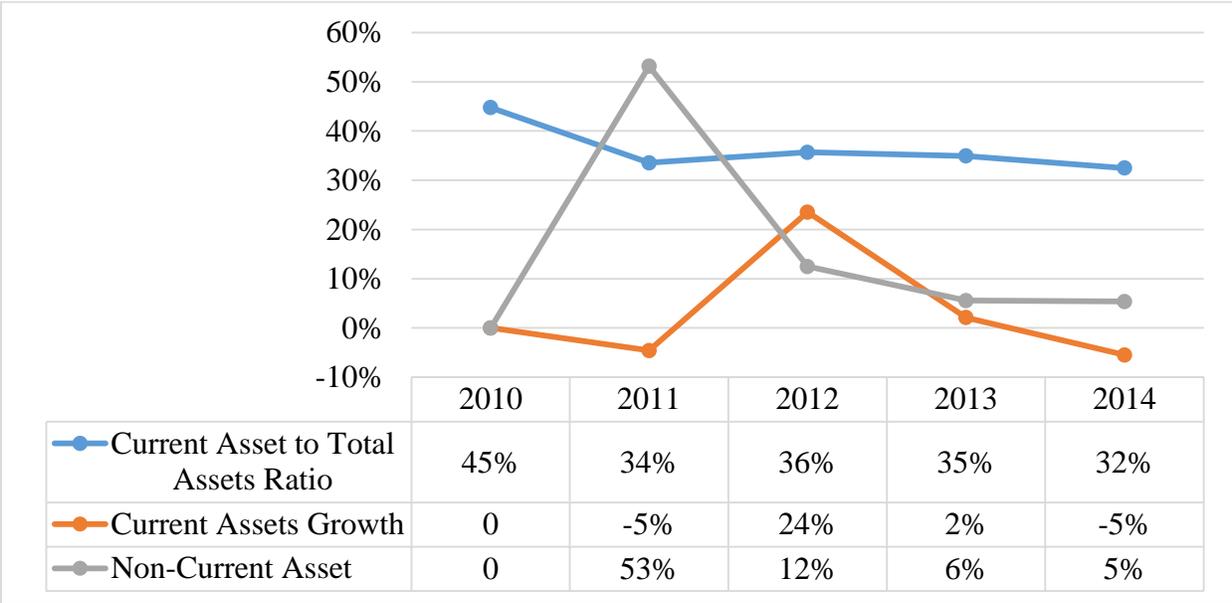
Source: Research Findings

As shown in the diagram above, the manufacturing industry has experienced consistent decline in current asset to total assets ratio from year 2010 to 2014. This is because while both the current assets and current liabilities have changed in the same direction, current liabilities increase at a higher rate than current assets. In years 2014 and 2013, the industry runs at a very high liquidity risk because current liabilities are more than current assets. Further, the recommended current ratio is 2, and therefore, manufacturing industry in Kenya has for all the years under consideration operated below the recommended rate. This means that credit terms to firms in the manufacturing industries are so favorable that they firms can afford to run with more short term debts that current assets.

4.2.2 Current Assets to Total Assets

The figure below is trend analyzing of current assets to total assets ratios for a five year period. It also gives trend comparative analysis to growth in current assets and total assets

