

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

BY

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MASTERS OF SCIENCE IN COMMERCE (FINANCE AND ACCOUNTING)

KCA UNIVERSITY

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**A DISSERTATION PRESENTED TO THE SCHOOL OF BUSINESS IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF
MASTERS IN SCIENCE OF COMMERCE (FINANCE AND ACCOUNTING) OF KCA
UNIVERSITY**

November, 2018

DECLARATION

I declare that this dissertation is my 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 by other people except where due reference is made and author duly acknowledged.

Esther Wangari

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Sign.....

Date.....

SUPERVISOR

I do hereby confirm that I have examined the Master'sdissertation of Esther Wangari and the same is submitted with my approval.

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ABSTRACT

The main objective of this study was to establish the effect of working capital management practices on financial performance of manufacturing and allied firms quoted in the Nairobi Securities Exchange (NSE). The working capital aspects that the study focused on were receivables, cash and inventory which are an essential part and the overall influence its performance. The context of the research study was to figure out the influence of working capital management practices on the financial performance of manufacturing companies listed in NSE. Population of this study comprised of the 10 firms listed in the NSE. There was no sampling due to the number of the target population as the whole population was studied through census. The Manufacturing and Allied firms which were listed in the NSE had a representation of the major sectors within the manufacturing firms which were: Food & Beverage, Chemical & Allied, Energy, Electrical and Electronics, Building Construction and Mining and therefore helped eliminate bias in the study and acted as a good representation of the target population. This study utilized secondary data as reported in the financial statements of the manufacturing firms. The study was conducted in 2016. Data collected was analyzed using Stata software using the fixed effects panel data model. The results indicated that debtor's collection period had a significant negative effect on financial performance of the manufacturing firms quoted in the NSE ($\beta = -0.1588$; $p < 0.05$). Results also established that cash conversion cycle did not have a significant effect on financial performance of the manufacturing firms listed quoted in the NSE ($\beta = 0.0546$; $p > 0.05$). Moreover, study results established that inventory turnover period did not have a significant effect on financial performance of the manufacturing firms quoted in the NSE ($\beta = -0.0030$; $p > 0.05$). The study makes the following recommendations. First, there should be strict efficiency in management of accounts receivables collection in the manufacturing firms. However, though reducing the accounts receivable collection period would result to an increase in profitability, management should do this with caution as haphazard reduction in debtors' days would have a negative effect on sales. Secondly, the study recommends that firms should take careful analysis of the cash conversion cycle as it is the outcome of inventory turnover, payables days and debtor days. Lastly, the study recommends that management should apply advanced techniques of management of inventory to ensure that resources allocated for inventory are commensurate with the value and cost of the inventory.

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DEDICATION

A special dedication to my late parents, for facilitating my initial education which formed the basis of who I am today. To my loving siblings, in believing in my dreams and giving me a chance and support in realizing the same.

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ACRONYMS AND ABBREVIATIONS

CCC	Cash Conversion Cycle
DCP	Debtors Collection Period
DSO	Day Sales Outstanding
ITP	Inventory Turnover Period
KAM	Kenya Association of Manufacturers
ROA	Return on Assets
ROE	Return on Equity
WCM	Working Capital Management
NSE	Nairobi Stock Exchange

DEFINITION OF TERMS

Cash Conversion Cycle: The time lapse between procurement of inventory and having the produced final products paid. It is the time taken between spending cash on inventory and selling finished products to customers(Deloof, 2003).

Current Assets: These are the possessions which in the course of working are converted into cash within one year. Cash and other possessions that are anticipated to be transformed to cash within a year(Pandey, 2013).

Current Liabilities: Those financial obligations which are planned, at their beginning to be paid in the normal course of organizational operations in a year (amounts due to be paid to creditors within twelve months). (Pandey, 2013).

Financial Performance:This is an assessment of how a company can use its monetary a, human and material resources in its main mode of operations to generate income and is hence seen as a measure of the general financial health of the organization (Eljelly, 2004).

Inventory Management: Defining the percentage and composition of finished goods, work in progress and raw materials(Qazi, 2011).

Account Payables: These are obligations of the business that emanates when the business buys materials or services on credit. It has to settle these obligations with one financial year(Gitman, 2012).

Account Receivables: This is cash owed by clients who can be people or corporations as a result of exchange for products or services that have actually been provided to them or utilized, however they are yet to pay for them(Gitman, 2012).

Working Capital Management: This is the capacity of a company to effectively finance short term assets with a combination of short-term liabilities and long term liabilities its liabilities (Harris, 2005).

Working Capital:The organization's capital that is utilized in its everyday trading operations, computed as the difference between short-term liabilities and short-term assets (Guthmann and Douglas, 2011).

Nairobi Stock Exchange (NSE):A stock market can be defined as a market where stock and shares are bought, sold and provided through the services of stockbrokers and handles exchange of new and secondary shares through the primary and secondary market. The NSE is such a market in Kenya.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Global financial crisis necessitated the need of proper management of organizational resources and especially working capital management (WCM). WCM is the capability of a firm to fulfill its immediate cash commitments (Harris, 2005). With the high inflation rates and the reason that other financing sources of the business are limited, it is critical for the corporation to effectively manage its working capital in order to end up being successful. The value of effective WCM by manufacturing organizations cannot be over emphasized as this is exceptionally needed to boost profitability and increase growth, which are essential factors in fixing a nation's joblessness concerns and enhancing economic stability (Akoto et al, 2013).

Manufacturing companies play a vital role globally in their country's growth and advancement. Industries play a critical role in economic growth and development. In United States (US), Sueliman (2018) notes that manufacturing companies employed 13.3 million workers in 2017 which translates to around 8.8 percent of the total US labour force. Additionally, manufacturing firms contributed over \$2.9 trillion in the US GDP. This is around 12.5 percent of GDP of US. In the United Kingdom (UK), the manufacturing sector contributes over 10 percent of the gross value added and over 45 percent of all exports from UK. The sector further employs over 2.9 million people (Merozwa, 2018).

Though there are many African manufacturing firms that are competitive on a global scale, the average manufacturing firm in Sub-Saharan Africa is less productive than the average firm in the best performing European, American and East Asian countries. In Sub-Saharan Africa, Ajibike and Arema (2018) observe that the average manufacturing company produces

about US\$3,300 of output per worker in 2017 dollars. Compared to manufacturing firms in Asian countries such as South Korea, Japan, China, Thailand, Malaysia, Indonesia Philippines and Vietnam which have output of around US\$6,500 per worker, African manufacturing firms performs poorly. Manufacturing firms in other advanced economies of the world are more productive than their counterparts in Africa (Fafchamps& Quinn, 2017).

