

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

BY

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MASTER OF SCIENCE COMMERCE (FINANCE AND ACCOUNTING)

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13/03060

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
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(FINANCE AND ACCOUNTING) IN THE SCHOOL OF GRADUATE STUDIES
AND RESEARCH AT KCA UNIVERSITY**

OCTOBER 2019

DECLARATION

I declare that this is my own original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published work by other people except where due reference is made and author duly acknowledged.

Sign

Reg. No.: 13/03060

Date.....

I do hereby confirm that I have examined the master's dissertation of Rispah Khamonyi Omucheyi and certified that all revisions that the dissertation panel and examiners recommended have been adequately addressed.

Sign.....

Date.....

Dr. Njogo Michael

Dissertation supervisor

ABSTRACT

Every firm to run its operations successfully; working capital items inventory, cash, account receivables, prepayments, accruals and accounts payable play a significant role thus managing them is important because they directly affect profitability and liquidity of a firm. In most cases the firm's main objective is to increase profits and maximize the shareholder's wealth though if it does so at the expense of liquidity serious problems might arise that is reduction in sales volume and consequently affect profitability, therefore the firm needs to have a striking balance between liquidity and profitability. This research dissertation analyzes the effect of working capital management on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange in Kenya. The specific objectives comprise of finding out the effect of inventory level management, accounts receivables management, and cash management on the financial performance of manufacturing firms listed at the NSE. The theories adopted in the study include cash conversion cycle theory, trade off theory, resource based theory and operating cycle theory. A census of all the 7 listed manufacturing firms at the Nairobi Securities Exchange was used in determining the variables to be studied. Secondary data extracted from financial statements of the listed manufacturing firms for a period of 10 years from 2008 to 2017 was used to collect and analyze data in the study. Panel data was used for the data analysis. Data was analyzed using STATA technique. To test the relationship between working capital management and financial performance hausman test, Multicollinearity, autocorrelation, normality and residual plots were used. The research found out that there is no significant relationship between inventory level management and financial performance on the other hand trade receivable management and financial performance of the firm have a positive and significant relationship, there also exists a significant relationship between cash management and financial performance of the listed manufacturing firms at the Nairobi Securities Exchange. All stakeholders involved in the operations of the firm are expected to ensure that working capital items are properly managed so that they do not affect the overall performance and profitability of firms and also to ensure that continuity of the firms is secured and guaranteed.

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DEDICATION

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ABBREVIATION OF TERMS

AM: Accounts receivable management

CCC: Cash Conversion Cycle

CM: Cash management

EAT: Earnings after tax

EBIT: Earnings Before Interest and Tax

EPZ: Export Processing Zone

GDP: Gross Domestic Product

IM: Inventory management

LTD: Limited

NSE: Nairobi Securities Exchange

ROA: Return On Assets

ROE: Returns on Equity

TA: Total Assets

RM: Receivable management

RNOA: Returns on Net Operating Assets

WCM: Working Capital Management

DEFINITION OF TERMS

Working capital management: this refers to the process of managing all working capital items that is cash, inventory, receivables, payables, accruals and prepayments so as to ensure that there is enough current assets than obligations in order for firms and individuals to meet their obligations when they fall due (Carl, Dan & Elisabeth, 2011).

Cash management: this refers to proper collection of cash, handling of cash and disbursement of cash to various departments and individuals to ensure that all cash movements are clearly traced and loss of cash is minimized (Amarjit, Gill., Nahum, Biger., and Neil, Mathur 2010).

Inventory management: Hong Mo Yeh (2016) defines inventory management as a branch of business management that covers the planning and control of the inventory which involves determining what materials are needed and when they are needed in order to meet customers' demands

Receivables management: Debtors' management refers to a process of continuous review of debt so that the debtors pay their debt on time and minimize failure of non-payment (Kaur 2017).

Conglomerate companies: A conglomerate is a combination of several business firms operating in totally distinct sectors under one corporate group, usually involving a parent company and several subsidiaries. Often, a conglomerate is a several industries set up which is usually large and multi-national for example Uniliver, Coca cola etc.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

As the firms' management aim towards maximization of profits, creation of wealth and maximization of the value of shareholders, they are required to get a balance between investing in long term opportunities and holding adequate current assets to meet the firm's short term financial obligation when they arise (Mwangi, 2016). The major working capital components comprise of cash, receivables, inventory, prepayments, accruals and short term loans that should be included in the firm's overall financial and operational strategy (Frankturf Business Media, 2015). Managers and employees of the firms encounter a challenge in deciding the most appropriate working capital level that will give rise to sound liquidity and efficiency of manufacturing firms and other industries both service and product oriented firms.

Optimal working capital management practice involves proper planning and well-structured control systems on current assets and current liabilities with an aim to mitigate firm's liquidity risks without foregoing the firm's investment objectives, financial objectives, liquidity objectives and dividend policy objectives (Kosmala, Dos, Blach & Gorczynska 2017). The major factors that that an optimum level of working capital depend on include the firms' credit policy. Credit policy that is how long a firm is expected to take in order to repay their loans to their suppliers and also how long their debtors can take when repaying their amounts due to the firm so that the operations of the firm are not affected both in the short run and long run). The firms' future plans both in terms of growth and in terms of expansion (Sabunwala 2018)

Working capital has been hailed in most cases for both Multi-National Companies and Local companies to be very important; the components of working capital are cash, inventory, debtors and creditors (Meena & Irala, 2016). Ahmed, Mahtab, Islam & Abdulla (2017) did a study on the impact of working capital management on the profitability of textile companies in Bangladesh and found that there exists a positive relationship between working capital management and profitability. Most local and international firms when facing closure have cited inadequate cash flows to meet their obligations when they fall due. (Business Daily, 2019). In 2018 Carillion Ltd a construction and service industry based in the United Kingdom went into liquidation after 20 years of success in the industry, it had been reporting positive returns, the financial statements and audit reports showed the firm was operating successfully (Higson, 2018). Kenya Airways, which has also been having problems for the longest time, has cited problems to do with cash flows.

1.1.1 Working Capital Management

The firm's working capital management constitutes the managing the entity's stocks, debtors, cash and creditors that is aimed at attainment of equilibrium between liquidity risk, efficiency and profitability to safeguard the shareholders' interest, and increasing the firm's value through long term investments (Carl, Dan & Elisabeth, 2011). Working capital of a firm includes the current assets in the balance sheet excluding the current liabilities. Working capital management practices is fundamental to the firm's operational activities as the firm will be able to meet its operational cost and other incidental short term financial operations as they fall due. If a firm's payables are not settled in time and according to the contractual obligations, creditors may file a suit seeking liquidation of firm's non-current assets to cover their debts, that will affect the firm's value and shareholders' wealth as the firm's going concern will be jeopardized. This calls for sound working

capital management practices to maintain the firm's operations and survival of the in business (Harris, 2005).

The concept of working capital is regarded as the lubricant of any firm's operations as it mitigates any friction hindering the firm's smooth operation (Hampton, 2014). Working capital management is a function of any financial and non-financial decisions arrived at by management as the firms should reserve enough liquid assets before committing its funds in the long term investment opportunities. The proportion of any firm's current assets to total assets and cash flow is a trade-off between firm's earnings and liquidity risk (Muchina & Kiano, 2016).

If there exists very minimal liquidity risks and less operational costs then firms should hold less liquid assets and put more of its funds in long term investment projects and if the liquidity risks are high and many operational costs then the firm should hold more liquid assets and put less funds in long term investments so as to maximize profitability and wealth creation (Scanella 2016).

With the contemporary market there is a lot of dynamism where firms encounter high level of liquidity risk due to increased firm's overheads, servicing technological applications and other incidental costs that calls for high level of firm's liquidity (Anandasayanan, 2014). A high profitable firm can be crippled down due to liquidity problems and thus working capital management should be incorporated in the firm's strategic plan (Chebii, Kipchumba & Wasike, 2011).

A firm may opt for an aggressive working capital management practices with low proportion of liquid assets to total assets or employ working capital management as a financing decision with high level of payables relative to total debts (Afza & Nazir, 2017). Maintaining working capital at equilibrium is the fundamental element of working capital management. The attainment of the

firm's investment and operational goals depends squarely on the tactical capability of the financial managers to effectively and efficiently manage receivables, cash, inventories and payables (Filbeck & Krueger, 2005).

1.1.2 Financial Performance

A number of scholars and managers have employed various methods of measuring financial performance of firms. Returns on sales indicates how much the company earns relative to sales derived from its products, returns on asset (ROA) evaluates the firm's ability to utilize its assets, while returns on equity (ROE) indicates what the shareholders take for their investments. Most of these measures are easily computed and readily accepted by both managers and scholars (Maina & Sakwa, 2010).

Financial performance of a firm can be assessed in three dimensions: measured in profitability ratios that is return on assets, return on investment and return on equity (Jeffery, Todd, Boquist, & Thakor, 2018). Performance measurement is the fundamental variable in area of management that looks at financial performance, customer satisfaction, market share and efficiency in firm's productivity. High level of performance indicates effectiveness and efficiency in management of the firm's assets which in turns creates economic prosperity of the country (Naser & Mokhtar, 2014).

Liquidity ratios show the ability of the firm to settle its financial obligation as they fall due, without curtailing its ordinary operations (Ahmad, 2016). The liquidity of the firm can be evaluated based on structural and operational liquidity; whereby structural liquidity implies the balance sheet indicators or the relationship between assets and liabilities while operational liquidity the cash flow determinants (Kajananthan 2015).

Profitability determines the level of the firm in generating earnings from the elements of production; labor, capital, management and land. It is mainly focused on the relationship between revenue and costs and the proportion of profits to the amount of investment in the firm. The most appropriate indicators of profitability are the ROA and ROE, operational margin and net income (Gulseren, 2013). Financial efficiency evaluates the extent of labor utility and management capital utilization in attainment of the firm's investment objectives (Kulkanya, 2012). The study will adopt the Return On Assets (ROA) to measure the financial performance of manufacturing firms listed on the Nairobi Securities Exchange.

1.1.3 Working Capital Management and Financial Performance

Ndege (2016) studied the relationship between working capital management and financial performance of manufacturing companies in Kenya and found a strong, significant, positive dependence between working capital management and financial management of companies in Kenya. Mwangi (2013) on the other hand found out 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. 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 thus found out a negative relationship between working capital and financial performance.

Ragen (2014) studied the relationship between working capital management and financial performance on manufacturing companies in Nairobi County, found out that there is a positive relationship, and concluded that working capital management is a very important component of financial performance because it directly affects the liquidity and profitability of the company. Working capital management norms are highly correlated to firm's financial performance (Dong

& Su, 2010). It dictates the components and extent of investment on liquid assets, the degree, sources and composition of short-term debts (Nwankwo & Osho, 2012). An effective working capital management practices can empower the entity to respond adequately and appropriately to uncertainties within the economic niche and attain competitive advantages over its competitors (Alshubiri, 2011). The fundamental element of sound working capital management practices is to create an optimum equilibrium between earnings and risk (Ricci & Di-vito, 2010). This goal can be attained through perpetual monitoring and control mechanisms on working capital elements that includes debtors, stocks, cash and creditors.

The proportion of short term liabilities and current assets is the key indicator of the firm liquidity position (Dong & Su, 2010). Holding higher levels of current assets will have an adverse effect on the firm's financial performance, conversely, low levels of current assets will drive the firm's liquidity problems and stock outs hindering production systems (Dong & Su, 2010). This creates a trade-off between the maintenance of working capital for less liquidity risk and investment in long term projects for positive net present value of the firm earnings, which will result to opportunity cost (Dong & Su, 2010). This implies that there should be an inclusive firm strategy on deciding the level of working capital and investment fund proportion to be attained.

1.1.4 Manufacturing Sector in Kenya

The Kenyan manufacturing industry is one of the sectors that drive the Kenyan economy and it is ranked fourth after Agriculture, Transport and Communication. Manufacturing sector output contributes above 20 percent of the Kenya's Gross Domestic Product (GDP) (Kenya's Economic Outlook, 2018) which prompted the government to include it among the big four agenda which are expected to be realized by 2022 (Deep & Drive Report 2017). The products from the manufacturing sector serve the local markets and exports to external markets that include

European, Asian, East and Central Africa markets. This sector provides over 4 million employment opportunities in formal and informal sector (Kenya's Economic Outlook, 2018). The manufacturing sector is diverse in Kenya ranging from foodstuff to construction material, which is recognized in Kenya to be one of the highest GDP contributor.