Figure 4.2: Current Assets to Total Assets trend



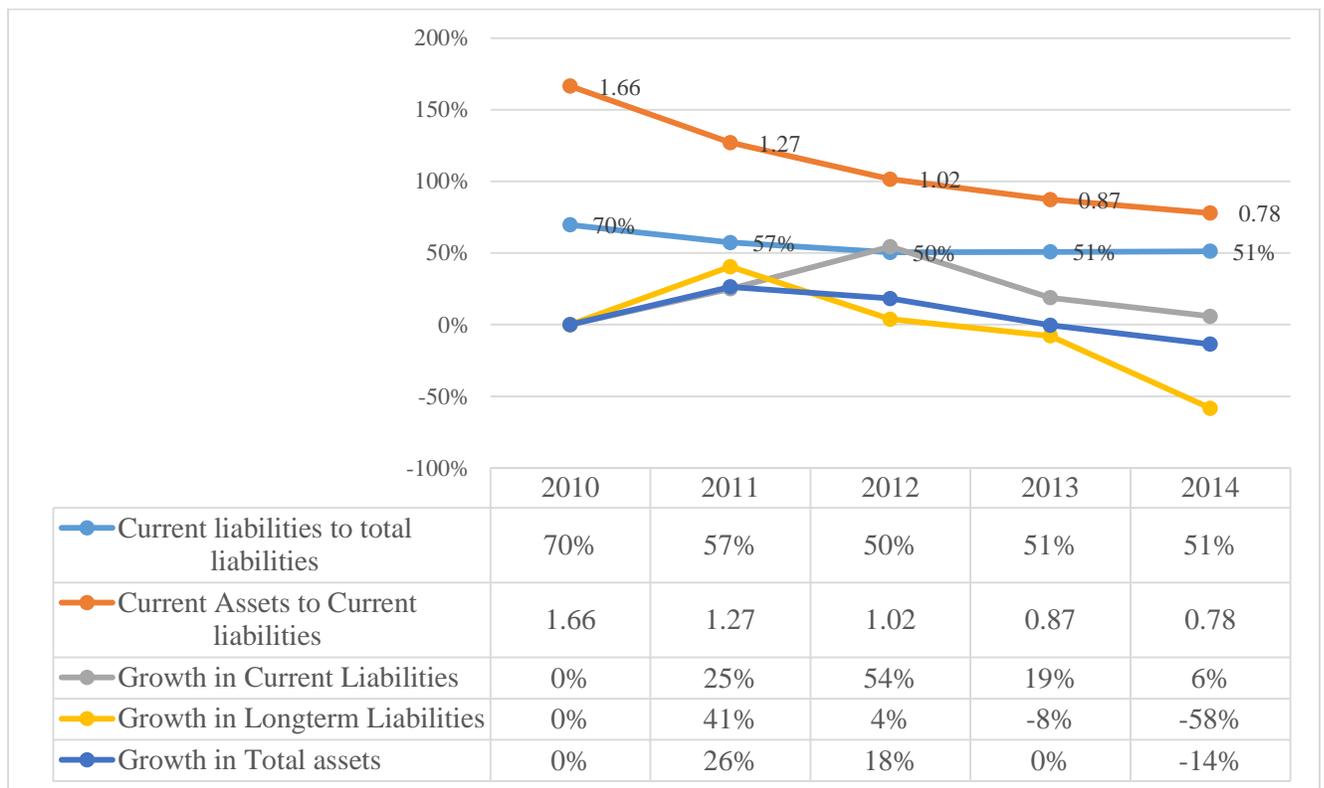
Source: Research Findings

As shown by the graph, there is no significant change in the current assets to total ratio across all the years. On average, current asset constitute 30% of the total assets. Further, unlike the behavior of current assets and current liabilities whether the both consistently move in the same direction, change in current assets and non-current assets are not consistently in the same direction. For instance, in the year 2011, noncurrent assets increased by 53% while the current assets went down by 5%. Contrary in year 2012, growth in current assets went up from negative 5% to 24% while that on non-current assets went down from by 53% to 12%. This means that the growth in current assets and noncurrent assets are different in both magnitude and direction.

4.2.3 Current Liabilities to Non-Current Assets and Non-Current Liabilities

The graph below compares the trend for the current liabilities non-current assets and liabilities. It also compares the growth in current liabilities against long term liabilities and total assets. The key finding is that in the manufacturing industry, from year 2010 to 2014, change in current ration and change in total assets move in the same direction, and they have consistently decline across all the four years. From year 2013 to 2014, total assets stagnate at 51% while current ratio further declined from 0.87 to 0.78. The second observation is that change in current liabilities, long-term liabilities and total assets are all in the same direction but with different magnitude. They all went up from 2011 to 2012 then declined in year 2013 and 2014, where change in current liabilities has the highest magnitude, followed by total assets and long-term liabilities consistently. These findings tell us two things; that in year 2013 and 2014, currently assets were not sufficient to cover the current liabilities as and when they fall due, and therefore the industry would use the part of long-term liabilities to cover current liabilities. Second, consistent decline in total assets and long-term liabilities may mean that the firms are now focusing to technology driven processes and hence no need to overinvest in physical assets.