In Kenya, manufacturing firms contribute to the 11% of the GDP growth in Kenya and also employ approximate 12% of the total 2.3 million who make up Kenya's labour force translating approximately 280,000 individuals. The said manufacturing companies comprises of different sectors such as: Food and Beverage, Chemical and Allied, Building and Construction, Energy Electrical and Electronics (Kenya National Bureau of Statistics - KNBS, 2018).

There are several aspects that face the economy which might impact the speed of having a higher return on the resources employed by the business. With this appropriate working capital management is needed. It is worthwhile to bear in mind that out of every resource that companies have, working capital is the most vital. Working capital is an essential aspect in any organizational setting that requires planning and management. Resources offered to organizations are limited, therefore it is believed that the management of an organization's working capital has a necessary function to play in the achievement of financial performance and general performance of such a company (Elfani&Lois, 2010).

1.1.1 Determinants of Firm Performance

A firm's performance determinants can be categorized into internal which are firm particular aspects and external factors which are macroeconomic elements (Aburime, 2015; Al-Tamimi, 2013). These are probabilistic aspects that control the firm's productivity and output.

Inside variables are specific to a firm and they are essentially affected by choices which are made internally by the board and management. The outside aspects are wide and are macroeconomic in nature which are beyond the control of the firm and do impact the success of companies.

1.1.1 Capital Adequacy

Capital adequacy is a vital factor that affects the level of financial success of a firm. Capital is the volume of finances or monetary resources offered to sustain the continuous company's services (Athanasoglou et al. 2015). Higher capital decreases the opportunity of distress in a company (Diamond, 2013). Capital adequacy ratio (CAR) indicates that level of capital required for a firm to have a sound basis and to operate effectively. CAR indicates the ability of the firm to weather a financial crisis that can come in form of sustained losses or a catastrophic happening. Sangmi and Nazir (2010) notes that CAR also indicates that expansion capacity of the firms and also its ability to undertake risky and high return projects.

1.1.2 Asset Quality

A company's assets are another variable that impacts the success of a firm. The assets of a company consist of credit portfolio, current assets, fixed assets, and other financial securities. When a firm has a growing asset base, this signifies the firm is advancing properly and it is adding value to its shareholders wealth (Athanasoglou et al., 2015). Moreover, Dang (2011) noted that firms with huge asset bases have a higher possibility of surviving a crisis and absorbing huge losses. Impairment of assets reduces their value.

1.1.3 Management Efficiency

Effectiveness of the management is among the crucial internal company aspects that control its financial performance. It is signified by diverse financial ratios like loan growth rate, incomes development rate and total asset growth among others. This is among the challenging areas to assess using financial ratios. However, efficiency in managing operations can be achieved by handling the operating expenses to minimal levels and still achieves good performance (Athanasoglou et al., 2015). This performance is typically revealed qualitatively through evaluation of management systems, control systems, the quality of the employed personnel, organizational discipline to name a few.

Some financial ratios of the financial statements do bring out the management efficiency and their capability to deploy its resources efficiently as well as maximizing the companies' income and bring down its overheads and generally the operating costs. An example of these ratios used as a yardstick to quantify the management quality is establishing the ratio of revenue to income (Sangmi and Nazir, 2010; Rahman et al. in Ilhomovich, 2009). The greater the operating revenues to total earnings the more the effectiveness of management is considered to be in regard to generating income and functional efficiency. Athanasoglou et al. (2015) postulates that management quality for that reason dictates the level of business expenses and in turn, influences profitability.

1.1.4 Working Capital Management Practices

Gitman (2012) explains working capital management as the guideline of the current liabilities and current assets of a company to make it possible for the maturing commitments to be paid and the enable fixed-assets to be well maintained. Pandey (2013) specifies current assets as those

assets which are liquid and convertible to cash within one year of the course of operations and short-term liabilities as those commitments which are paid in the regular course of business. Guthmann and Douglas (2011) in their study define working capital as the difference between existing current liabilities and current assets. Pandey (2013) indicated that current assets can be divided into 3 primary elements: cash and money equivalents; balance dues; and stock. The 3 significant products of current liabilities are: notes payable, costs payable, and accounts payable (Cheng et al. 2009).

An efficient working capital management can be attained through managing and planning the company's payables, receivables and inventory in order to attain the best balance. The significance of keeping an suitable level of working capital and its contribution to a service survival is a concept that needs to be complied by every company strictly (Harris, 2005).

There are various techniques for the management of working capital: Conservative working capital management and aggressive working capital management. An aggressive investment policy is one with low levels financial investment in present properties and high levels of set assets which might generate more earnings for a company. Nevertheless, this policy can produce a danger of inadequate funds for conference day-to-day operations. A conservative policy is one with more financial investment in existing possessions and low financial investment in set assets. High level of existing liabilities requires more resources to pay-back financial commitments as they fall due. In conservative working capital funding policy, a higher part of long-term financial obligations is made use of in contrast to existing liabilities (Nyabuti and Alala, 2014).

1.1.5 Financial Performance

Financial performance is an evaluation of how well a business can use its resources to develop revenues. The term is likewise utilized as a basic step of a firm's basic financial health in a provided duration of time. Financial performance can be said to be a procedure of the rate of ROI (Nyabuti and Alala, 2014). Good management of a company's working capital impacts its performance.

Ricci and Vito (2000) propose that the fundamental function of handling working capital is managing of current resources of a company to be able to balance between profitability of the company and risks associated with the firm's operations. Brigham and Gapenski (2012) propose that the procedures of success can be market price based or book worth based. They describe the accounting ratios such as Tobin's Q, ROE and ROA that can be used to determine firm's performance Biwott (2011) and Kithii (2008), used (ROA). Aquino (2010) used the ratio of earnings after taxes to shareholders' equity (ROE). This study applied ROA as the measure of financial performance.