The manufacturing industry has been facing serious challenges over time. In the year 2014, a number of manufacturing firms were closed down citing liquidity problems as the cause of closure and even retrenchment of employees in order to cut down their operational costs due to inability to meet their short term financial obligations (Soko 2017). Mid-2014, Tata chemicals, Magadi shocked the media with the announcement of curtailing its operational scale due to high operational costs and pressure on liquidity levels (Soko 2014). Mumias Sugar Company Ltd for the longest time has experienced cash flow problems in the past 7 years. Softa Bottling Company has been issued with a notice by the registrar of companies to close down its operations due to financial difficulties and also due to inability of it securing a joint venture.

Chocolate maker Cadbury shut down its factory in Nairobi due to high operational costs. Apart from the local manufacturers, the multi national manufactures are also exiting production in the Kenyan market for example Procter and Gamble, Reckitt Benckiser, Johnson & Johnson, Bridgestone, Unilever and Colgate Palmolive and East Africa Portland Cement Company which sank deeper into loss-making over the period. Most of the firms have cited a harsh business environmental climate as the reason for their fall, top on the list being the high cost of energy, dealing a blow to Kenya's quest to industrialize by 2030. This implies that manufacturing firms can majorly survive if they maintain the optimum levels of working capital that will enable it meet its operational costs and other short term financial obligations. (Food Business Africa. Com 2019).

Despite the challenges encountered in the manufacturing sector in Kenya, some manufacturing firms are still doing well and still competitive both local and international for example, Bamburi cement company limited, Coca cola company and East Africa Breweries and there has been a tremendous growth and expansion in the sector over time (Kenya Association of Manufacturers', 2018). The annual growth rate for the industry is rated at 10 percent with an increase in formal employment at 3 percent yearly (Soko 2018).

The government is considering the manufacturing sector as one of the key pillars of the vision 2030, thus trying to create an enabling environment for the sector through provision of tax holidays for firm registered under export processing zone (EPZ). Advancing infrastructure facilities like energy, water and roads (Kenya Association of Manufacturers' 2018). Sale and rehabilitation of industries that are no longer active and likely closing down, removal of regional trade barriers to grow exports, protection of local infant industries, establishment of industrial parks and entry of new global brands and capacity expansion by local brands (Report by ministry of industry, trade and cooperatives 2019).

This is an indication that the manufacturing sector is one of the key pillars in the Kenya's economy for it has even been given priority under the big four agenda that the government wishes to achieve before 2022. The listed manufacturing firms at the Nairobi Securities Exchange as at 2019 are B.O.C Kenya Limited, British American Tobacco Limited, Carbacid Investment Plc, East African Breweries Ltd, Flame Tree Group Holdings Ltd, Kenya Orchads Ltd, Mumias Sugar Co. Ltd & Unga Group Limited.

1.2 Statement of the Problem

A sound and well-structured working capital management framework should be adopted by all manufacturing firms to enable them settle their short term financial obligations while still focusing on the attainment of their long-term financial objectives (Waweru, 2016). Inadequate working capital and financial difficulties especially high operational costs has been attributed as the major cause of collapse in the manufacturing sector in both developed economies like China and developing economies like Kenya (Nyamweno & Olweny, 2014). Thus working capital management practices are fundamental for improving the manufacturing firms' performance. (Mwangi, 2018).

A number of firms both manufacturing and non-manufacturing firms have in the past been on the brink of collapse or have even been shut down or even acquired by other firms or even privatized. Most of the firms have cited lack of adequate cash flows, high operational costs, lack of proper management, rise of cheap and counterfeit products in the market and their inability to meet their obligations when they fall due which form a part of working capital (Houseman 2018).

Several firms both manufacturing and service for example, Eveready Africa Limited in 2014 closed down their Nakuru plant, Mumias Sugar Limited for the last 7 years from 2012 has been facing financial issues, Jet Airways in India in March 2019 closed down all their operations and suspended all their flights citing their inability to pay their debts, Softa Bottlers limited in 2018 announced closure of their company after 20 years due to financial difficulties, increased losses, high operational costs and inability of it securing a joint venture, Nakumatt Supermarket in 2017 closed down most of its branches due to inability to pay their creditors 300 million dollars, Sameer Africa shut down their manufacturing operations and opted for. The closure of the firms has been

attributed to inadequate cash flows and inability to the firm to meet their obligations when they arise and conflicts with both customers (debtors) and suppliers (creditors).

Working capital management practises are highly correlated to the firm's financial performance (Dong & Su, 2010). It dictates the components and extent of investment in liquid assets, sources and composition of short-term debts (Nwankwo & Osho, 2012). Effective working capital management practices can empower the entity to respond adequately and appropriately to uncertainties within the economic niche and attain competitive advantages over its competitors (Alshubiri, 2011). This leaves this sector a grey zone that demands for more structured studies to fill the gap that exists. This study aimed at determining the effect of working capital management on the financial performance of manufacturing firms listed at Nairobi Securities Exchange (NSE) reviewing each major component of working capital i.e. cash management, inventory management, trade receivable management, and their effect on the financial performance of manufacturing firms listed at Nairobi Securities Exchange. This will provide more insight on the concept and help to fill the gap that exists in literature.

1.3 Research Objectives

1.3.1 General Objective

The general objective of the study is to investigate the effect of working capital management on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange in Kenya.

1.3.2 Specific Objectives

- I) To find out the effect of inventory management on the financial performance of manufacturing firms listed on the Nairobi Securities Exchange in Kenya.
- II) To investigate the effect of accounts receivables management on the financial performance of manufacturing firms listed on the Nairobi Securities Exchange in Kenya.
- III) To determine the effect of cash management on the financial performance of manufacturing firms listed on the Nairobi Securities in Kenya.

1.4 Research Hypothesis

H₀₁: Inventory management has no significant effect on the financial performance of manufacturing firms listed at Nairobi Securities Exchange in Kenya.

H₀₂: Account receivables management has no significant effect on the financial performance of manufacturing firms listed at Nairobi Securities Exchange in Kenya.

H₀₃: Cash management has no significant effect on the financial performance of manufacturing firms listed at Nairobi Securities Exchange in Kenya.

1.5 Justification of the study

The findings of this study will be of great benefit to a number of stakeholders including those involved in the day to day operations of the firm and other stakeholders. First, the scholars will find it important as it will be referred to for future studies as the literature will be enhanced and will be useful in the course of their study.

1.5.1 Current and potential investors

This investors need working capital information to be able buy, hold or sell their shares. On the other hand, potential investors need information to be able to determine if they should buy shares, since working capital is closely related to profitability, they are able to determine if the firm is able to survive in the near future, and has adequate liquid resources. There is no individual who is interested in investing in a business whose chances of success are minimal and there working capital information helps investors to know if they should buy or sell shares given the prevailing market conditions.

1.5.2 The general public

The general public needs the working capital information because it provides information about trends and recent developments in the prosperity of the entity and the range of its daily activities, for most of them expect to be employed by the firm. The public benefits from the companies on a large scale through corporate social responsibility and other benefits and provision of products and services. They therefore require the working capital information to know the ability of the firm to continue operations in the near future without possibility of closure of operations.

1.5.3 Customers and Debtors

All customers have an interest in the working capital information about the enterprise especially when they have developed involvement with the entity. They require the information to know the position of the firm and an assurance that their needs will be met in the long run, whereas debtors need the information to be sure they will not be overcharged or issued poor quality products in the process of cutting down their operations. Every entity should put the needs of the customer first for without them then the business does not even exist and its performance is questionable.

1.5.4 Suppliers and Creditors

For every firm to survive and be successful they need parties who supply raw materials to them and those who give short term financing, thus such parties need the working capital information be sure the amount owing to them will be paid when due. On various occasions, it is likely that the firm will not have enough funds and resources to pay for the products supplied to them and hence will get them on credit, therefore the supplies are interested in the working capital information in order to understand the credit worthiness of the firm before lending to them.

1.5.5 Management and employees

The management need the working capital information to review the firms short term solvency, profitability and effective utilization of resources while employees need the information to assess the firms' profitability and their ability to pay them their remuneration, retirement benefits, employment opportunities and other benefits that they entitled to. The management act on behalf of the shareholders who are the owners of the business, thus managers should ensure that firm resources are managed well.

1.6 Scope of the Study

The study investigated the effect of working capital management on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange in Kenya. Working capital constitute; inventories, accounts receivables, and cash while the financial performance was represented by return on asset (ROA). The study covers a period of 10 years (2008-2017) whereby secondary data was extracted from published financial statement of the firms over the period of study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents literature that relates to the relationship between working capital management and financial performance of listed manufacturing firms at the Nairobi Securities Exchange in Kenya. It covers the theoretical literature review on working capital and its effect on financial performance, the empirical literature review related to working capital and financial performance. Out of the empirical review, the literature gap will be outlined and summary that will lead to the development of the conceptual framework.

2.2 Theoretical Review

A number of theories that relates to working capital management and financial performance of firms that includes will guide the study: cash conversion cycle theory, Trade-off theory, resource based theory and the Operating cycle theory are the major theories cited in the study. These theories are discussed below as follows:

2.2.1 Cash Conversion Cycle Theory

Gitman (1974) developed this theory and it brings forward the link between the elements of working capital and the cash flow of the firm. The theory can be used to determine the quantity of cash required for any level of sales. It states that cash conversion cycle is determined by adding stock period to the accounts receivable period less accounts payable period. Its main focus is on the length of time from the procurement of inventories and other supplies to the time cash flow is realized from sale of processed goods and it gives the number of days that financing is required for the operational activities (Buchman & Udo, 2011).

This theory is a flexible evaluation of perpetual liquidity management as it amalgamates both the statement of financial position and income statement to provide an evaluation on a time basis (Mwangi, 2013). Even though the analysis of a single entity's Cash Conversion Cycle (CCC) is fundamental, industrial benchmarks are important for a firm to determine its CCC performance and evaluate opportunities for improvement since CCC varies from one industry to another (Hutchinson, 2007). The CCC criteria is employed as a comprehensive tool to evaluate working capital as it indicates the time lags on raw materials expenditure and the receipts from sale of processed goods (Trigeorgies, 2013). Perpetual monitoring of the firm's current assets and short term financial obligations acts as a catalyst in the attainment of the firm's long term objectives (Salim & Yadav, 2012).

The limitation to this theory is that it ignores the opportunity cost of the firm for the foregone investment by holding adequate working capital to mitigate liquidity risk. The importance of this theory is to help determine whether short cash conversion cycles are better than longer ones (Gentry, Vaidynathan and Lee 1990). It also helps to determine the liquidity of the firm and cashflows.

Mutuku (2011) studied firms listed on NSE to determine the relationship between cash conversion cycle and financial performance. He found out that there exists a negative relationship between cash conversion cycle and financial performance of firms listed at the Nairobi Securities Exchange and his findings suggested that firms with shorter cash conversion cycle are likely to perform better than those with long cash conversion cycles. Thus firms are encouraged to shorten their cash cycles as much as possible to improve on their financial performance.

Mohammed (2013) studied the effect of cash conversion cycle on the profitability of firms listed at NSE. He found that a strong negative relationship exists between the length of the firm's cash conversion cycle and its profitability. Firms with shorter cash conversion cycles are more likely to be profitable than firms with longer cash conversion cycles.

Panigrahi (2013) did a study on Cash Conversion Cycle and Firms' Profitability. A Study of Cement Manufacturing Companies listed on the Indian stock exchange, the Study uses the top five Indian cement companies for a period of ten years starting from the year two thousand and one to the year two thousand and ten. Results showed that the selected companies have low average return on asset and return on equity with significantly negative cash conversion cycle. After the Regression analysis and after the results were adjusted for heteroskedasticity of data to minimize the effects of outliers showed that cash conversion cycle has a significantly positive relationship with both return on assets and returns on equity. If the firm has the ability to sell all the inventory within the given period and collect the receivables on time before it pays all the obligations to the suppliers and other financial institutions.