Figure 4.3: The trend for Current liabilities to noncurrent assets and noncurrent liabilities

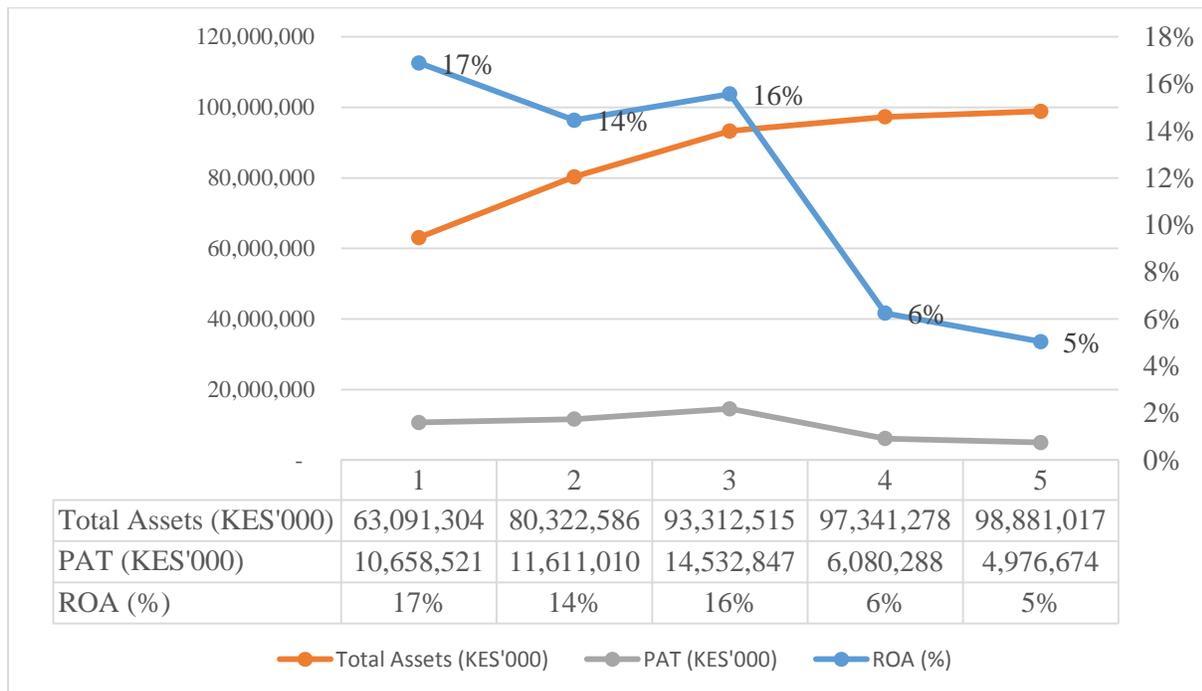


Source: Research Findings

4.2.4 Performance Analysis (ROA)

The figure below gives a trend analysis of return on asset as well as is growth in profit after tax (PAT) as well as total assets.

Figure 4.4: ROA against Total Assets



Source: Research Findings

Total assets have consistently followed an upward curve while on the other hand, PAT has been reducing. As a result ROA has reduced from 17% in year 2010 to 5% in year 2014.

The graph below shows the analysis of firms ROA, this being the average rate for the five years.