1.1.6 Relationship between Financial Performance and WCM Practices

In theory, the level of financial investment in working capital has a bearing on the success of the company. Excess of investment in working capital casts a negative effect on the success of a company and positive effect on the liquidity. Research study research studies on the association of level of investment in working capital and the profitability have actually always declared inverse relationship, in the research studies on the degree of association both at micro and macro levels. Firms with too much investment in fixed assets might incur shortages and troubles in keeping smooth operations (Horne & Wachowicz, 2000). Effective working capital management

includes managing and preparing present liabilities and assets to be able to get rid of the danger of deficiency to satisfy short-term commitments due and preventing extreme financial investment possessions on the other hand (Eljelly, 2004).

1.2 Problem Statement

Manufacturing firms in Kenya are among the biggest contributors to our country's economic growth as they contribute 11% of the GDP growth in Kenya and also employ approximately 12% of the total 2.3 million who make up Kenya's labour force translating approximately 280,000 individuals (KNBS, 2018). Despite this, they face uneven growth and huge cash flow constraints due to high operating costs (Kenya Association of Manufacturers, 2016). One big problem facing manufacturers is the higher increase of "days sales outstanding" (DSO) as customers have the trend to extend payment terms (Waithaka, 2012).

When DSO is stretched, small and mid-sized manufacturing firms find themselves in constraints. They have to pay for stocks and supplies in advance, but it takes longer for their sales to generate cash. When the cash conversion cycle becomes adversely unpredictable businesses are impacted as their cash generation cycle is low. Manufacturers need to find means to have less DSO, to avoid the negative impact on their growth (Perkin, 2011). Manufacturing companies are strained by the high running cost of doing business, with majority of respondents citing this as their greatest downfall (Perkin 2011). Working capital management is therefore seen as one of the causes of downfalls of manufacturing firms in Kenya.

Studies on the relationship between financial performance and working capital management have been done in Kenya though hardly any research study has been performed especially on the manufacturing sector in Kenya. Mathuva (2010) carried out a study on working

capital management elements on profitability of the Kenyan Listed Firms in the NSE. A similar research study was done by Apuoyo (2010). Nyabwanga et al. (2011) did a study which concentrated on the effects of working capital management and financial performance of small businesses in Kisii South District, Kenya. Kiilu's (2010) research study was focused on working capital management practices among large building firms in Kenya.

Wainaina's (2010) study concentrated on the relationship between profitability and working capital of medium and small firms in Kenya. Therefore, there existed a contextual space in regard to the manufacturing firms. Invariably there was still some work to be performed in the location of working capital management and firms' performance in the manufacturing firms publicly quoted in the Nairobi Stock Exchange. Inevitably the study did not have similarities with other studies that had been done in the past and what differentiated it from the rest was its issue and area specificity. No given study had been undertaken to establish the association between companies' financial performance and working capital management in the manufacturing firms. Therefore, the study sought to bridge the gap by carrying out a study on the same.'

1.3 Research Objectives

1.3.1 General Objective

The objective of this research was to establish the influence of working capital management practices on the financial performance of manufacturing and allied firms publicly quoted in NSE.

1.3.2 Specific Objectives

The study had the following specific objectives:

- i. To assess the effect of debt management practices on financial performance of manufacturing & allied firms listed in Nairobi Stock Exchange.
- ii. To assess the effect of cash management practices on financial performance of manufacturing & allied firms listed in Nairobi Stock Exchange.
- iii. To assess the effect of inventory practices on financial performance of manufacturing & allied firms listed in Nairobi Stock Exchange.

1.4 Research Hypotheses

To be able to answer the research questions, the study had to test the following hypotheses:

H₀₁: Debt management practices have no significant effect on the financial performance of manufacturing & allied firms listed in NSE.

H₀₂: Cash management practices have no significant effect on the financial performance of manufacturing & allied firms listed in NSE.

H₀₃: Inventory management practices have no significant effect on the financial performance of manufacturing & allied firms listed in NSE

1.5 Significance of the study

The study findings would benefit business financing managers, chief financial officers and CEOs of manufacturing businesses under study by giving them an insight on how their companies can wisely handle their working capital in order to improve their financial performance.

The research findings would also supply an insight to the regulative policy bodies like the Kenya Association of Manufacturers which can use this research study to improve on the structure for providing guidance to the said manufacturing business.

The findings from this study could be utilized by the security analysts, financial experts, stock brokers whose knowledge of the relationship between working capital management and the financial performance of the publicly quoted companies is an important input into their building of portfolios and studying of the stated financial investments.

The research study shall contribute to existing knowledge whereby future researchers might wish to expand their understanding on working capital management practices and success. The research study will also contribute to the existing theories of working capital management.

1.6 Scope of the study

This research focused on manufacturing and allied firms listed in NSE. This study utilized secondary data in the financial statements of the listed manufacturing firms which included the working capital components. The study was conducted in 2016. The methodological scope of the study consisted of a population of 10 manufacturing firms registered with KAM and also listed at NSE. According to Mugenda and Mugenda, (2003), when the population is small there is no need of sampling if time and resources allow as this increases the reliability of the study. Therefore, the sample size was all the 10 manufacturing & allied firms listed at the NSE.

1.7 Limitations of the Study

While care is required to collect accurate data, there was a possibility that the annual financial statements utilised would lack precise details as they undergo adjustments by companies to satisfy industry particular requirements. There was an inherent risk that the financial information showed may have been modified to leave out or include some information as part of working

capital to meet business requirements or other regulatory requirements for listed companies which might have postured a challenge.

The research study was limited by the shortage of current literature connecting to the relationship between WCM and performance in the manufacturing sector in Kenya. Most of the current literature that was accessible mostly focused on corporate performance, which was not constantly pertinent to the manufacturing firms' context.

The study was likewise restricted to a representative sample due to the high expenses associated in terms of time and funds if a longitudinal study needed to be carried out. Furthermore, the representative sample used was restricted in scope to allow the generalization of the findings from the study.

The study findings are based on the data from manufacturing firms listed in the Nairobi Securities Exchange. Access of the detailed data regarding the study variables such as accounts receivables and payables and the computation of the required independent variables was a challenge as financial statements from most of the manufacturing companies did not have the details required on the data. These variables had to be computed from the balance sheets and income statements.

The research findings may not be generalizable to other small and medium manufacturing firms as the findings were derived from data collected from listed manufacturing firms which are large companies. Lastly, most of the firms considered the information required for the study as confidential and was contained in the management accounts and hence difficult to access.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter is organized into four parts namely: Looking at reviews of theories of capital management practices; Highlighting the empirical studies of capital management and is divided into four sections each describing empirical literature on the study objectives; Research gaps from the literature review are then identified and finally a conceptual framework based on the literature review is drawn up.