Ikechukwu and Nwakaego (2016) did a study on Cash Conversion Cycle Management on the Financial Performance of Building Materials/Chemical and Paint Manufacturing Companies in Nigeria. Study data was extracted from the yearly reports of the Health care companies in Nigeria. Hypothesis was tested using the multiple ordinary least squares method as the major tool for analysis. The study found that the annual Inventory ratio and Accounts receivable ratio have a significant and positive effect on firms' financial performance whereas the accounts payable ratio and Cash conversion cycle have a positive but insignificant effect on firms' financial performance.

Garania and Petrova (2018) did a study on Liquidity, cash conversion cycle and financial performance: a case of Russian companies using seven hundred and twenty companies for a period of ten years and found that there exists an inverse relationship between the Russian companies and cash conversion cycle and Return on Net Operating Assets. Further the research revealed that companies should seek to obtain a zero cash conversion cycle that is the time it takes for a company to convert its investments in inventory and other resources to cash flows in order to increase their rate of return in the long run and the period that the firm is in operation.

This theory will be a core pillar to this study as it will enable the research to link the working capital management and the financial performance of the firms listed at NSE in relation to the time it takes for cash to be received so as to meet their obligations when they fall due.

2.2.2 Tradeoff Theory

The trade-off theory was brought forward by Robichek and Myers (1966) and it states that there is an optimum capital structure of the firm that will maximize the wealth of the shareholders and the value of the firm. The theory is based on the assumption that the managers of the firm will determine a firm's leverage ratios that will optimize the overall firm performance. (Okoth, 2015).

Managing working capital pertains a trade-off between all the risks and the total returns. Management face a hard task to more accurately determine the working capital requirements and thus the entity has to establish the most appropriate levels of the immediate production levels to be accomplished (Pandey, 2011). The cost pertaining to liquidity and illiquidity of the firm demands the establishment of a given level of liquid assets. Firms maintaining high level of liquid assets i.e. cash, inventory and receivables invest less in profitable projects and thus less return on the firm's assets. This creates a tradeoff cost on high working capital for liquidity risk and fewer investments for fewer returns (Pandey, 2011). The cost of illiquidity implies maintaining

inadequate financing obligations, leaving the firm managers with only option to borrow on short term at a high interest rates leading to cost trade-off.

Ali, Mahmood, Hui and Rizwan (2014) studied the relationship of trade off theory and capital structure of Pakistan Chemical firms and found out that there exists a negative relationship between profitability of the firm and the leverage ratio as the profits provides the ability of the firm to finance internally.

Welch (2004) studied the importance of the tradeoff theory and stated that for a firm to avoid liquidity problems it has to maintain a good balance between risks and return so that the returns should out do the risks for the continuity of the business to be upheld in the long run. This theory is found to be of paramount benefit to the study as it creates a link between the benefits and costs related to working capital management and its effects on firm's financial performance. It enables striking an optimum level of working capital for firm sustainability and wealth creation for the shareholders.

Habimana (2014) did a study on Capital Structure and Financial Performance: Evidence from Firms Operating in Emerging Markets and found that the capital structure that is equity and debt is key for firm's overall financial performance, the researcher also found that gearing has a negative and significant relationship to the financial performance of the firm, and has a positive relationship to undiversifiable risk that is the risk that affects the whole market and can not be predicted or completely avoided.

Siro(2013) did a study on effect of capital structure on financial performance of firms listed at the Nairobi securities exchange and found that there is no significant relationship between capital structure and financial performance of firms listed at the Nairobi securities exchange in Kenya, the

findings indicate that if the debt ratio is high then the less the returns on equity, because if firm has high debts than equity then the possibility of success of the firm is low because the funding of debt is higher due to the element of interest and then therefore capital injection should be increased rather than borrowing, as the benefits of debt financing are less than its costs of funding.

The limitation of this theory is that it does not clearly inform the managers what level of risk should it accept so that it does not face serious cash flow problems, what level of optimum working capital is also suitable to the firm and when should it invest at any given time in any viable investments that are available for the firm.

The importance of this theory to the study is to ensure that the firm has enough assets and capital rather than obligation so that the firm will be able to meet their obligations when they fall due and be able to operate efficiently in the long run without threats of closure or bankruptcy and maintain an optimal liquidity position.

2.2.3 The Operating Cycle Theory

The operating cycle theory was brought forward by Richard and Langulin (1980) and it states that working capital efficiency is the key determinants of the firm's sustainability and efficiency. The theory holds that trade receivables and inventories management are the key elements of working capital management. Managers should develop an optimum level of receivables and inventories for better operations of the firm functions. The theory is a remedy to the reliance of the current or acid-test ratios as solvency indicators which is taken to be defective (Dong & Su, 2010).

According to the operating cycle theory account receivables and inventory are measures of liquidity management. Its major item of representation is the average collection period for the entity's average receivable investment that is converted to cash (Mutugi, 2010). The most

fundamental aspect to consider is the changes in collection and credit policy which affects the balance of accounts receivables outstanding (Anandasayanan, 2014).

According to the theory, when an entity provides more flexible credit terms to its customers, that is the terms that are not too rigid and can be changed at times without affecting the operations of the firm but as well favor the debtors of the firm who are a great asset to the company then there will be a greater probability of attaining a bigger, but ultimately less liquid investment cycle i.e. the inventory turnover, which indicates the number of times that the firm converts the amount of their raw material inventory, work-in-progress and more importantly the finished goods into revenues (Alshubiri, 2011). The limitations of the theory is that it ignores the opportunity cost of the forgone investment projects with higher returns for the firm to attain its targeted optimum levels of inventory and account receivables.

Alphonse (2009) did a study on working capital management and corporate profitability evidence from panel data analysis of selected quoted companies in Nigeria and used the operating cycle theory in the study and found that to enhance and maximize the profits of a firm it is key for the firm to ensure that all the working capital components are properly managed by all the stakeholders involved so as to ensure the success of the business in both the long run or the short run.

Kipkemboi, Kiru and Koima (2018) did a study on the effect of inventory and cash conversion cycles on the financial performance of listed commercial and service segment firms at Nairobi Securities Exchange in Kenya using a population of twelve firms using secondary data from audited financial statements for a period of ten years and adopted the operating cycle theory and found that for optimal and successful operation of the firm then all working capital items should be properly managed.

Mugo (2014) studied the relationship between working capital management and financial performance of energy and petroleum companies listed at the Nairobi securities exchange and adopted the operating cycle theory and agreed that it is key for any firm to maintain an optimum working capital level.

Khan, Ayaz, Waseem, Osama, Abbasi and Ijaz (2016) studied the impact of Cash Conversion Cycle on Working Capital through Profitability of Cement Industry of Pakistan adopted the operating cycle theory in the study who found there exists a negative relationship between cash conversion cycle and working capital.

The theory will be a pillar to this study since it will enable the researcher in evaluating the optimum working capital levels and their effect on the financial performance of the manufacturing firms, given that inventory is one of the fundamental elements in the manufacturing industry.

2.2.4 Resource based Theory

The resources of a firm include items such as capital equipment, patents, brand names, the skill associated with individual employees, finance and so on. Independently, fewer resources are productive. Any productive activity must require the coordination and cooperation of teams of resources, while a capability is viewed as the ability or capacity of a team of resources to perform certain activity or task. Therefore, by implication resources are the sources of a given firm's capability to achieve the goals that are set by the entity. (Grant, 2001).

Managers are expected to manage both short term and long term resources to their best knowledge and ensure that the resources are not mismanaged, misused or even stolen. The managers are also expected to cooperate with both internal and external parties so as to ensure that all the goals of the firm are met and realized within the specified and agreed upon time. Resources is a key asset

to the firm and without them the firm cannot continue their operations and meet their costs in the foreseeable future.

Resource-based theory is used in this context to explain the ability of individual managers of businesses to ensure effective management of the short-term asset of the business (inventory, cash, payables, accruals, prepayments & receivables) (Alvarez & Busenitz, 2011). This therefore suggests that managers have individual and specific resources that facilitates and ensures the recognition of available and new opportunities, proper gathering together of resources, as well as faster processes of making payments to creditors and other suppliers and recovering of debts from customers who bought on credit when the amount to be paid or received is due so as to ensure effective and efficient management of working capital and thus ensure that the firm`s profitability is increased to an optimal level.

Aminu & Zainudin (2015) did a study titled A review of anatomy of working capital management theories and relevant linkage to working capital components: A theoretical building approach and found that the theory is relevant in explaining working capital components and cannot be ignored and overlooked.

Caidera and Ward (2011) did a paper titled Using a resource-based theory to interpret the successful adoption and use of information systems & technology in manufacturing small and medium sized enterprises and found that over ally they concluded that the key differentiators for long term successful Information System and Information Technology deployment originate from the internal context of an organization, based on organizational competences.

Angelo (2018) did a study on A Resource-Based Perspective to Assess Firms' Profitability in the Food Industry: Evidence from the Italian Cheese Industry and found that physical and financial

resources have a major effect on the firms' return on assets, whereas intangible assets, capabilities and human resources have a lower and ambiguous effect on return assets of a firm.

Kahveci (2019) did a study on Firm performance and resource-based theory: an application with Data Envelopment Analysis the main objective of the paper was to find out the effect of a firm's resources for example the staff, assets, materials e.t.c. and capabilities that is (the effective use of the resources to make more returns or add more value to the firm) on financial performance. Using 19 textile companies traded in Istanbul Stock Exchange (ISE) and found out that none of the firms have been efficient. So, one of the main finding of the paper was none of the firms have competitive advantage in terms of Resource Based Value based on the assumptions. Moreover, results have also showed that most of the firms have scale inefficiency.

Feng, Pan, Huang and Chen (2017) did a study on the Effect of Firms Resources and Capabilities on its Performance of IC Design Industry in Taiwan and found that Research and Development resources and capabilities have no effect on the firms' performance. Marketing resources and capabilities, operation resources and capabilities, human resources and management all have positive effects on firms' performance. Physical capital resource and management have no effects on firms' performance.

Omar Masood, Bora Aktan, Seref Turen, Kiran Javaria and Mohamed Sayed Abou ElSeoud (2017) did a study on Which resources matter the most to firm performance? An experimental study on Malaysian listed firms. Problems and Perspectives in Management and found that all tangible resources have no impact on the firms' performance while intangible resources have positive and significant impact on firm performance the results also show that proper and adequate allocation of intangible resources is very key and important to aid achieving of good performance.

This theory is important and relevant to the study because it details the role of managers and what they are expected to do in order to maximize the returns with regards to management of cash, inventory, payables and receivables for they are a major part for the running of activities of the organization. According to Omar (2017) every firm requires resources to ensure that all their objectives are achieved and that it does not fall short of any working capital requirements. Cash is essential so that the firm is able to meet all or part of their obligations when they fall due and also to pay all their expenses both internal and external. Inventory either raw materials, work in progress and finished goods are also essential so that goods are readily available when demand arises so that the firm does not create a bad image before their customers and loose key essential customers. Payables are essential because at times the firm does not have enough funds to acquire inventory and therefore they have to buy on credit and that will only be essential with the availability of suppliers who are ready to sell to the firm on credit and be paid at a later date. Debtors on the other hand are also essential because they are the customers of the business and without them then the existence of the firm in the near future becomes questionable (Kim 2017).

2.3 Empirical review

This is a review from published work and it addresses the objectives of the study. Empirical research is based on all observed and measured facts and derives knowledge from actual experience that has been tested and proven in the past rather than deriving from a theory or assumption that has not been tested by any scholar or research work (Long 2014).

2.3.1 Inventory management and financial performance

Hong Mo Yeh (2016) defines inventory management as a branch of business management that covers the planning and control of the inventory which involves determining what materials are needed and when they are needed in order to meet customers' demands.

Inventory management is key because a considerable amount of money is committed to them; the inventory constitutes a significant part of current assets. Padachi (2007) studied inventory management in plastic manufacturing companies in Pakistan and found out that management of inventories efficiently help to avoid unnecessary cost of sales and back order penalties during periods of peak demand from customers of finished goods because the customer's order is prepared on time given the availability of stock and well managed stock thus maintaining good relationships with the customers who are the main stakeholders for the success of any firm.