Table 4-1: Firm analysis of Profitability

Year	2010	2011	2012	2013	2014	Average ROA
Mumias Sugar	9%	8%	7%	-5%	-12%	1%
Carbacid	0%	11%	11%	22%	19%	13%
Ever Ready	1%	-12%	6%	4%	-15%	-3%
Unga group	5%	8%	5%	4%	6%	6%
East African	23%	19%	21%	11%	11%	17%

Year	2010	2011	2012	2013	2014	Average ROA
Breweries						
British America Tobacco	11%	9%	13%	16%	13%	12%
Kenya Orchards	0%	1%	0%	3%	-50%	-9%
Flame Tree Group Holdings Ltd	0%	0%	74%	20%	11%	21%
ROA (%)	17%	14%	16%	6%	5%	12%

Source: Research Findings

Performance of Mumias Sugar have experienced consistent decline in ROA to an extent that by year 2013, the company was operating at a loss. Carbacid performance has been random where in year 2011 and 2012, there was consistent ROA of 11%, then doubled to 22% in 2013 and then declined to 19% in year 2014. Unga Limited performance has ranged between 8% and 4% across all the years. East African Breweries has as well experienced decline in ROA from 23% in 2010 to 11% in 2014. British America Tobacco did not experience rampant fluctuation in ROA cost it has ranged between 11% and 16%. Kenya Orchards performance was at negative 50% by year 2014, meaning that it could liquidate 50% of its total assets just to cover the losses. As for Flame Tree Group Holdings Ltd, its ROA was 74% in year 2012 but eventually declined to 11% in year 2014.

The above findings demonstrate two main things. First, that for any particular year, all firms are significantly different in terms on ROA whereby some have high, others medium while others at loss. Second, all are different in terms of trend in ROA from year to year. Some such as EABL, Mumias Sugar and Flame Tree has experienced consistent decline in ROA, others such as Ever

Ready have experienced very random fluctuation whereas others such as Unga Group and BAT have experienced almost a stagnating ROA.

4.3 Inferential Statistics

In the inferential statistics, the study has focussed on the correlation analysis, regression analysis and analysis of variances.

4.3.1 Correlation Analysis

The table below show the relationship between ROA and current ratio, current liabilities to total liabilities ratio, current assets to total assets ratio as well as the networking capital

Table 4-2: Correlation analysis

<i>Variables</i>	<i>ROA (%)</i>	<i>Current Ratio</i>	<i>CA/TA Ratio</i>	<i>CL/TL Ratio</i>
ROA (%)	100%			
Current Ratio	82%	100%		
CA/TA Ratio	61%	85%	100%	
CL/TL Ratio	62%	95%	88%	100%

Source: Research Findings

4.3.2 Regression analysis

Regression model was used to determine the relationship between the ROA and the indicators or working capital management. The model was given by,

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 \text{ where;}$$

Y=Firm's profitability measured by Return on Assets (ROA). Coefficients β_1 to β_3 = Rates of change in ROA with change in Current asset/Total Assets Ratio (X1), Current liabilities/Long-term debt (X2), current assets to current liabilities (X3). The results of the analysis are as demonstrated below;

Table 4-3: Regression Analysis

Regression Statistics								
Multiple R	97%							
R Square	94%							
Adjusted R Square	75%							
Standard Error	3%							
Observations	5							

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	31%	19%	1.68	34%	205%	267%	-205%	267%
Current Asset to Total Asset (X1)	22%	59%	0.37	78%	723%	766%	-723%	766%
Current to Total Liabilities ratio (X2)	-124%	61%	(2.03)	29%	901%	653%	-901%	653%
Current Ratio (X3)	0.38	0.13	2.94	21%	124%	199%	-124%	199%

Source: Research Findings

With 95% level of confidence, for all the evaluated manufacturing firms evaluates, and for all the independent variables (Current Asset to Total Asset, Current to Total Liabilities ratio and current ratio), this study accepts null hypothesis that the slope of ROA against each indicator is null. This therefore means that the relationship between the Current Asset to Total Asset, Current to Total Liabilities ratio and current ratio with ROA is insignificant. The findings therefore disregard propositions by Deloof and Jegers, (1996), Sathamoorthi, (2002), Zariyawati, et al., (2009), Deloof (2003), Lazaridis & Tryfonidis (2006), Lazaridis & Tryfonidis (2006), Vishnani (2007)

and Eljely (2004), all of whom argue that there is relationship between the ROA and working capital.