2.2 Theoretical Review

The study used different theories proposed by different authors that gave an understanding of the dynamic nature of WCM. The fundamental theories of WCM are outlined. This study is built on the underpinning theories, including the value chain theory, operating cycle theory, cash conversion cycle theory, and transaction costs economic theory.

2.2.1 Operating Cycle Theory

The principle of receivables management can be studied by looking at balance sheet analysis of the increase and decrease of receivables. Including receivables and inventory turnover into an operating cycle idea brings a clearer view of liquidity management than the reliance on the acid-test ratio. Weston and Eugene (2012) postulated that these extra liquidity procedures draw out the fact that the cycle of some working capital elements rely on the extent to which three standard activities- collection, sales and production are synchronized. The extent and efficiency

of the company's receivables being converted into cash is measured through the account's receivable turnover.

The average outstanding days on the balance sheet are influenced directly by changes in credit policies of the organization. The company's operating cycle can be estimated using the cumulative days for turnover for inventory and accounts receivable. However, one limitation of the operating cycle concept as an effective measure of working capital management efficiency is that it fails to consider the liquidity requirements of the organization subject to its existing liability obligations (Richards and Laughlin, 2013). Further, in testing the operating cycle theory, Garcia, Pedro and Pedro (2007) noted that days allowed for debtors and the efficiency of the credit department in collecting accounts receivables positively affects financial performance of the firm. This hence indicates that poor collection policy adversely affects financial performance. This theory was applied in this study to inform how debt management practices of the firm can influence its profitability.

2.2.2 Cash Conversion Cycle Theory

The explanation from the cash conversion cycle theory describes the inter relationship that exists in between working capital elements and the cash flow of a business. It is used to identify the quantity of cash required for daily running of operations in an organization. Gitman (2005) discussed the money conversion cycle as the operating day-to-day cycle which is computed by including inventory or the purchases outstanding payment duration based on the payment terms to receivables sales for the period and then subtracting payables from it. The focus is on the difference of time lag between the purchase of raw materials and other items needed in a company and the receipt of cash from the receivable outstanding sales which offers an

approximate of the variety of days of operation for which financing is required to meet the day-to-day operations.

The CCC is an important measure of liquidity health of a company as it combines both earnings declaration and balance sheet components to develop this yardstick measure (Jose and Lancaster, 2006). This money conversion cycle is used as a comprehensive procedure of working capital as it shows the time difference in between the purchase done for the stocks in the business and the collection from the sales done (Padachi, 2006). The control of a firm's short-term possessions and liabilities plays a crucial role in the going concern of the company. Richards and Laughlin (2010) states that traditional approach ratios such as quick acid test ratio and money ratios have actually not been able to supply enough information about working capital status and therefore advised on using ongoing liquidity steps in working capital management.

Abioro (2013) tested this theory by focusing on the effect of cash management on the performance of manufacturing companies in Nigeria. The author noted that effective cash management and having optimum cash outlays positively affected financial performance of firms. The said continuous liquidity describes the inflows and outflows of cash. The company's continuous liquidity is a mirror of its cash conversion cycle, thus the significance of evaluation by cash conversion cycle, instead of liquidity steps. This theory hence informed this study on the expected effect of cash management on financial performance.

2.2.3 Transaction Cost Economics Theory

A transaction is unit of economic activity where one entity takes an action in return for fair reciprocal worth. The transaction cost economics theory concentrates on transaction costs which are the expenses that are sustained in the producing of products and services. Firms must

therefore reduce these operational and inherent costs by having proficiencies in their value chain which will cause reduced costs. The ideal level of stock ought to be reached on the basis of the costs and benefits related to the levels of stock being held.

Stock expenses include costs sustained in ordering and carrying the inventory in the books. Ordering expenses include preparing a purchase order, getting stocks, recording, and examining the stocks received. Holding expenses are incurred when holding the stock which is generally due to the storage of the inventory and other chance expenses. There are a number of factors for lower or greater levels of inventories being held and which are highly depends on what business a business is in. Among the most widely and easy intention of managing this stock is the expense intention, which is often based upon the Transaction Cost Economics (TCE) theory (Emery and Marques, 2011).

To keep a competitive edge, business need to reduce these costs, and this can be accomplished by having the inventory cost to an affordable minimum level which is likewise highly valued by stock market experts (Sack, 2000). The deal cost theory pertains to this research study as it informs on the study variable of working capital management and how it affects financial performance.

2.2.4 Value Chain Theory

Rappaport's (1986) theory on investor value was adopted in this study because it explains the drivers of drivers of shareholder value and the association between various factors and how they influence shareholder value. The argument is that to be efficient, management needs to have a set of concepts directing them, which can be applied throughout their decision-making producing the numerous situations that happen in the day-to-day course of business (Irene, 2010). To this end,

Rappaport (1986) likewise established a variety of financial management methods and basic concepts applicable to the management of inventory.

Two major principles are the cash flow approach to decision-making and the aspect of creation of shareholder value. Management of inventory has an effect on profitability and cash flows of the manager as it determines the inflows and outflows of cash into and outside the firm. Rappaport (1986) felt that the objective of shareholders value maximization is critical as owners of a firm hire a manager to act in their best interest by generating profits (Irene, 2010).

Shareholders value/wealth maximization criterion therefore develops to be a vital approach to articulate and assess a firm's objective (Irene, 2010). Various authors have tested this theory and determined that effective management of inventory has a positive effect on the firm's financial performance. Duru, Ekwe and Okpe(2014) noted that management of inventory in a manufacturing firms is of utmost importance as it has direct effects on profitability. Inventory management is related to sales, working capital investment and the levels of closing and opening inventories have a direct influence on profits. This theory was pertinent to this research as it enlightened on the study variable of inventory management and how it can drive performance.

2.3 Empirical Review

The empirical review focuses to study literature from previous scholars whose studies are on the effect of working capital management practices on the financial performance of manufacturing firms. The research study on working capital management practices brings out the performance of stock management, efficiency of receivables management and cash management efficiency as the crucial determinants of financial performance in an organization. Financial performance can

therefore be enhanced if efficiency levels of inventory, cash and receivables management practices are enhanced.