This agrees with Singh (2015) that the main objective of inventory management is to strike a balance between the conflicting economies and reduce holding too much stock in oil companies. Too much or too less inventory can lead to business failure, if a manufacturer experiences stock run outs of critical inventory items, production is interrupted and the manufacturer could lose customers as well if they fail to receive their goods demanded on time in both the long run and short run, the loss of customers lead to collapse of the business given there will be no one to buy

the finished goods thus inventory management contributes to the performance of any given firm and ensuring its chances of survival.

Gitman (2005) noted that for any manufacturing industry inventory is classified into three broad categories; Raw materials: these are items ordered from the supplier and have not yet undergone the production process, they cannot be consumed directly. Work in progress: the process that the raw materials undergo so as to produce the desired finished products and Finished goods: this is inventory that is ready for sale to the customers and ready for consumption, it can be taken to the warehouse for storage waiting to be supplied, it can be supplied to wholesalers and retailers who sell directly to consumers or it can as well be sold directly to consumers by the manufacturer. He stated in his research that raw materials, work in progress and finished good should be managed well and separately so as to enhance the performance of the firm and increase the chances of survival of the firm in the future.

Olufisayo (2011) conducted a study on manufacturing firms in Nigeria. He found out that the task of managing inventory could be difficult if managers want to reduce the costs and cash conversion cycle which is the period length of time which elapses between a business paying for its raw materials to suppliers and collecting their payments from the customers who they supplied finished goods to, but this strategy is risky because it increases the chances of running out of stock thus failure of the business but if well managed and day to day supervision conducted the task becomes easier and the firms survival chances increase.

Mohammed (2011) carried out a study on the inventory management models used by manufacturing industries in Ethiopia, the study used 11 manufacturing private limited companies in Addis Ababa. He found out that firms mostly adopt Economic Order Quantity model due to a

combination of its simplicity and wide applicability, the model is used to decide on the optimum order size for inventories which will minimize the costs for ordering inventory plus holding costs, holding buffer inventories model is also used to eliminate risks of stock run outs so that the firm can be able to run efficiently and meet the customers demand when it arises. This helps to keep the customers in the long run for they will be satisfied if their needs are met readily and on time he stated that the models are appropriate and readily available and ensure that inventory is not misused.

Anand and Gupta (2012) Bombay study found out that the most used inventory management model is Just In Time (JIT) model in manufacturing industries where they seek to reduce the inventories of raw materials, work in progress and finished goods to the lowest possible level. JIT is a policy of obtaining raw materials from suppliers at the latest possible time when needed and not at the earliest where the firm will as well store the raw materials for another period of time before they are processed into finished goods, in their finding they found out that the firms use this model most of the time to reduce the costs of holding stock and also holding too much which has turned to be useful to the firm.

Kumari (2009) Sri Lankan manufacturing companies study found that inventory management leads to less or no risk of obsolete stock and reduces costs of holding stock incurred, inventory is termed obsolete if it is outdated and does not meet the customers demand, inventory management ensures that stock is not kept for too long till it loses its value and it is no longer useful for the purpose it was intended and thus with continuous checks of the stock in the premises as well as the warehouse it will be released to the customers on time hence reduces the costs of holding the inventory and reduce the burden of extra avoidable costs that a firm may incur. This agrees with Khan (2012) steel manufacturing industry in India study found that with inventory management

stock will not be kept for a very long time till it loses its value given it will be checked on a daily basis to ensure its fit for use. Inventory that is perishable is released faster to reduce the chances of it going bad and the firm's sales and returns increase hence giving the firm good chances of survival.

Kamau (2014) polythene manufacturing industries in Kenya study found that inventory management enhances improved labor productivity of the workers. Labor productivity is defined as rate of output per worker or group of workers per unit of time as compared with an established standard or expected output rate and the amount of labor hours expected to be used. Inventory management helps reduce the chances of overtime working where the laborers will be forced to work too much and for an extra time frame so as to meet the expected rate of finished goods requirement, therefore when inventory is managed properly they will work in the expected time frame and ensure quality results and not be overworked when the demand falls due. The customers will therefore get quality finished goods because they were prepared on time and not hurriedly, however this view is inconsistent with Orgardie (2016) study on oil manufacturing industries found that overtime working helps to produce more output for storage and released when demand falls due.

Mwangi (2016) study on the effect of inventory management on firm profitability and operating cash flows of Kenya Breweries Limited beer distribution firms in Nairobi County. She found there exists a significant relationship between inventory management and operating cash flows of Kenya Breweries Limited.

Kipkemboi, Kiru and Koima (2018) did a study on the effect of inventory and cash conversion cycles on the financial performance of listed commercial of and service segment firms at Nairobi

Securities Exchange in Kenya using a population of twelve firms using secondary data from audited financial statements for a period of ten years and adopted the operating cycle theory and found that firms are expected to manage all the working capital items well that is firms are expected to improve on credit management so to avoid high investment in accounts receivables where the possibility of payment of the debts could be low and increase default in the payment of debts. The policies that have been formed and adopted for collection of debts should be followed closely in order to make the cash conversion cycle shorter for efficient and effective working capital while keeping in view the ever increasing rate of competition both from the local market as well as the international market. Firms should also ensure proper inventory management in order to minimize and avoid over stocking of materials which is likely to negatively affect financial performance especially if the goods are highly perishable they are likely to go bad before they are sold or if demand reduces the firm will be forced to sell off at low prices which could result to high losses. While coming up with inventory related policies firms should ensure that that the inventory is closely monitored to avoid the possibility of loss of inventory.

Ondimu, Rotich and Kipkirui (2018) did a study on effect of inventory management on financial performance of manufacturing firms listed at the nairobi securities exchange in Kenya, the study was conducted on all the manufacturing firms at the Nairobi Securities Exchange for a period of five years from twenty twelve to twenty sixteen and found out that there exists a strong positive correlation between the major independent variables under study that is the period of conversion for inventory, the cost of holding inventory in both the warehouse and stores, the actual Inventory per year and the maximum inventory orders per year.

Mbula, Memba and Njeru (2016) did a study on the Effect of Inventory Management on Financial Performance of Firms Funded by Government Venture Capital in Kenya using a population of all

the companies funded by the government venture capital which were established to be twenty four using primary data that was collected from the questionnaires that was developed and circulated to respondents found that there is a positive significant relationship between inventory management and financial performance of firms funded by government venture capital in Kenya.

Adamu (2016) did a study on the Effect of Inventory Management on Financial Performance: Evidence from Nigerian Conglomerate Companies using a population of the all conglomerate quoted companies in the Nigerian Stock Exchange market for a period of five years from twenty ten to twenty fourteen and found that inventory management is significantly related to the profitability of the company and it also found that an efficient and effective management of the inventory cycle always increases the profitability of an entity, and lack of proper management of inventory will also hinder the financial performance of firms.

The various research carried out show that there exists a positive relationship between inventory management and financial performance and therefore all the managers are expected to properly manage the inventory and avoid overstocking, have proper controls in place so as to minimize wastages and loss of inventory for inventory influences the performance of firms to a great extent and it is a key tool to maximize on the returns of the firm.

2.3.2 Cash management and financial Performance

Cash refers to all money items that are readily available to settle or pay off debts when they fall due. It can be cash at hand or cash at bank. Managing cash is difficult for it is the most liquid item in the firm and it is easily used thus cash management involves managing the money of the firm so as to maximize cash availability; cash can easily be disbursed by the firm without any restriction

(Pandey 2009). Cash management is concerned with management of cash in and out of the firm, the term cash includes coins, currency and cheque held by the firm both at hand and in the bank.

Lantz (2008) study observed that firms hold cash due to the various uncertainties of the future. It can be Transaction motive: This motive include payment to suppliers, payment of wages and salaries the firm should be ready for this and not depend on customers only to pay their debts for debts may fail to be paid yet such expenses are supposed to be met after a certain agreeable period, Precautionary motive: unexpected events like machine breakdown slows production thus slow supply of finished goods hence negatively impact the firm because it might lose important customers who do not receive their goods on time and Speculative motive: the market is unpredictable and thus any changes are bound to happen at any time without any notice thus the firm should speculate the worst situations and ready for anything that could happen in the future.

Usama (2012) study on cigarette manufacturing industries in Ghana noted that the most commonly used cash management model used is the Baumol model which is based on the idea that deciding on optimum cash balances is like deciding on optimum inventory levels. It assumes the firm holds inventory and can sell it and acquire cash when needed, thus the more the inventory the more the cash, this model suggests that when interest rates are high the cash balances held in high interest bearing current accounts should be low, however its weakness is the unrealistic nature of the assumptions it is based on Miller Orr model is used for setting the target cash balance for the company. This model provides a formula for determining the optimum cash balances the point at which to sell securities, to raise cash and when to invest cash by buying securities and lowering cash holdings. It depends on transaction costs of buying and selling securities, variability of daily cash (incorporates uncertainty) and return on short term investments. This agrees with Nasar and

Rehman (2011) study on manufacturing industries in Mumbai which found out that firms use both Baumol and Miller Orr model.

White (2010) study on wheat manufacturing industries in U.S.A concluded that cash management enables the firm to be able to operate within the set budgets at the beginning of the financial period to the end and not resort to local and international borrowing so as to operate fully and also eliminate the risk of being declared bankrupt. Every business sets a budget when operation commences and it aims to operate within the budget, given that cash is the most liquid asset, failure to manage cash leads to spending too much beyond the allocated amount thus the firm can lose too much on items and issues that are less expensive causing it fail due to inadequate cash to finance the business and also to pay the debts to the suppliers of raw materials when demand falls due.

Mathur (2002) fertilizer manufacturing industries in Pakistan study found that cash management reduces the misuse, shortage and theft of cash given that it will be supervised daily and any revenues and expenditures updated and shown without leaving room for alteration of the cash figures. Cash is prone to misuse, shortage and can be stolen without difficulty by the people in charge. Day to day supervision of cash help to minimize all risks associated with the cash of the firm. Arango (2014) studied cement manufacturing companies in Kenya agreed with Mathur's findings.

Ndirangu (2017) study on effects of cash management on the financial performance of the companies listed at the Nairobi Securities exchange using a population of fifteen companies that are listed for a period of seven years from two thousand and ten to two thousand and sixteen and found that She found that cash conversion cycle has a positive but insignificant effect on financial

performance, size of the firm had a negative and insignificant effect on financial performance and leverage had a positive and significant effect on the financial performance of firms listed at NSE.

Jajale (2017) did a study on effect of cash management on the financial performance of commercial banks in mogadishu, somalia using a target population of 48 firms and data was collected using questionnaires and found that cash management drivers have a significant positive relationship on the financial performance of commercial banks in Somalia.

Smirat (2016) did a study on Cash Management Practices and Financial Performance of Small and Medium Enterprises (SMEs) in Jordan using a sample of companies from various industries and data was collected using structured questionnaires and found that cash management practices have a positive influence on the financial performance of small and medium enterprises.

Mutesi and Mulyungi (2018) did a study on the effect of cash management on the financial performance of corporative banks in Rwanda using a case of Zigama Credit and Savings Bank using a sample of one hundred and eight employees using data collected from both the primary and secondary sources and found that there exists a significant relationship between cash management and financial performance and cash management is very key for the success of banks for it is the major asset of banks because most of their transactions involve either cash borrowing or lending.

Janaki Thevaruban (2016) conducted a study the effect of cash management on the financial performance of the sri lankan manufacturing companies using a sample of twenty manufacturing companies using secondary data extracted from annual financial reports of the manufacturing companies and found that there is a negative and insignificant relationship between cash management and financial performance.

Mohammed (2016) carried out a study on the impact of cash management on the financial performance of secondary schools that are private in Mogadishu using a selected number of schools and data collected using closed ended questionnaires and found that cash management has a high and positive effect on the financial performance of the private schools in Mogadishu, Somalia and thus the schools management are advised to properly plan before any cash is spent and equally account for any spending that is done, accountability should also be advised when it comes to the usage of any cash to avoid any conflicts between the stakeholders.

Hamza Mutala and Antwi (2015) carried out a study on the relationship between cash management practices and financial performance of small and medium enterprises (smes) in the northern region of Ghana, data was collected using questionnaires that had already prepared questions that were structured from a population of one thousand owners and managers of the businesses and the findings showed that cash management practices influence the financial performance of the entities and therefore for the businesses to thrive and be able to survive the economic conditions and other factors in the market then the managers and owners are to adopt good cash management practices and policies.