4.3.3 Analysis of Variances

The purpose for ANOVA was determine if or not there was any significant difference variance in growth of ROA, Current ratio, CA/TA Ratio and CL/TL Ratio. The table below shows the analysis

Table 4-4: Analysis of Variances

SUMMARY						
Groups	Count	Sum	Average	Variance		
ROA (%)	5	0.58203	0.116406	0.003094		
Current Ratio	5	5.601453	1.120291	0.126811		
CA/TA Ratio	5	1.814389	0.362878	0.002404		
CL/TL Ratio	5	2.793977	0.558795	0.00675		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	2.73947	3	0.91	26.27	0.00000203	3.24
Within Groups	0.556234	16	0.03			
Total	3.295704	19				

Source: Research Findings

4.4 Interpretation of the Findings

Correlation analysis findings showed a positive correlation between ROA and Current Ratio, CL/TL ratio, CA/TA as well as the Net Working Capital. This means that increase by each variable results to increase in ROA. This means that Sathamoorthi, (2002) argument that increase in current asset to total assets ratio has a negative effect on firms' profitability does not apply in the manufacturing industries in Kenya. On other hand had the findings affirm the Deloof and

Jegers, (1996) suggestion that large inventory and a generous trade credit policy may lead to high profitability.

The findings from the regression analysis show that β_1 was 22%, β_2 was 124% while β_3 was 0.38. This means that the rate of change in ROA with change in Current Asset to Total Asset, Current to Total Liabilities ratio (X2) and Current Ratio (X) in manufacturing industry in Kenya is 22%, -124% and 0.38 respectively. This means that while increase in current ratio and Current Asset to Total Asset results to increase in ROA, this is vice versa in the increase in Current to Total Liabilities ratio. The findings therefore do not Sathamoorthi, (2002) argument that increase in current liabilities to total liabilities ratios has a positive effect on profitability of firms. He argued that short-term sources of finance are less expensive than long-run sources, increase in the ratio will mean substituting less expensive sources for more expensive sources of financing, hence decline in cost and a corresponding rise in profitability. Nevertheless, across all variable, all the t-Values are bigger than the the critical value of 3.182. As such, the study accepts null hypothesis that the slope of ROA against each indicator is nill. This therefore means that the relationship between the Current Asset to Total Asset, Current to Total Liabilities ratio and current ratio with ROA is insignificant. The findings from the ANOVA, p-value is 0.00000203 which is smaller than the f-value of critical region (3.24). This therefore reveal that there is significant differences in variances between ROA (%), Current Ratio, CA/TA Ratio, CL/TL Ratio

The findings therefore disregard propositions by Deloof and Jegers, (1996), Sathamoorthi, (2002), Zariyawati, et al., (2009), Deloof (2003), Lazaridis & Tryfonidis (2006), Lazaridis & Tryfonidis (2006), Vishnani (2007) and Eljely (2004), all of whom argue that there is relationship between the ROA and working capital.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter gives the summary of the findings and conclusions as to whether in deed there is effect of working capital management financial performance of manufacturing firms listed in Nairobi Security Exchange. It further gives recommendations on company policies and practices on working capital management

5.2 Summary

The objective of this study was to establish the effect of Working Capital Management on profitability of manufacturing firms listed in the Nairobi Securities Exchange. Linear regression model was used where dependent variable was return on assets while independent variable were Current Asset to Total Asset, Current to Total Liabilities ratio, current ratio as well as the total assets (size of the firm).

The first finding by this study is that the manufacturing industry has experienced consistent decline in current asset to total assets ratio from year 2010 to 2014. It further established that while both the current assets and current liabilities have changed in the same direction, current liabilities increase at a higher rate than current assets. In years 2014 and 2013, the industry runs at a very high liquidity risk because current liabilities are more than current assets. It further established that manufacturing industry in Kenya has for all the years under consideration operated below the recommended rate of 2.

With regards to current assets to total assets ratio, there is no significant change in the current assets to total ratio across all the years. Further, unlike the behavior of current assets and current liabilities whether the both consistently move in the same direction, change in current assets and non-current assets are not consistently in the same direction. They are growth in current assets and noncurrent assets are different in both magnitude and direction.