2.3.1 Receivables Management and Financial Performance

Mihajlov (2012) examined how public companies quoted in the securities market in the Republic of Serbia managed their credit balances during the economic recession times. A sample of 108 firms was utilized, which were the most effective Serbian companies noted at the Prime and Standard Listing in addition to the Multilateral Trading Platform of the Belgrade Stock Exchange. The balance dues policies were examined in the crisis duration of 2008-2011. To be able to comprehend the relation between receivables and firm's success, the short-term results are tested. The study exposes that in between balance fees and 2 reliant variables on success which are return on overall ownership and operating profit margin, there is a favorable nevertheless no substantial relation. This recommends that the impact of receivables on firm's success is changing in times of a crisis.

There was a study done to have a look at the effect of receivables management on profitability of food and beverages manufacturing companies in Nigeria by Duru et al. (2014). The variables consist of, balance fees, financial obligation and sales advancement. Secondary sources of information were used for the duration 2000-2011. The hypotheses were analyzed utilizing the several regression analytical tools. The findings triggered the conclusion that receivables had unfavorable and non-significant relationship with success, while financial obligation had favorable however non-significant relationship with profitability of food and drinks manufacturing business in Nigeria which were sampled. Also, there was a finding that, development in sales had positive and no much considerable relationship with success

Studies done by Mathura (2010), Samiloglu and Demrigunes (2008), Garcia and Martinez (2007), Laziridis and Tryfonidis (2006) and Deloof (2003) in Kenya, Greece, Belgium, USA, Spain and Turkey noted that there existed a negative relation between balance dues and firm profitability. Opposing proof is found by Sharma and Kumar (2011) who discovered a favorable relation between ROA and receivables.

Singh and Pandey (2008) had an effort to study the working capital components and its influence on success of Hindalco markets restricted for a duration 1990 to 2007. This study concentrated on secondary data collected from financial statements reports of Hindalco for the research study period 1990 to 2007. The ratio analysis, percentage approach and coefficient of connection were utilized to examine the data. Multiple regressions were used to inspect the significant impact on the profitability of Hindalco. Results of the research study showed that receivable turnover ratio had statistical substantial influence on the financial success of the firm.

2.3.2 Cash Management and Financial Performance

Njeru et al (2015) in his study decided to endeavor in discovering the effect of cash management on financial performance of deposit taking SACCOs in Mount Kenya Region. The population under study were the thirty licensed deposit taking SACCOs in Mount Kenya Region and simple random sampling was applied as the sampling strategy to select a sample size of 92 participants. Questionnaires were used to gather primary data. Secondary data was acquired from the audited financial results of the SACCOs and their regulator (SASRA). The examined data was with regard to the study objectives using both descriptive and inferential data. The findings from the study showed a significant and strong positive relationship between financial performance and cash management of deposit taking SACCOs in Mount Kenya Region.

An empirical study was done on the effect of money management on the financial stability of manufacturing business in Nigeria, Abioro 2013. The scientist used both secondary and primary data for information collection methods and his study concentrated on two broad variables; the reliant variable which is business financial performance and the independent variable which in this case is Cash management. He created two various hypotheses and checked utilizing descriptive statistics and connection coefficients strategies respectively in order to identify whether there is a considerable relationship between money management practice, performance and liquidity. The results of the study showed that there exists a substantial relationship in between money management on performance of manufacturing business in Nigeria. The study likewise exposed that accessibility of liquidity without appropriate management may cause unfavorable performance for manufacturing business therefore the need to efficiently handle money for better performance.

Mauchi et al (2011) research study was to examine the effectiveness of cash management practices at Hunyani Flexible Products (HFP) with information gotten in the duration 2000-2010. Some other goals of the research study were to identify the designs in money management and figure out the effect of poor money management on the total business performance. This result in coming up with techniques that can cause a reliable money management system. The descriptive survey approach was utilized to obtain details from the participants and a case study technique was utilized. Data was collected through interviews, administering questionnaires and by through observations. The research findings obtained suggested that there is a high shortage of an effective cash management policy which a few of poor supervisory qualities in the system existed. The research study likewise developed findings that there is a favorable relationship between the level of cash flow and the financial success of the company.

2.3.3 Inventory Management and Financial Performance

Lwiki et al's (2013) study focused on the impact of stock management practices on the financial performance of sugar manufacturing companies in Kenya by evaluating the degree to which lean stock systems, good provider collaboration and innovation were being used in these companies. The research study was performed in the 8 operating sugar manufacturing firms from the period 2002- 2007. Primary data was gathered utilizing structured and semi- structured questionnaires sent to key workers in the companies. Annual financial declarations were used to gather the secondary information. Detailed statistics was used to test the effect of inventory management practices and Correlation analysis was used to highlight the relationship among stock management variables. Outcomes of the research study indicated that there exists a positive connection in between stock management and Return on Sales ($r= 0.740$) as well as with Return on Equity ($r= 0.653$) which were discovered to be statistically significant at 5% level.

Mwangi (2011) research study was to establish the relationship in between working capital management and financial performance of manufacturing companies noted at the NSE. His research study utilized both descriptive and quantitative research study style and the target population of this study included all manufacturing business estimated at the NSE for the period of 5 years from 2007 to 2011.

From the regression designs, the research study learnt that stock turnover has negative relationship with Return on Equity which implies that companies' performance can be enhanced by minimizing stock turnover in days. Cash Conversion cycle period and Net payment period shows significant negative relation with Return on Equities revealing that firm financial performance can be increased with short size of both of them. Suggestion of the research study

was that there need to be proper inventory management system in manufacturing firms to avoid over stocking of stock which will result in effective outcome of financial investment.

2.3.4 Payable Management and Financial Performance

An assessment was conducted on effect of typical payment duration and typical collection period on SMEs profitability in Tanzania (Madishetti&Kibona, 2013). The research study was performed utilizing reliant variable as gross operating income and independent variables as typical collection duration and typical payment duration making use of suitable information of 38 Tanzanian SMEs for the period from 2006 to 2011. This research study utilized regression analysis to recognize the effect of typical payment period and average collection duration on gross operating income taking financial debt ratio, size of the firm and present ratio as control variables. The results suggest that there is a considerable favorable relationship between common payment duration and gross operating revenues.