The studies show the relationship between cash management and financial management is positive in nature and that cash management is very key for any firm especially those in the banking sector though some studies show that there exists no relationship between cash management and financial performance of firms.

2.3.3 Accounts receivables management and financial Performance

Account receivables are debtors classified as good, bad and doubtful according to their ability to pay the debts to the firm. Due to existence of bad and doubtful debts there is need to closely monitor them using customer history analysis and a credit rating system. Debtors' management involves a process of continuous review so that the debtors pay their debt on time and minimize failure of non-payment (Kaur 2017).

Chan (2012) study on manufacturing industries in China found that accounts receivables models used are extending trade credit where the firm is always concerned about the ability of their debtors to pay, if the customer is unable to pay their debts when their period elapse the firm should revise the terms and extend the credit terms and not pressure the debtors so as to maintain good relationships and keep the customers in the near future. Establishment and implementation of credit policies where every credit issuance should be governed by policies so as to avoid chances of violating the terms by either of the parties, this involves developing, assessing credit worthiness, control credit limits, invoicing promptly and establishing procedures for collection of overdue debt and factoring debts which is an arrangement to have debts collected by a factor company which advances the proportion of money it is due to collect however Oloo (2014) study on fruit juice processing industries disagrees with Chan on the extension of trade credit model. He argues that this model encourages increase in bad debts where debtors pretend not to be able to pay so as to escape paying of the debts.

Rowland (2009) study on manufacturing industries in Chicago found that debtors' management enables a firm to pay its suppliers on time after it receives payment after supply of finished goods from debtors. Debtors management helps to minimize the number of bad debts and thus collects its payments from the customers on time. By so doing the firm will be able to pay their suppliers

of raw materials on time after they collect payments for the finished goods on time from debtors, thus by so doing the firm creates and maintains a lasting relationship with their suppliers and the customers.

Sinha (2007) study on pepper manufacturing companies in India found out debtors management saves the time spend by managers on solving the problem of slow paying account receivable, the managers will spend less time on making a follow up on slow paying debtors for all the parties will play their parts well, debtors management enables managers to spend more time on enhancing productivity of the firm rather than following the debtors who decline to pay their debts or ignore credit terms agreed upon, Kapoor (2010) studied manufacturing industries in Nepal agreed with Sinha that debtors management help the managers to spent most of their time on coming up with new ideas and strategies to develop the firm as a whole and not spend time on following debtors who owe the firm a large amount of the firm needed for either financing or purchase of raw materials.

Olsson and Sorensen (2009) studied manufacturing industries in Accra Ghana found out that debtors management results to optimum inventory level maintained because the business will have enough cash to pay for the inventory, through management of debtors the firm will receive enough resources from their debtors after supply of finished goods to them, thus with enough cash the firm will purchase more raw materials increasing their inventory hence increasing their chances of survival in the future and meeting all obligations when they fall due thus eliminating all the risks of insolvency. Robert & Anthony (2009) studied Vodka manufacturing firms in U.S.A agreed too with Olsson and Sorensen that debtors' management help to be able to maintain optimum inventory levels given the debtors pay their debts on time to enable the firm to acquire more inventory from suppliers.

Mian (2006) found out debtors management leads to growth of the business and can be financed through sales rather than injecting fresh external capital, every business when it commences it has an objective of growing and maximizing its returns, the management of debtors increases the rates of growth and the firm will continue being financed by the resources from the customer, by so doing minimum external capital will be injected in the business thus reduce the chances of increasing partners who inject in more capital..

Mugo (2016) study on the effect of trade receivables management on the profitability of manufacturing firms listed at the NSE. He found that accounts receivables collection period has a negative and significant effect on profitability, bad debts to receivables ratio has a negative and insignificant effect on profitability and account receivables turnover has a positive and significant effect on profitability of manufacturing firms listed at NSE.

Kennedy (2014) conducted a study on the relationship between accounts receivable management and financial performance of all manufacturing firms in Nakuru County using all the twentyfive manufacturing firms situated in Nakuru for a period of five years from two thousand and eight to two thousand and twelve and found that there exists a significant relationship between receivables management and financial performance and they should be closely monitored.

Munene and Tibbs (2018) carried out study on accounts receivable management and financial performance of Embu water and sanitation company limited located in Embu county in Kenya using secondary data collected from the published financial statements and found that there exists a negative insignificant relationship between receivables management and financial performance.

Lyani (2017) investigated the relationship between accounts receivable management practices and growth of small and medium enterprises in Kakamega county, Kenya, using a target population of

5401 registered small and medium enterprises and data was collected using primary models and found that there is a significant relationship between receivable management and growth of small and medium enterprises and that for SMEs to keep growing at a faster rate then receivable management policies and practices should be formulates and adopted by all SMEs owners and managers.

The various research carried out show that there exists a positive relationship between account receivable management and financial performance and that for profitability and success of firms then all debts should be managed properly through either increasing the period that debtors are allowed to take before they pay their debts, having in place methods of recovering their debts in a case of default by the debtor or bankruptcy of the major debtor and even not giving very tough conditions to the customers which are likely to scare them away from purchase of commodities from the firm.

2.4 Conceptual Framework

Adom, Kamil & Agyem (2018) defined a conceptual framework as a path of research whose main aim is to make research output more meaningful, acceptable and more generalizable. It helps in enhancing research while ensuring extension of knowledge by providing direction to research inquiry. Imenda (2014) stated that a conceptual framework gives life to research and that it is very key for any research work.

Hubberman (1994) defined a conceptual framework as a drawn diagram or written product that explains either graphically or in a descriptive form the key variables to be studied and the relationship between the dependent and independent variables.

Mae (2017) described the conceptual framework as the abstract, logical structure of meaning that guide the development of the study. It helps in the identification of key concepts of study and their relationship.

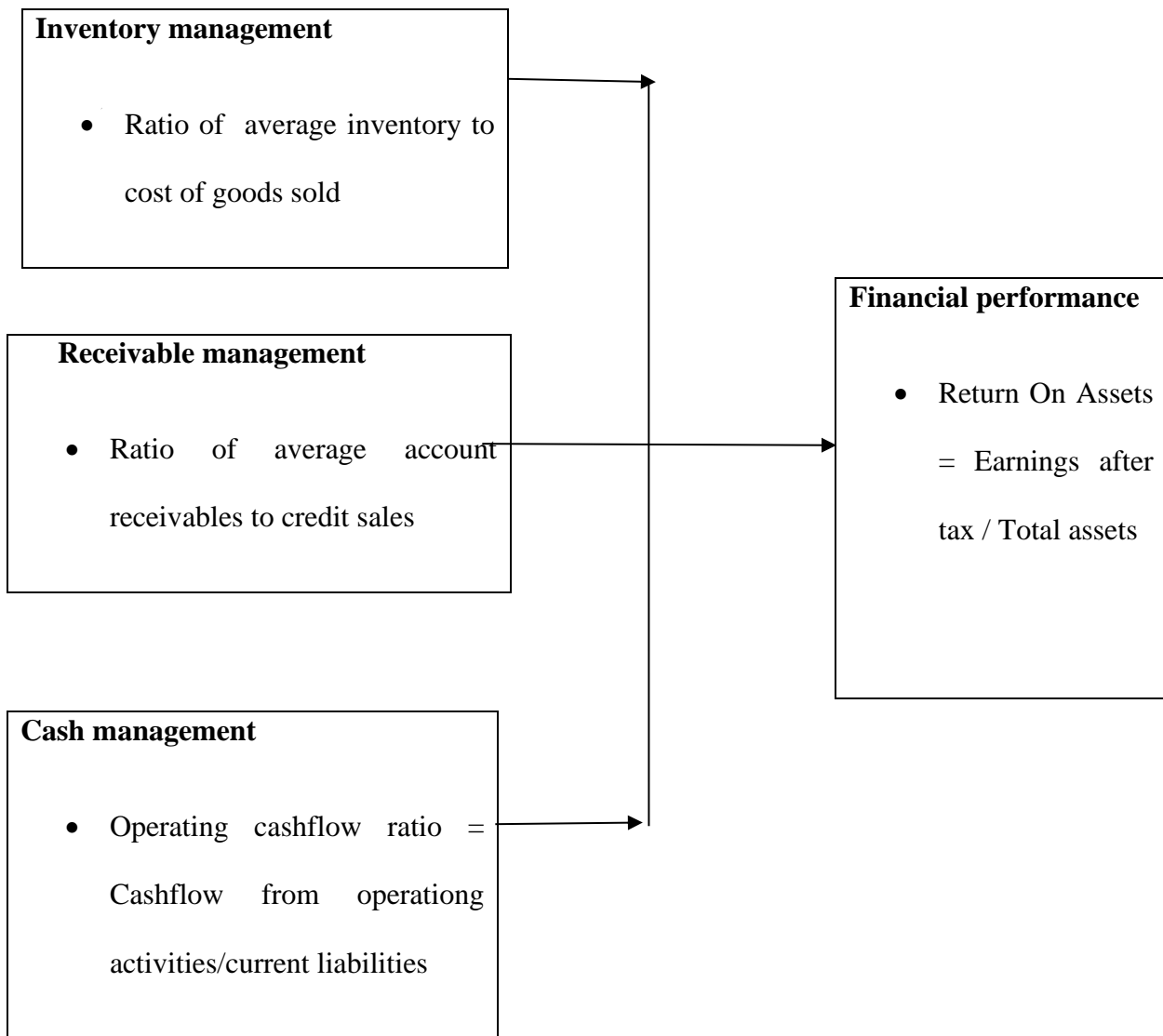


Figure 2.1: Conceptual Framework

2.5 Operationalization of Variables

This section outlines how the dependent variable and independent variables will be operationalized for the study. The Operationalization of variables will be attained through expression of data obtained from published financial statements of the listed manufacturing firms at the Nairobi Securities Exchange in ratios in respect to the study objectives. Inventory will be represented by dividing cost of goods sold / average inventory. $INV = \text{cost of goods sold} / \text{average inventory}$. Receivables will be presented Receivables will be measured by dividing annual credit sales / average account receivables, $R = \text{annual credit sales} / \text{average account receivables}$. Cash will be presented by dividing operating cash flow by current liabilities. Financial performance will be represented by dividing earnings after tax by the total assets of the firm. The table below summarizes the Operationalization of the variables for the study and the formulas to be used to operationalize them.

Table 2.1: Operationalization of variable

Variable	Measurement
Inventory	Inventory will be measured by dividing cost of goods sold / average inventory $INV = \text{cost of goods sold} / \text{average inventory}$
Receivables	Receivables will be measured by dividing annual credit sales / average account receivables $R = \text{annual credit sales} / \text{average account receivables}$
Cash	Cash will be measured by dividing operating cash flow by current liabilities $C = \text{operating cash flow} / \text{current liabilities}$
Financial performance	The financial performance will be measured by the Return on asset (ROA) which is derived by dividing Earnings after tax and total assets (TA) $ROA = EAT / TA$

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter brings forward the methodology that was employed in carrying out the study. It thus elaborates the research design, the target population, data sources, data collection procedures, data analysis and data diagnostic tests to establish if the data in fit and giving viable results.

3.2 Research Design

The study employed a descriptive research design where quantitative data was gathered and thereafter analyzed by use of descriptive statistics to enable determine the relationship between the dependent and independent variables. This is a research design whereby a systematic and empirical inquiry is done with no control on the explaining variables (Mugenda & Mugenda, 2003). The design was the most appropriate for the study as the study sought to describe the effect of working capital management on the financial performance of the listed manufacturing firms in Kenya.

3.3 Target population

Population is defined as a well-structured set of items, services, events, group of things or people that are under any suitable study (Ngenchu, 2004). It can also be described as whole group of people, events or objects with similar traits that adheres to an acceptable specification (Mugenda & Mugenda, 2003). The study used a census of all the manufacturing firms listed at the NSE for the period of study of 10 years (2008-2017) except for Flame Tree Group Holding which was listed in 2015 and therefore data was not available for six years forcing the researcher to drop the firm, also Eveready company limited was dropped because it is no longer listed at the Nairobi Securities Exchange from two thousand and fifteen leaving the researcher with only seven listed firms to

study. The study was restricted to listed manufacturing firms at the Nairobi Securities Exchange due to easy of data collection for data is easily accessible. Currently there are 8 Manufacturing firms listed at the NSE that includes: B.O.C Kenya Ltd, British American Tobacco Ltd, Carbacid Investment Ltd, East Africa Breweries Ltd, Mumias Sugar Ltd, Unga Group Ltd, Kenya Orchards Ltd and Flame Tree Group Holding.