As for the current liabilities to noncurrent assets and noncurrent liabilities, the key finding was that finding is that in the manufacturing industry, from year 2010 to 2014, change in current ratio and change in total assets move in the same direction, and they have consistently decline across all the four years. The second observation is that change in current liabilities, long-term liabilities and total assets are all in the same direction but with different magnitude. These findings tell us two things; that in year 2013 and 2014, currently assets were not sufficient to cover the current liabilities as and when they fall due, and therefore the industry would use the part of long-term liabilities to cover current liabilities. Second, consistent decline in total assets and long-term liabilities may mean that the firms are now focusing to technology driven processes and hence no need to overinvest in physical assets.

Correlation analysis findings showed a positive correlation between ROA and Current Ratio, CL/TL ratio, CA/TA as well as the Net Working Capital. This means that increase by each variable results to increase in ROA. The findings affirm the Deloof and Jegers, (1996) suggestion that large inventory and a generous trade credit policy may lead to high profitability

Regression analysis has revealed that increase in current ratio and Current Asset to Total Asset results to increase in ROA, this is vice versa in the increase in Current to Total Liabilities ratio. The findings therefore do not Sathamoorthi, (2002) argument that increase in current liabilities to total liabilities ratios has a positive effect on profitability of firms.

5.3 Conclusions

There is experienced consistent decline in current asset to total assets ratio from year 2010 to 2014. As at year 2014, firms in manufacturing the industry in Kenya operated at a very high liquidity risk because current liabilities are more than current assets. The recommended current ratio of 2 has not been applied in manufacturing industries in Kenya given that the industry ratio has remained below this ratio.

Change in current ratio and change in total assets are in the same direction, where they have consistently decline across all the four years. Further, current liabilities, long-term liabilities and total assets are all change in same direction but with different magnitudes. For any particular year, all firms in manufacturing industry are significantly different in terms on ROA whereby some have high, others medium while others at loss. Further, all firms in this industry are different in terms of trend in ROA from year to year whereby some have experienced consistent decline in ROA, others very random fluctuation whereas have experienced almost a stagnating ROA.

There was positive relationship between ROA and Current Asset to Total Asset ratio for 79% of the industry. Deloof and Jegers, (1996) suggestion that large inventory and a generous trade credit policy may lead to high profitability therefore applies to the manufacturing industry in Kenya. For 57% of the industry, ROA has a positive relationship between current liabilities to total liabilities ratio. Sathamoorathi (2002) argument that increase in current liabilities to total liabilities ratios has a positive effect on profitability of firms therefore applies in the Kenya's manufacturing industry as well.

There is positive relationship between return on assets and current ratio for the 87% of the Kenyan manufacturing industry. Deloof and Jegers, (1996) argument that large inventory and a

generous trade credit policy may lead to high profitability therefore applies as well. Further, aggressive policy of working capital management that requires a company to operate with lower levels of inventory, trade receivables and cash for a given level of activity or sales is not applicable in this industry. Relationship between ROA and the size of the firm is very insignificant in this industry. There the argument Vijayakumar and Tamizhselvan (2010), Papadognas (2007), Amato and Burson (2007) that there is relationship between profitability and the size of the firms do not describe manufacturing firms in Kenya. With 95% level of confidence, this study accepts null hypothesis that the slope of ROA against each indicator of working capital management is nil. This therefore means that the relationship between the Current Asset to Total Asset, Current to Total Liabilities ratio and current ratio with ROA is insignificant in the manufacturing firms in Kenya.

5.4 Recommendations for Policy and Practice

The study has clearly established that the relationship between the Current Asset to Total Asset, Current to Total Liabilities ratio and current ratio with ROA is insignificant in the manufacturing firms in Kenya. The management of firms should therefore not over-concentrate on manipulating the levels of working capital with an attempt to increase the firm's profitability. They should therefore focus other factors other than working capital, which improve profitability of the firm.