Mathuva (2009) had a look at the effect of receivables and payables management on business success by utilizing a sample of 30 business listed on the Nairobi stock market (NSE) for the periods 1993 to 2008. Mathuya (2009) used Pearson and Spearman's connections, the pooled routine least square (OLS), and the repaired impacts regression models to carry out information analysis. Findings in his research study were that there exists an incredibly considerable negative relationship in between the ACP and profitability which there exist an extremely substantial beneficial relationship in between the APP and profitability.

Falope and Ajilore (2009) used a sample of 50 Nigerian approximated non-financial firms for the period 1996-- 2005. Their study made use of panel data econometrics in a pooled regression, where time series and cross-sectional observations were integrated and approximated.

They discovered a substantial negative relationship in between net operating income on one hand and the common collection period (ACP) and normal payment duration (APP) on the other hand for a sample of fifty Nigerian companies noted on the Nigerian Stock Exchange.

2.4 Research Gaps

Although research has discovered the effect of WCM on financial performance, there was still much that remained open for study. Gaps, conflicts, and ambiguities included the following. There was a contradiction in literature on the effect of receivable management on financial performance. For example, Mihajlov (2012) found that there is a positive but not substantial relationship while Duru et al's (2014) findings showed that receivables had unfavorable and non-significant relationship with success. Contradicting evidence is discovered by Sharma and Kumar (2011) who found a positive relationship in between ROA and accounts receivable. In view of this undetermined or weak support for a positive impact, the perspective regarding this argument should be widened.

The literature on account receivables and financial performance is incomplete. Many research studies evaluated explain to a positive relation in between receivables and financial performance but do not point out the extent to which poor receivable management practices impairs the financial performance (Kotut, 2013; Bastos & Pindado, 2012). This study aimed to augment the field rather than question the current paradigms in any significant ways.

The literature on WCM is portrayed as excluding alternative perspectives of WCM. Most empirical studies did not focus on the individual components of working capital. This study aimed to contribute by bringing this oversight into view and introducing a new framework by

breaking down working capital into cash management, inventory management, receivables management and payable management.

Most of the reviewed empirical studies do not have pertinent theoretical backing and explanations that are used as their basis to explain the expected association between financial performance and WCM. This study is backed by four pertinent theories that provide detailed and credible association between working capital management and financial performance of organizations.

Though researchers acknowledge that efficient WCM is an important factor for financial performance, they offer few suggestions on how to engage inefficient WCM activities. Organizations are encouraged to practice effective and efficient WCM practices. This suggestion does not address the difficulties these organizations face in engaging WCM in practice activities. More research on what motivates firms to practice WCM is needed.

TABLE1
Research Gaps and Summary of Literature Review

Author	Focus of Study	Findings	Research Gaps	How study address the gaps
Njeru <i>et al</i> (2015)	Effect of cash management on financial performance of deposit taking SACCOs in Mount Kenya Region	A strong positive relationship between cash management and Financial Performance.	A contextual gap exists. The study focused on SACCOs hence the findings may not be fully generalizable to the manufacturing sector.	The study will focus on WCM in manufacturing companies.
Abioro (2013)	The impact of cash management on the performance of manufacturing companies in Nigeria	A significant relationship exists between cash management on performance of manufacturing companies in Nigeria.	There exists a geographical gap as the study was carried out in Nigeria. Different WCM practices and models may exist in different countries.	Study will be carried out in Nairobi as most of this firms listed are based within Nairobi, Kenya and thus results will be more regionally conclusive.
Mauchi <i>et al</i> (2011)	The effectiveness of cash management policies at Hunyani Flexible Products (HFP)	A positive relationship between the level of cash flow and the profitability of the company.	Methodological gap. Data was obtained through interviews, administering questionnaires and by observations.	Study will use secondary data and questionnaires for primary data collection.
Lwikiet <i>al</i> (2013)	The impact of inventory management practices on the financial performance of sugar manufacturing firms in Kenya	There exists a positive correlation between inventory management and Return on Sales	There exists a contextual gap as the study only focuses on inventory management as an aspect of WM	This study will incorporate all other aspects of WCM including cash management, payable management and receivables management.
Mwangi (2011)	To establish the relationship between working capital management and financial performance of manufacturing firms listed at the NSE.	Inventory turnover in days has negative relationship with Return on Equity	Contextual gap WCM practices may vary in public companies and private ones.	This study will focus on the manufacturing firms registered with KAM, whether public or private.

Author	Focus of Study	Findings	Research Gaps	How study address the gaps
Mihajlov (2012)	How public companies listed at the regulated market in the Republic of Serbia manage their accounts receivables during the recession times	Between accounts receivables and two dependent variables on profitability, return on total asset and operating profit margin, the study established a positive but insignificant relationship	There existed a geographical and contextual gap	This study was carried out in Kenya and not necessarily during recession times.
Duruet <i>al</i> (2014)	Impact of receivables management on profitability of food and beverages manufacturing companies in Nigeria.	Accounts receivable had negative and non-significant relationship with profitability.	Findings gap. A positive non-significant relationship was found.	This study aimed to fill this gap by providing conclusive results on the influence of receivable management on financial performance.
Singh and Pandey (2008)	The working capital components and its impact on profitability of Hindalco industries	Receivable turnover ratio had statistical significant impact on the profitability.	Geographical Gap. The study was carried out in India making the findings less regionally conclusive in Kenya	Study was carried out in Nairobi as all of the listed firms were based within Nairobi, and thus results were more regionally conclusive.

Source: Author (2018)