3.4 Data Sources

Sources of data is defined as a device employed in data collection, such as questionnaires, tests, structured and unstructured interview programs and checklists (Seaman, 1991). The study used secondary data that was extracted from the published financial statements and reports of the listed manufacturing firms in Kenya. The secondary data was from the financial statements for a period of 10 years from two thousand and eight to two thousand and seventeen because when the research work began most firms had not reported their annual returns for the year two thousand and eighteen for manufacturing firms which was expressed using ratios to enhance analysis making study deductions.

3.5 Data Collection Procedures

The study used secondary panel data that was obtained from published financial statements of the listed manufacturing firms under study. The data was collected by use of secondary data collection extract form. The collected data was processed into ratios and presented in tables to enable analysis and interpretation of the results.

3.6 Data processing and Analysis

This section discusses the statistical techniques that was employed to analyze data collected and how it was presented for easy understanding and interpretation. The study then used panel data

since the listed manufacturing firms at NSE were studied over a period of time of ten years. Panel data constitute both cross-sectional and time series data that pools both the features of cross-section and time series data for better deductions (Greene, 2008). Data was analyzed by using panel data regression analysis with the help of STATA. Panel data regression model is specified as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \epsilon_{it} \dots \dots \dots (i)$$

Where: Y_{it} = Return on Assets = (EBIT/TA)

X_{1it} = Inventory Management = (Average Inventory/Cost of goods sold)

X_{2it} = Account receivables management = (average account receivables/credit sales)

X_{3it} = cash management = (operating cash flow/current liabilities)

3.7 Diagnostic Tests

A number of diagnostic test were conducted to enable fitting the appropriate model to explain the relationship between the dependent variable and independent variables, if the relationship was either significant or not significant. The tests carried out included hausman test, Heteroscedasticity tests, multi collinearity, serial correlation and normality.

3.7.1 Hausman Test

The Hausman test was carried out to test the panel data if the fixed effect model (FEM) or a random effect model (REM) was to be fitted (Hair, 2010). The hypothesis to be tested was: the preferred model is fixed effect model vs. the alternative random effect model where the null hypothesis is that there is a random effect, If the p value is less than 0.05 then we reject the null hypothesis which means that a fixed effect model is fitted, however if the p value is greater than 0.05 then we fail to reject the null hypothesis and use a random effect model.

The fixed effect models (FEM) is as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \mu_i + \epsilon_{it} \dots \dots \dots (ii)$$

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \epsilon_{it} \dots \dots \dots (iii)$$

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \lambda_t + \mu_i + \epsilon_{it} \dots \dots \dots (iv)$$

The Random effect model (REM) is as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \epsilon_i + \epsilon_{itm} \dots \dots \dots (v)$$

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \epsilon_{it} \dots \dots \dots (vi)$$

Where; ϵ_{it} = error term, μ_i = fixed effect

λ_t = between entity error term

ϵ_{it} = within entity error term.

Y_{it} = ROA, X_1 = Inventory, X_2 = receivables and X_3 = Cash

β_0 = Constant value, $\beta_1, \beta_2, \beta_3$ = the slope coefficients or (change in Y by which explanatory variable undergoes a unit change).

3.7.2 Multi collinearity test

Multi collinearity arises when there is a correlation among the independent variables (Hair, 2010).

The Variance Inflation Factor (VIF) was the most appropriate criteria to test for multi collinearity whereby if the VIF is greater than 5 for any explanatory variable, it indicated a high correlation

with the other independent variable that might lead to exclusion of the variable from the model to be fitted and if the VIF is less than 5 then we concluded that there was no correlation between the independent variables and therefore no variable was to be dropped from the study.

3.7.3 Autocorrelation Test

Autocorrelation was carried out as one of the diagnostic test to check on serial correlation. Autocorrelation affects continuous time finance that is under the assumptions of random walk hypothesis (Campel, 1997). Wooldridge test for autocorrelation in panel data was used where the null hypothesis is that there is no serial correlation. If the p value is greater than 0.05 then there exists serial correlation and therefore we reject the null hypothesis whereas if the p value is less than 0.05 then we conclude that there is no serial correlation and therefore we fail to reject the null hypothesis. The hypothesis being no serial correlation and if it existed it has to be corrected using robust standard errors.

3.7.4 Normality Test

Normality of residuals test was ensured by use of Q-Q plots. The normality test for the variables was also conducted by help of skewness and kurtosis. The null hypothesis is that the data is normally distributed. If the p value is less than 0.05 then there exists normal distribution of panel data but if the p value is greater than 0.05 then the data is not normally distributed for both kurtosis and skewness.

3.7.5 Heteroscedasticity

Heteroscedasticity is when the standard errors are non-constant. A large p-value for the modified Wald test statistic for group wise heteroscedasticity, means that there is no heteroscedasticity which is a good thing whereas a small p-value means that there is heteroscedasticity. If

heteroscedasticity was found it was corrected using robust standard errors. The null hypothesis is that there is no heteroscedasticity. If heteroscedasticity exists it should be corrected using robust standard errors.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION OF FINDINGS

4.1 Introduction

This chapter presents the findings from panel data analysis of secondary data extracted from the annual financial reports of manufacturing firms listed at the Nairobi Securities Exchange for a period of 10 years. The chapter involves a combination of exploratory analysis, descriptive analysis and diagnostic test analysis. The diagnostic tests check if there exists multi collinearity, autocorrelation, heteroscedasticity and time effect fixed models.

4.2 Exploratory Data Analysis

Data analysis began with exploration of the study data. Exploration data analysis examined heterogeneity across the firms and over time using visual plots for the dependent variable only. This analysis was essential in the determination of whether to use the panel data models (Fixed effect model or Random effect model) or simply use pooled regression models. Exploratory data analysis was done using graphs to examine the trend of financial performance using return on assets within and across firms. This is useful to check whether output suggests existence of significant time related fixed effects.

4.2.1 Growth plot of return on assets of each firm

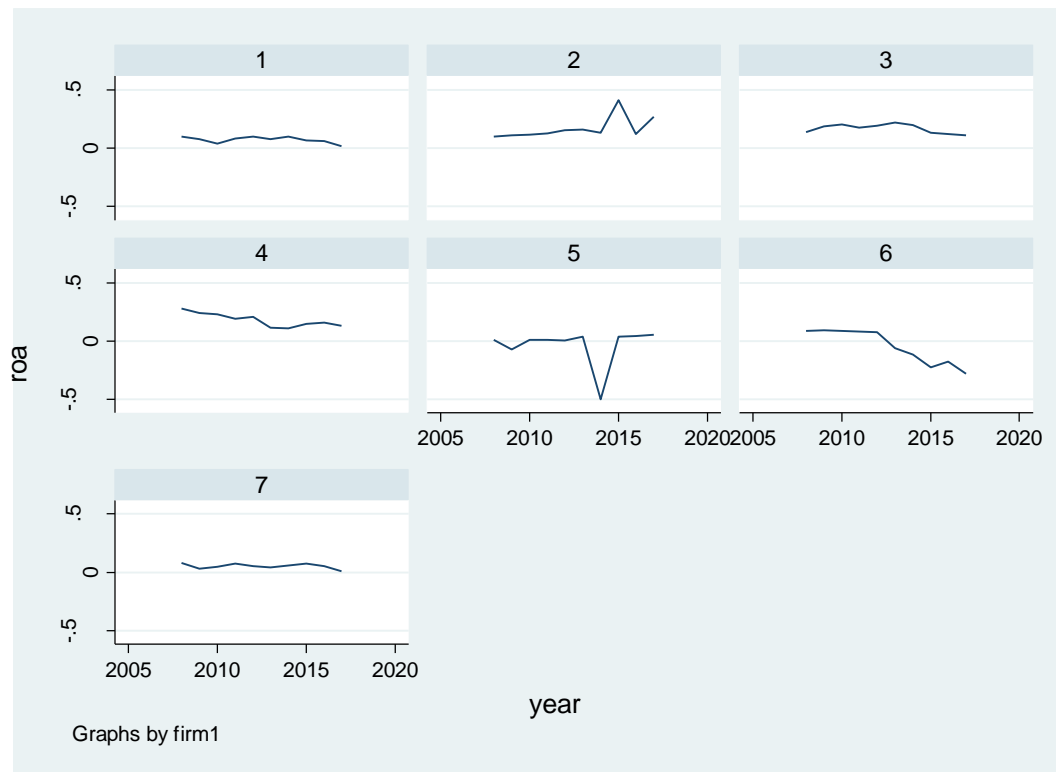


Figure 1: Growth Plots

KEY:

Firm 1: B.O.C. Kenya Ltd

Firm 2: British American Tobacco Limited

Firm 3: Carbacid Investment Plc

Firm 4: East Africa Breweries Ltd

Firm 5: Kenya Orchards Limited

Firm 6: Mumias Sugar Limited

Firm 7: Unga Group Limited

The study used growth plots (trend plot for each firm over the period of study) to study within the firm's behavior. Figure 1 shows that the return on assets for B.O.C Kenya Ltd, Carbacid Investment Ltd, East African Breweries Ltd and Unga Group limited did not change much over time however British American Tobacco Ltd return on assets show slight changes, the returns remained the same for a period of time, then started increasing then decreased and as at 2017 the returns on assets started increasing as well. Kenya Orchards Ltd on the other hand show that the returns dropped drastically and started increasing as well and as at year ended 2017 the returns were constant. Mumias Sugar shows a constant decrease in the returns over time due to the constant losses that are reported in the firm's financial statements. This changes however do not suggest existence of time related fixed effects.

4.2.2 Overlain plot of return on assets

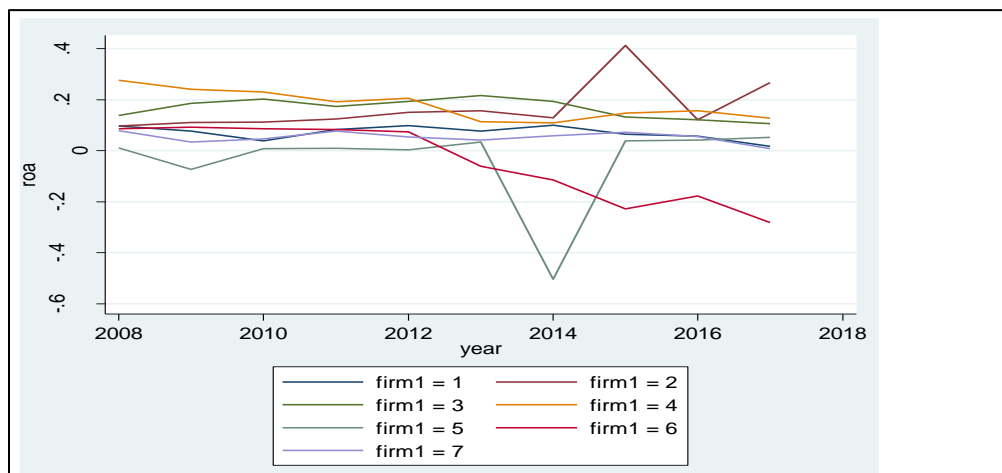


Figure 2: Overlain Plots

The overlain plots of return on assets time plot show plots being non significantly different among the firms but intercepts appeared different. This again does not show indication of the existence of time related fixed effects. Figure 2 above shows.