Should the management still feel the need to influence the ROA through working capital management, they should consider increasing the current assets given that this study has shown a positive relationship between ROA and Current Asset to Total Asset ratio for 79% of the industry

The management should therefore avoid aggressive policy of working capital management that requires a company to operate with lower levels of inventory, trade receivables and they should focus on conservative policy requiring high cash balances and high stock reserves for a given level of activity or sales. This is because there is positive relationship between return on assets and current ratio for the 87% of the Kenyan manufacturing industry

5.5 Study limitations

The study targeted all the ten manufacturing firms Nairobi Security Exchange. Nevertheless, B.O.C Kenya Ltd and A.Baumann CO Ltd, being international companies, only presented their consolidated financial result without breaking them down into countries. They were therefore, removed from the target population in order to avoid distortion of information.

5.6 Recommendations for Further Studies

There is need for further study to explain why manufacturing industry has experienced consistent decline in current asset to total assets ratio from year 2010 to 2014.

Further study is also needed to evaluate manufacturing firms in Kenya operate below the recommended current ratio of 2 across all firms.

Finally, the study has established that there is no statistical relationship between working capital management and the profitability of manufacturing firms in Kenya. There is therefore a need for further study to establish the key factors that significantly influence profitability of Kenya's manufacturing firms.

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APPENDICES

Appendix I: Manufacturing firms listed in the Nairobi Securities Exchange

1. B.O.C Kenya Ltd
2. British American Tobacco Kenya Ltd
3. Carbacid Investments Ltd
4. East African Breweries Ltd
5. Mumias Sugar Co. Ltd
6. Unga Group Ltd Ord
7. Eveready East Africa Ltd Ord
8. Kenya Orchards Ltd
9. A.Baumann Co Ltd
10. Flame Tree Group Holdings Ltd

Source: Nairobi security exchange website - <https://www.nse.co.ke/listed-companies/list.html>

Appendix II: Five year financial information used in this study (KES'000)

	Compa ny	Current Asset	Non Current	Total Assets	Current Liabilities	Long term	Total Liabilities	Net Prof	ROA
Year 2014	Mumias Sugar	4,353,304	19,209,782	23,563,086	10,635,149	2,286,132	12,921,281	(2,740,685)	-12%
	Carbaci d	980,688	1,552,475	2,533,163	155,757	220,523	376,280	490,641	19%
	Everada y	942,129	173,441	1,115,570	591,670	118,278	709,948	(162,767)	-15%
	Unga group	5,485,176	2,541,402	8,026,578	2,351,954	987,381	3,339,335	474,494	6%
	East African Breweri es	19,807,154	43,058,789	62,865,943	27,460,650	35,405,293	62,865,943	6,858,608	11%
	British America Tobacco	9,132,000	17,035,000	26,167,000	8,769,000	11,584,000	20,353,000	3,393,000	13%
	Kenya Orchard s	29,197	21,005	50,202	16,461	33,742	50,202	(25,262)	-50%
	Flame Tree Group Holdi ngs Ltd	522,233	178,075	700,308	26,730	231,386	258,117	78,251	11%
	Total	41,251,881	83,769,969	125,021,850	50,007,371	50,866,735	100,874,106	8,366,281	7%
Year 2013	Mumias Sugar	7,048,364	20,233,629	27,281,993	8,408,773	5,490,730	13,899,503	(1,455,096)	-5%
	Carbaci d	892,067	1,312,332	2,204,399	88,417	191,553	279,970	475,541	22%
	Everada y	934,832	249,620	1,184,452	468,188	71,900	540,088	43,785	4%
	Unga group	5,835,732	2,272,647	8,108,379	3,166,864	650,214	3,817,078	338,196	4%

Year 2014	Company	Current Asset	Non Current	Total Assets	Current Liabilities	Long term	Total Liabilities	Net Prof	ROA
	East African Breweries	18,593,102	39,127,360	57,720,462	26,606,846	31,113,616	57,720,462	6,522,200	11%
	British America Tobacco	9,518,000	17,363,000	26,881,000	8,436,000	11,510,000	19,946,000	4,199,000	16%
	Kenya Orchards	22,812	47,785	70,597	10,968	47,785	58,753	2,415	3%
	Flame Tree Group Holdings Ltd	658,440	856,740	744,114	200,680	159,040	359,721	149,047	20%
	Total	43,503,349	81,463,113	124,195,397	47,386,737	49,234,838	96,621,575	10,275,089	8%