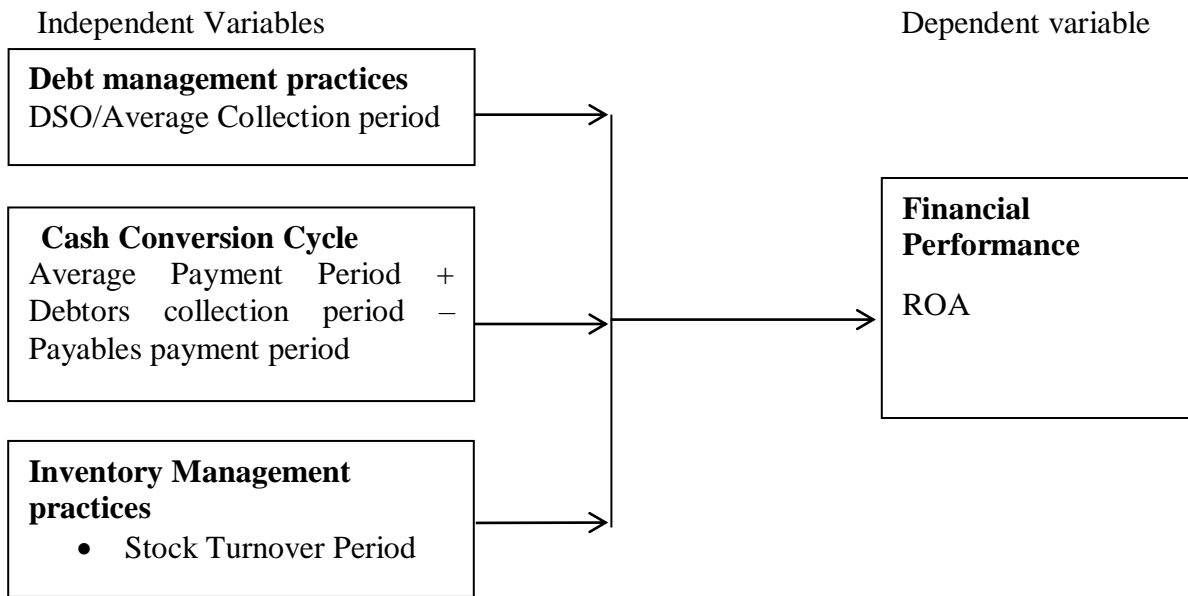
2.5 Conceptual Framework

From the theoretical and empirical literature review, it was expected that cash management practices would have a significant effect on financial performance of manufacturing companies.

Further, the study expected a positive correlation between financial performance and inventory management while accounts receivable is expected to have a significant relationship with financial performance and a significant positive relationship between average payment period and gross operating profit was expected. In the study, size of the firms was used as the control variable. This was measured using the book value of total assets.

FIGURE1

Conceptual Framework



Source: Author (2018)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter analyzes in detail the approach that was embraced in carrying out the research study. It covers in detail elements regarding the research study design, population, sample and sampling design, instruments, and sources of information and information analysis.

3.2 Research Design

Research design can be explained as the strategy of directing how a study will be conducted (Henn, Weinstein, and Ford, 2003). Further, Donald (2006) explains that a research design is the structure of the research as it brings all the elements in a research project together. The type of research design used in the study is descriptive research design as it describes systematically the facts and characteristics of a given population or area of interest, both accurately and factually. For this study, a descriptive study was used to study the association between financial performance of manufacturing & allied firms listed in NSE and working capital management (WCM) practices. The study was based on secondary data obtained from the financial statements and annual reports of the manufacturing firms that were registered with the Kenya Association of Manufacturers (KAM) and listed at NSE.

3.3 Target Population

Engelhardt, Kohler and Prskawetz (2009) posits that target population can be explained as client database, an organization, an individual or the amount of measurable information on which the inferences are being done throughout a given research study. Stillwell and Clarke (2011) states that, a population is the assortment of all the entities, units, people or elements which the

researcher needs to make conclusions about. The target population for this study was the 10 manufacturing and allied firms that are publicly quoted in the NSE.

3.4 Sample Size and Sampling Technique

A sampling frame is a list of all the units in the population from which the sample is selected (Cargan, 2007). As indicated in the study, the frame of this study was the manufacturing & allied companies registered with KAM and listed at NSE. As the target population size was small, census was the technique which was used in the study to select the companies.

Mugenda and Mugenda (2003) posited that when the population is small there is no point of sampling if time and resources allow as it increases the reliability of the study. The distribution is as shown in Table 2.

TABLE 2
Study Population

Company name	Sector	Percentage	Census population
B.O.C Kenya Ltd	Chemical and Allied	10	1
British American Tobacco Kenya Ltd	Food, Beverages and Tobacco	10	1
Carbacid Investments Ltd	Chemical and Allied	10	1
East African Breweries Ltd	Food, Beverages and Tobacco	10	1
Mumias Sugar Co. Ltd	Food, Beverages and Tobacco	10	1
Unga Group Ltd	Food, Beverages and Tobacco	10	1
Eveready East Africa Ltd	Energy, Electrical and Electronics	10	1
Kenya Orchards Ltd	Food, Beverages and Tobacco	10	1
A. Baumann CO Ltd	Energy, Electrical and Electronics	10	1
Flame Tree Group Holdings Ltd	Building, Construction and Mining	10	1
Total		100%	10

Source: Author (2018)

3.5 Data Collection Methods

The study relied solely on secondary information. The secondary information was originated from annual reports and financial statements of the manufacturing and allied companies publicly quoted in NSE. Audited yearly financial accounts were acquired from the websites of the firms and from NSEhandbooks. The data was gathered and modified prior to entering it into excel worksheet. Similar information for a five-year period on Accounts Receivable Turnover (ART), Cash Conversion Cycle (CCC) and Debtors Collection Period (DCP) was utilized to have an analysis on the relationship that existed between financial performance andWCM. The research study utilized panel data where information on the Return on Assets (ROA) for each of the manufacturing companies over the 5 years was evaluated. Pertinent data was gathered from financial reports that varied from the year 2011 - 2015. Making use of the NSE handbook and these audited statements enhanced a cost effective and precise gathering of the requisite information.

3.6 Data Analysis

The data collected was panel. Panel data analysis models were used for analysis of the data for 10 manufacturing firms over the five years. The panel data models that were considered included the pooled ordinary least squares (POLS) and the panel data models (fixed effects or the random effects model).

POLS assume that there are unique attributes for the data across entities and that there are no significant time related fixed effects. This model is appropriate when there are no major differences among the entities and also no common effects across time.

The POLS model is of the form:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \dots\dots\dots (i)$$

Where; Y= Financial Performance (ROA)

X₁= Debtors Collection Period

X₂= Cash Conversation Cycle

X₃= Inventory turnover period

β_i= Independent variable coefficients,

α = the intercept

ε = error term

Debtors Collection Period (DCP) in the study was computed as;

$$DCP = \frac{\text{(Average trade receivables x 365)}}{\text{Credit Sales}}$$

Where average trade receivables = (opening balance + closing balance)/2

Effective management of receivables and prompt collection are indicated by a short collection period. Short-term obligation settling ability of the firm can be adversely affected by a long collection period.