4.3 Descriptive Statistics

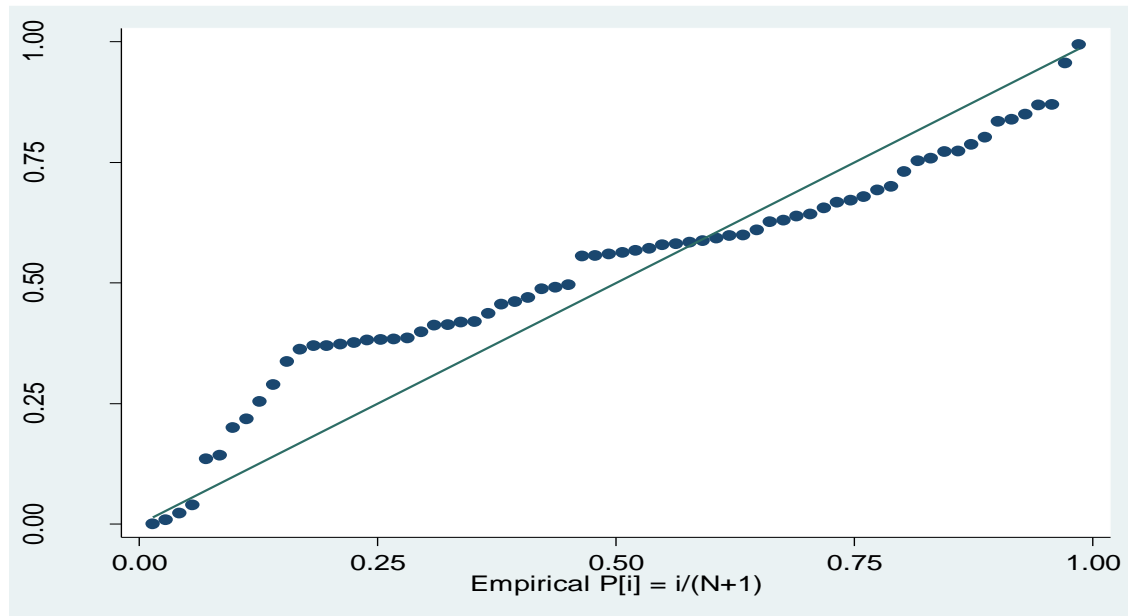
From the above table, cash management expressed an overall mean of 0.843, receivables management expressed a mean of 5.5077, inventory management showed average of 5.8083. On overall cash management deviated by 1.4101 where 1.379 was between firms and 0.5785 within firms. On receivables the overall deviation was 2.7982 where 2.8084 was between firms and 0.9858 within firms. Consequently, inventory management indicated an overall effect of 6.3652 while 3.454 was deviation between firms and 5.49005 within the firms away from the mean. Inventory management had the highest deviation from the mean and therefore indicates the level of volatility in the determination of the firms return on asset (ROA).

Variable		Mean	Std. Dev.	Min	Max	Observations	
cashmgt	overall	.8430821	1.410184	-.247097	6.644273	N =	70
	between		1.379106	.0167311	3.937886	n =	7
	within		.5785878	-.8910817	3.549469	T =	10
receiv~t	overall	5.507728	2.79829	1.435814	14.00877	N =	70
	between		2.808435	2.303446	10.741	n =	7
	within		.9858486	3.176849	8.775494	T =	10
invent~t	overall	5.80835	6.365282	.536177	42.12509	N =	70
	between		3.454348	.9823344	10.17658	n =	7
	within		5.490055	-2.922964	37.75686	T =	10
roa	overall	.0794748	.1285808	-.503196	.411925	N =	70
	between		.0959889	-.0441822	.1796311	n =	7
	within		.092309	-.3860623	.3231623	T =	10

4.4 Test for Normality

Normality was tested by use of the pp plots, skewness and kurtosis. Skewness measures lack of symmetry in the data that is being studied and analyzed whereas kurtosis considers the shape of the peaks in a probability distribution of data.

4.4.1 PP plots



The above plot shows how the data fits in a distribution, the data is normally distributed that it is very close the line of best fit and there are no outliers which then makes the data useful for decision making. The null hypothesis is that the data should be normally distributed, from the above plot given the observations are close the line of best fit and no outliers we conclude that the data is normally distributed and fail to reject the null hypothesis

4.4.2 Test for skewness and Kurtosis

The null hypothesis is that the data is normally distributed, we fail to reject the null hypothesis if the p-value is < 0.05 . From the data below cash management, receivable management and inventory management are normally distributed because the p-values is < 0.05 . On the other hand Kurtosis is normally distributed for cash management and inventory management.

Skewness/Kurtosis tests for Normality					
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	—— joint ——	
				adj chi2(2)	Prob>chi2
cashmgt	70	0.0000	0.0000	37.06	0.0000
receivable~t	70	0.0011	0.1594	10.61	0.0050
inventorymgt	70	0.0000	0.0000	58.06	0.0000

4.5 Diagnostic Analysis

Diagnostic analysis involves tests that are used to test for the suitability of the model in order to adopt the robust model. These tests included, Multi-collinearity tests, heteroscedasticity test, normality test, serial correlation test, hausman test and test for residuals.

4.5.1 Multi collinearity Test

This test was used in determining the level of correlation between both dependent variables and independent variables under the study that is cash management, inventory management, receivables management and return on Assets. In a regression model there should be no two independent variables that are highly correlated. Multi-collinearity reduces the level of predictability of the independent variables on the dependent variables and therefore should be eliminated by dropping the highly correlated variables.

Variance Inflation Factor also helps to identify highly correlated independent variables that may cause multi collinearity. High mean V.I.F (Variance Inflation Factor) greater than 5 is not suitable because it indicates presence of multi collinearity which is not recommended in a study. From the study the VIF (Variance Inflation Factor) is 1.04 which is less than 5. The null hypothesis is there is no multi collinearity. From the study the mean VIF is significantly low and therefore we fail to

reject the null hypothesis and conclude that there exists no strong correlation between the independent variables.

	Return On Assets	Inventory Management	Receivable Management	Cash management
Return On Assets	1.0000			
Inventory Management	-0.1905 (0.1142)	1.0000		
Receivable Management	0.3171 (0.0075)	-0.2365 (0.0487)	1.0000	
Cash management	0.4042 (0.0005)	0.0649 (0.5937)	-0.0384 (0.7522)	1.0000

```
. vif
```

Variable	VIF	1/VIF
inventorymgt	1.06	0.940965
receivable~t	1.06	0.943546
cashmgt	1.00	0.995229
Mean VIF	1.04	

4.5.2 Hausman test

Hausman test is carried out to check if the model has a random effect or a fixed effect where the null hypothesis is that there is random effect. If the P-value is < 0.05 ; reject the null hypothesis which implies the researcher uses the fixed effect model. If the p value is >0.05 we fail to reject the null hypothesis which means, we use the random effect model. From the study output generated from the Hausman test the p-value is 0.8954. Therefore, we fail to reject the null hypothesis where we adopt the random effect model. The model however has to be tested to check whether there exists heteroscedasticity and serial correlation before it is fitted and the equation derived.

```
. hausman fixed random
```

	Coefficients			
	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
receiveble~t	.0919359	.0809986	.0109373	.0245205
inventorymgt	-.0028883	-.0026735	-.0002148	.0022491

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\begin{aligned} \text{chi2}(2) &= (b-B)' [(V_b-V_B)^{-1}] (b-B) \\ &= 0.22 \\ \text{Prob}>\text{chi2} &= 0.8954 \end{aligned}$$

4.5.3 Heteroscedasticity test

Heteroscedasticity is when the standard errors are not constant. A large p-value for the Breusch and Pagan Lagrangian multiplier test for random effects, means that there is no heteroscedasticity which is a good thing whereas a small p-value means that there is heteroscedasticity which is not encouraged. Should the researcher find that there exists heteroscedasticity they are expected to use robust standard errors to correct it. The null hypothesis is that there exists homoscedasticity (constant variance) from the study above we reject the null hypothesis and conclude that there exists heteroscedasticity and therefore it has to be corrected.

```
Breusch and Pagan Lagrangian multiplier test for random effects

roa[firm1,t] = Xb + u[firm1] + e[firm1,t]

Estimated results:

```

	Var	sd = sqrt(Var)
roa	.016533	.1285808
e	.0083067	.0911411
u	.001396	.0373625

```
Test:  Var(u) = 0
          chibar2(01) = 17.15
          Prob > chibar2 = 0.0000
```

4.5.4 Serial correlation Test

Autocorrelation tests for serial correlation. Serial correlation results to the standard errors of coefficients to be slightly smaller than they are normally, and the R-squared overstated. A high p-value that is greater than 0.05 is not good because it shows that there exists serial correlation. The null hypothesis is that there is no serial correlation. From the study we reject the null hypothesis because the p-value (0.06) is greater than 0.05 and conclude that there exists first order autocorrelation.

```
. xtserial roa inventorymgt receiveblemgt cashmgt

Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
      F( 1,      6) =      5.320
      Prob > F =      0.0606
```

4.5.5 Correction of heteroscedasticity and serial correlation in the random effect model that is used.

```
. xtpcse roa inventorymgt receiveblemgt cashmgt,correlation(ar1) hetonly
(note: estimates of rho outside [-1,1] bounded to be in the range [-1,1])

Prais-Winsten regression, heteroskedastic panels corrected standard errors

Group variable:  firm1                Number of obs   =    70
Time variable:  year                  Number of groups =    7
Panels:         heteroskedastic (balanced)  Obs per group: min =   10
Autocorrelation: common AR(1)                avg =   10
                                                max =   10
Estimated covariances =      7          R-squared       =  0.1892
Estimated autocorrelations =      1      Wald chi2(3)    =  14.86
Estimated coefficients =      4          Prob > chi2     =  0.0019
```

roa	Het-corrected					
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
inventorymgt	-.0017632	.0045362	-0.39	0.697	-.010654	.0071276
receiveblemgt	.0219434	.0075179	2.92	0.004	.0072086	.0366781
cashmgt	.0308367	.0085554	3.60	0.000	.0140685	.047605
_cons	-.0545606	.0666961	-0.82	0.413	-.1852825	.0761613
rho	.590411					

The panel data used by the researcher showed existence of heteroscedasticity and serial correlation which had to be corrected by using robust standard errors and therefore cleared the serial correlation and heteroscedasticity and thus provided data that can be used and relied upon when reporting findings and deriving the suitable model. The model therefore is as follows:

$$Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \varepsilon_i + \varepsilon_{im} \dots\dots\dots(vi)$$

Where; ε_i = between entity error term

ε_{im} = within entity error term.

Y = Return On Assets, X_1 = Inventory, X_2 = receivables and X_3 = Cash

β_0 = Constant value, $\beta_1, \beta_2, \beta_3$ = the slope coefficients or (change in Y by which explanatory variable undergoes a unit change).

Therefore: $Y = -0.0545606 - 0.0017632 X_1 + 0.0219434 X_2 + 0.0308367 X_3$ such that,

A unit increase in inventory management by one unit results to a decrease in return on assets by 0.176% holding all other factors constant. An increase in receivables management by one unit leads to the return on assets to increase by 2.194% holding all other factors constant. An increase in cash management by one unit causes the returns on assets to increase by 3.084% holding all other factors constant. The constant value (y intercept) is -0.0545606 which implies that when all the values of the independent variables are zero, that is inventory, cash and receivables are not well managed then the returns on assets decrease by 5.456%.

4.6 Explanation of variables

4.6.1 Inventory Management and financial performance

From the study output generated by the random effect model, inventory management expressed a negative correlation on return on assets where an increase in inventory management by 1 unit gives rise to a decrease in return on assets by 0.17632% holding other factors constant. However, the results are statistically insignificant since the P-Value > 0.05 that is 0.697. This is inconsistent to

a study by Mwangi (2016) on the effect of inventory management on firm profitability and operating cash flows of Kenya Breweries Limited beer distribution firms in Nairobi County. She found there exists a significant relationship between inventory management and firm profitability of Kenya Breweries Limited.

The results are also inconsistent with Ondimu, Rotich and Kipkirui (2018) study on effect of inventory management on financial performance of manufacturing firms listed at the Nairobi securities exchange in Kenya, the study was conducted on all the manufacturing firms at the Nairobi Securities Exchange for a period of five years from twenty twelve to twenty sixteen and found out that there exists a strong positive correlation between inventory management and financial performance.

The results are also inconsistent with the findings of Mbula, Memba and Njeru (2016) who did a study on the Effect of Inventory Management on Financial Performance of Firms Funded by Government Venture Capital in in Kenya and found that there is a strong positive significant relationship between inventory management and financial performance of firms funded by government venture capital in Kenya.

The results are also inconsistent with the results from the study conducted by Adamu (2016) who did a study on the Effect of Inventory Management on the Financial Performance of a firm using the Evidence from Nigerian Conglomerate Companies using a population of the all conglomerate quoted companies in the Nigerian Stock Exchange market for a period of five years from twenty ten to twenty fourteen and found that inventory management is significantly related to the financial performance of firms.