		Current Asset	Non Current	Total Assets	Current Liabilities	Long term	Total Liabilities	Net Prof	ROA
	Mumias Sugar	7,171,360	20,228,753	27,400,113	5,720,655	5,955,772	11,676,427	2,012,679	7%
	Carbacid	2,012,816	1,373,428	3,386,244	1,501,660	2,098,800	3,600,460	389,287	11%
	Eveready	876,043	274,686	1,150,729	695,764	105,476	801,240	70,084	6%
	Unga group	4,644,891	1,754,938	6,399,829	1,967,953	463,988	2,431,941	348,195	5%
Year 2012	East African Breweries	18,057,773	36,113,498	54,171,271	22,483,782	23,384,654	45,868,436	11,186,113	21%
	British America Tobacco	18,141,000	9,186,000	27,327,000	8,142,000	11,406,000	19,548,000	3,433,000	13%
	Kenya Orchards	21,682	47,254	68,936	9,139	47,254	56,393	245	0%
	Flame Tree Group Holdings Ltd	494,229	213,837	708,066	397,626	191,522	589,148	522,811	74%
	Total	51,419,794	69,192,394	120,612,188	40,918,579	43,653,466	84,572,045	17,962,414	15%

Year 2014	Company	Current Asset	Non Current	Total Assets	Current Liabilities	Long term	Total Liabilities	Net Prof	ROA
Year 2011		Current Asset	Non Current	Total Assets	Current Liabilities	Long term	Total Liabilities	Net Prof	ROA
	Mumias Sugar	6,511,659	16,664,857	23,176,516	2,961,691	5,738,818	8,700,509	1,933,225	8%
	Carbacid	1,739,985	1,335,872	3,075,857	456,980	2,269,220	2,726,200	343,510	11%
	Everadady	733,708	283,200	1,016,908	658,427	79,076	737,503	(123,994)	-12%
	Unga group	4,086,617	1,622,280	5,708,897	1,618,796	345,150	1,963,946	441,043	8%
	East African Breweries	13,855,244	33,391,673	47,246,917	15,509,186	7,314,817	22,824,003	9,014,175	19%
	British America Tobacco	8,495,000	18,624,000	27,119,000	7,847,000	10,798,000	18,645,000	2,339,000	9%
	Kenya Orchards	21,867	48,505	70,372	14,169	56,203	70,372	712	1%
	Flame Tree Group Holdings Ltd								
	Total	35,444,080	71,970,387	107,414,467	29,066,249	26,601,284	55,667,533	13,947,671	13%
Year 2010		Current Asset	Non Current	Total Assets	Current Liabilities	Long term	Total Liabilities	Net Prof	ROA
	Mumias Sugar	6,495,834	11,838,276	18,334,110	3,250,021	4,084,237	7,334,258	1,572,383	9%
	Carbacid								
	Everadady	943,397	226,335	1,169,732	668,833	97,500	766,333	8,703	1%
	Unga group	3,419,837	1,644,583	5,064,420	1,344,363	355,354	1,699,717	236,173	5%
East				11,684,390				23%	

Year	Company	Current Asset	Non Current	Total Assets	Current Liabilities	Long term	Total Liabilities	Net Prof	ROA
2014	African Breweries	17,358,873	21,061,818	38,420,691		2,783,675	14,468,065	8,837,560	
	British American Tobacco	8,657,000	19,203,000	27,860,000	7,645,000	10,667,000	18,312,000	3,140,000	11%
	Kenya Orchards	24,466	50,025	74,491	18,945	55,546	74,491	562	0%
	Flame Tree Group Holdings Ltd								
	Total	36,899,407	54,024,037	90,923,444	24,611,552	18,043,312	42,654,864	13,795,381	15%

Source: Research Findings