The findings are inconsistent from previous research work done because most of the studies were conducted on different fields not specifically the manufacturing industry, the research was also done in different time periods and different number of years which was likely to be cause of the difference in the findings.

4.6.2 Receivable Management and financial performance

With regards to receivable management the results are statistically significant which means that receivable management can be relied upon in explaining changes in return on assets where the p-value is < 0.05 that is 0.004. Receivable management is positively correlated on return on assets. An increase in receivables by one unit causes the return on assets to increase by 2.19434% holding other factors constant.

The results are inconsistent with those of Mugo (2016) who did study on the effect of trade receivables management on the profitability of manufacturing firms listed at the NSE. He found that accounts receivables collection period has a negative and insignificant effect on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange.

The results however are consistent with those of Kennedy (2014) who conducted a study on the relationship between accounts receivable management and financial performance of all manufacturing firms in Nakuru County and found that there exists a significant relationship between receivables management and financial performance and accounts receivables should be closely monitored to minimize the likelihood of default and loss of key debtors.

The results are also inconsistent with Munene and Tibbs (2018) who carried out study on accounts receivable management and financial performance of Embu water and sanitation company limited located in Embu county in Kenya using secondary data collected from the published financial

statements and found that there exists a negative insignificant relationship between receivables management and financial performance and stated there is no influence trade receivables management has on the financial performance of firms.

The findings are also consistent with Lyani (2017) investigated the relationship between accounts receivable management practices and growth of small and medium enterprises in Kakamega county, Kenya, using a target population of 5401 registered small and medium enterprises and data was collected using primary models and found that there is a significant relationship between receivable management and growth of small and medium enterprises and that for SMEs to keep growing at a faster rate, receivable management policies and practices should be formulated and adopted by all SMEs owners and managers.

4.6.3 Cash Management and financial performance

Cash management is statistically significant since the p-value is < 0.05 where the P-value is 0.000. Cash management is positively correlated to the return on asset. A unit increase in cash gives rise to an increase of 3.08367% on the return on assets holding other factors constant.

The findings are inconsistent with Ndirangu (2017) study on effects of cash management on the financial performance of the companies listed at the Nairobi Securities exchange using a population of fifteen companies that are listed for a period of seven years from two thousand and ten to two thousand and sixteen and found that cash management has a positive but insignificant effect on the financial performance

The findings are however consistent with Jajale (2017) study on effect of cash management on the financial performance of commercial banks in Mogadishu, Somalia using a target population of 48

firms and data was collected using questionnaires and found that cash management drivers have a significant positive relationship on the financial performance of commercial banks in Somalia.

The results are also consistent to Smirat (2016) study on Cash Management Practices and Financial Performance of Small and Medium Enterprises (SMEs) in Jordan using a sample of companies from various industries and data was collected using structured questionnaires and found that cash management practices have a positive and significant influence on the financial performance of small and medium enterprises.

The outcome is consistent to the findings of Mutesi and Mulyungi (2018) study on the effect of cash management on the financial performance of corporative banks in Rwanda using a case of Zigama Credit and Savings Bank using a sample of one hundred and eight employees using data collected from both the primary and secondary sources and found that there exists a significant relationship between cash management and financial performance and cash management is very key for the success of banks for it is the major asset of banks because most of their transactions involve either cash borrowing or lending.

The findings are however inconsistent to Janaki Thevaruban (2016) study on the effect of cash management on the financial performance of the sri lankan manufacturing companies using a sample of twenty manufacturing companies using secondary data extracted from annual financial reports of the manufacturing companies and found that there is a negative and insignificant relationship between cash management and financial performance.

The findings are also consistent to Mohammed (2016) carried out a study on the impact of cash management on the financial performance of secondary schools that are private in Mogadishu using a selected number of schools and data collected using closed ended questionnaires and found

that cash management has a high and positive effect on the financial performance of the private schools in Mogadishu, Somalia and thus the schools management are advised to properly plan before any cash is spent and equally account for any spending that is done, accountability should also be advised when it comes to the usage of any cash to avoid any conflicts between the stakeholders.

The findings also agree with Hamza Mutala and Antwi (2015) study on the relationship between cash management practices and financial performance of small and medium enterprises (SMEs) in the northern region of Ghana, data was collected using questionnaires that had already prepared questions that were structured from a population of one thousand owners and managers of the businesses and the findings showed that cash management practices influence the financial performance of the entities and therefore for the businesses to thrive and be able to survive the economic conditions and other factors in the market then the managers and owners are to adopt good cash management practices and policies.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter presents the summary, conclusion and recommendations drawn from the findings of the study in the previous chapter. It also highlights areas for further studies as well as the limitations endured in the conduct of the study. This chapter aids the users in understanding the research in an in-depth perspective and therefore critical towards answering the research questions and providing a direction for the study.

5.2 Summary of findings

5.2.1 Inventory management and financial performance

From the study findings generated by the random effect model, inventory management expressed a negative correlation on return on assets where an increase in inventory management by 1 unit causes a decrease in return on assets by 0.17632% holding other factors constant. However, the results are statistically insignificant since the P-Value > 0.05 i.e. 0.697. Thus, there is an insignificant negative relationship between inventory management and financial performance of manufacturing firms listed at the Nairobi Securities Exchange in Kenya.

5.2.2 Receivable management and financial performance

Regarding receivable management, the results are statistically significant which means that receivable management can be relied upon in explaining changes in return on assets where the p-value is < 0.05 i.e. 0.004. Receivable management is positively correlated on return on asset where a unit increase in receivables results to the return on assets to increase by 2.19434% holding other

factors constant. Thus, there is a significant positive relationship between receivables management and financial performance of manufacturing firms listed at the Nairobi securities Exchange in Kenya.

5.2.3 Cash Management and financial performance

The findings show that cash management on the other hand is statistically significant since the p-value is < 0.05 where the P-value is 0.000. Cash management is positively correlated to the return on asset. A unit increase in cash leads to an increase of 3.08367% on the return on assets holding other factors constant and therefore cash management and financial performance of the manufacturing firms listed at the Nairobi Securities Exchange have a positive and significant relationship.

5.3 Conclusion

It is evidenced from the study that inventory management has an insignificant negative relationship on the firm's return on assets. However, the insignificant effect between inventory management and the firms return on assets has been faced with criticism from previous scholar's findings such as (Mwangi, 2016, Ondimu, Rotich and Kipkirui 2018, Mbula, Memba, and Njeru 2016 , Adamu 2016). In this regards management of stock reduces the ability of the firm's ability to generate returns. This is due to the fact that the firm's accountants and store managers will always be cautious in the determination of the optimal stock level since the management has the discretion to interpret the factors that affect the stock level in a firm. These factors include but not limited to the following: lead time, level of consumption, durability, availability of inventory in the market, ordering cost, storage cost as well as the availability of quantity discounts. It is therefore critical for the management to be cautious in making inventory management decisions since the effect of the firms return on assets will be inversely affected.

Receivable management have a significant positive relationship on return on assets. Debtors management plays a major role in the firm's performance as indicated by the return on asset therefore the management should be able to manage the credit risk appropriately and not too stringent. If well observed receivable management act as a driver towards better performance through increasing the shareholders return on assets. Other studies such as (Mugo, 2016, Munene and Tibbs 2018) found inconsistent results between debtor's collection period and the firm's profitability which indicates that the longer the collection period the lower the level of profitability since the firm will seek alternative financing options for their working capital in order to run the operations of the firm. It is therefore key for all the stakeholders involved in the management of the firm to ensure that receivables are properly managed using key policies and controls, the firm can come up with strategies to deal with defaulters for example by not selling on credit to buyers who are not frequent customers and also by selling in small quantities on credit.

Cash management showed statistically significant findings with positive effects on return on assets and therefore the firm should minimize the current liabilities in order to increase operating cash flows thus increasing the ability of the firms to generate returns since the operating cash can be put into relevant use. A study by Ndirangu (2017), showed inconsistent results where cash conversion cycle has an insignificant effect on financial performance however a study by Mutesi and Mulyungi (2018) on the effect of cash management on the financial performance of corporative banks in Rwanda using a case of Zigama Credit and Savings Bank showed consistent results where cash management has a significant effect on financial performance. Cash management therefore should be taken seriously using relevant models in order to ensure optimality in the available cash for use in the firm's operations. The firm should avoid keeping too much cash than what it actually need within a specified period of time, in addition the firm

should enhance liquidity to avoid running out of cash before the end of the financial period. The firms also should ensure that cash is readily available to meet both short term and long term obligations, the management should have a close monitoring of cash receipts and cash payments to avoid loss, theft, embezzlement and mismanaged of cash by finance officers.

5.4 Recommendations of the study

The firms in manufacturing sector should engage in thorough research in order to explore the best inventory management model that suits the industry such as economic order quantity(EOQ) model that will be aligned to the financial performance of the firm. In this regard, any effect on the firm's inventory will be affecting the financial performance of the firm and therefore provides a wider basis for bettering the performance of the firm. This works best in manufacturing firms since they are associated with various types of inventories such as raw materials, finished goods and work in progress.

The firm's management should establish a credit control section in the accounting department in order to be able to cautiously assess the customer's credit risk before extending a credit sale. The credit control committee should be then formed to follow up on debt collection when the payment is due and in case of default take the necessary action to recover the cash which form part of the current assets of the firm. This will thus work along in enhancing the financial performance of the firm.

With regards to cash management in the organization, the firm should establish an optimal cash management model which is customized to the firms need and nature especially in the manufacturing sector, it might be necessary to adopt miller & Orr cash management model or Boumol's cash management model after alignment with the firm's specific cash needs which needs

customized estimation and forecasting. The role of monitoring and storage of cash should also be designated to individuals of integrity who have been monitored and showed trust, Cash should not be stored by individual persons and hierarchy should be followed before dispatch of any funds this will minimize loss of cash by those in charge.

5.5 Limitations of the study

The study was faced with a variety of challenges in its execution some of which include the following:

The secondary information that was used in the analysis of the study findings was not easily available and therefore the researcher had to go an extra mile in sourcing for the data from the various manufacturing firms that were being studied.

Resources have never been sufficient, in economics we say that resources are ever scarce as we live in a world of scarcity, both financial and research materials for reference were scarce. This impediment of financial resources hit the research process but a prudent budget enabled the researcher to overcome its detrimental effects and worked within the budget and achieved optimal feedback.

5.6 Suggestions for future studies

The study focused on an investigation on the effect of working capital management on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange and therefore need to research on other areas that have been explored. A further study could be conducted to find out the effect of working capital on financial performance of firms in the financial sector and other available sectors in the market so as to compare the findings with the ones in the current study.

Future researchers should also venture into determining the effects of working capital management on the financial performance of manufacturing firms in Kenya apart from the ones being involved in the current study. Researchers could also include other working capital variables for example the management of prepayments, accruals as well as short term loans.

Research can also be done focusing on specific working capital items and their effect on financial performance rather than generalizing them for example research on the effect of inventory management practices and inventory forecasting techniques and how they can be able to influence the financial performance of all manufacturing firms both listed and not listed at the Nairobi Securities exchange, the effect of cash management on profitability.

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DATA COLLECTION TABLES

All the companies will use the same table format because the items that were studied i.e inventory management, debtors management and cash management and their effect on financial performance apply for all the seven companies as a major area of interest.

B.O.C Kenya Limited

Year	Return on Assets =(Earnings After Tax/Total Assets)	Inventory Management= (Cost of goods sold/ Average inventory)	Cash Management = (Cash flow from operating activities/Current Liabilities)	Account Receivables management = (Annual credit sales/ Average account receivables)
2008				
2009				
2010				
2011				
2012				
2013				
2014				

2015				
2016				
2017				

WORK SCHEDULE FOR THE YEAR 2019

Activity done	February 2019	March 2019	April 2019	May 2019	June 2019	July 2019
Identifying the research topic and objectives						
Background of the study and statement of problem						
Literature review both theoretical review and empirical review						
Research design and methodology						
Data analysis, presentations and interpretation of findings						
Summary of findings,						

conclusion and recommendations							
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RESEARCH WORK BUDGET

Activity	Amount (ksh.)
Typing	1,700
Printing	2,500
binding	200
browsing	1000
Photocopying	900
Miscellaneous expenses	3,000
total	9,300