Cash Conversation Cycle (CCC) was computed as;

$$CCC = ITP + DCP - \text{Average Payment Period}$$

Where;

Average payment period = (Number of working days/payable turnover ratio)

Inventory turnover period (ITP) will be computed as;

$$ITP = \frac{\text{(Average Inventory x 365)}}{\text{Cost of Sales}}$$

The inventory turnover period indicates the rate at which a firm procures stock, turns it into finished products and sells these to its clients.

To assess the best model suited for the data, a Breusch-Pagan LM test was carried out to establish whether the POLS or panel data models are applicable.

The random effects model is based on the assumption that there exists no relationship between predictors and errors from the regressions. The error term in the random effects model captures both the random error and errors emanating from the panels.

The random effects model is of the form;

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + u_{it} + \varepsilon_{it} \dots \dots \dots (ii)$$

Where

$i = 1, 2 \dots 10$ (manufacturing firms listed in NSE)

$t = 1, 2 \dots 5$ (Years)

u = Between-entity error

ε = Within-entity error

Other variables are as indicated in Equation I.

Lastly, the fixed effects model would be used if the panels that are specific correlate with the predictors

The equation for the fixed effects model is:

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

Where

u = is the error term

Other variables are as indicated in Equation I and II.

Hausman test was conducted to assess which of the two models (fixed or random) was applicable for the data collected in the study. When the p value was above 0.05, random effects model would be selected but if p value was below 0.05, fixed effects model would be selected.

Before running the models, the study carried out diagnostic tests to investigate whether the assumptions of classical linear regression analysis were satisfied. The diagnostic tests were used to test the assumptions of regression which were normality, multicollinearity, serial correlation and heteroscedasticity. Normality assumption depicts that errors of the model are normally distributed. Test of normality in the study was conducted by overlaying the residuals of errors over the normal distribution. If the overlaid residuals deviated much from normal distribution, then the normality assumption would be violated.

The multicollinearity test is conducted to establish if there are any two independent variables that are highly correlated. This test was conducted using the correlation matrix and Variance Inflation Factors (VIF). Using correlation matrix, multicollinearity exists when two independent variables have correlation of + or -0.7 or above. Using VIF, two independent variables are highly correlated when the VIF is 5 or above.

The test for serial correlation was conducted using the Wooldridge test. The null hypothesis in the Wooldridge test is that there is no first order serial correlation while the alternate hypothesis states that there is first order serial correlation. When the f- statistic is significant (p value below 0.05), then there is serial correlation. When the p value is above 0.05, there is no serial correlation.

Lastly, the test for heteroscedasticity was conducted. One of the regression assumptions is that error of variances of residuals are constant. The Modified Wald test for groupwise

heteroskedasticity was applied. There is heteroscedasticity when the p value is below 0.05. However, if the p value is above 0.05, homoscedasticity is assumed.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

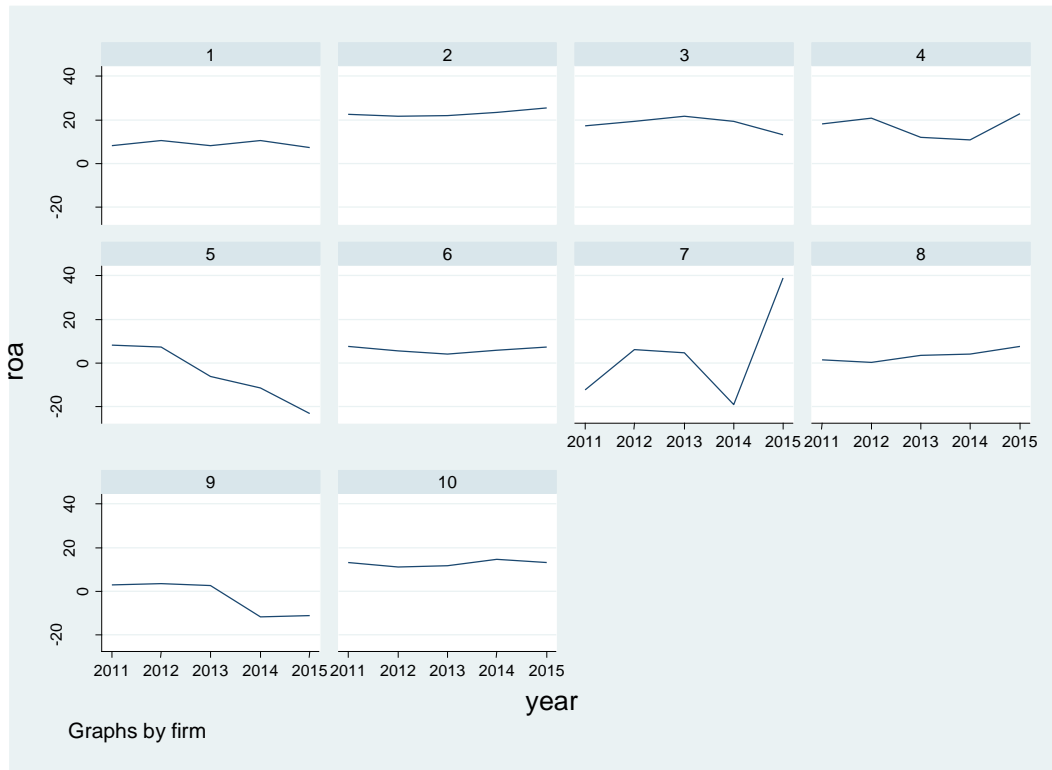
4.1 Introduction

This chapter provides the study results and also presents the discussion of the findings. The findings include the results of the exploratory analysis, descriptive analysis and panel data analysis. The analysis followed steps including exploratory analysis, descriptive analysis, pre-analysis diagnostic tests and post analysis diagnostic tests. The panel data was then analysed using the model that was best suited for the data. The results from the analysis are then presented in figures and tables, interpreted and then discussed in accordance with both the theoretical and empirical literature.

4.2 Exploratory Analysis of Financial Performance

The study explored financial performance of the 10 firms over the five-year period. The firms were 1= B.O.C Kenya Ltd, 2 = British American Tobacco Kenya, 3 = Carbacid Investments, 4 = East African Breweries, 5 = Mumias Sugar, 6 = Unga Group, 7 = Eveready East Africa, 8 = Kenya Orchards and 10 = Flame Tree Group Holdings. To achieve this, visual plots were used. The exploration involved within firms and between firm's analysis. In the within firm's analysis, growth plots were used as indicated in Figure 2. The trends in Figure 2 indicates that there were significant differences between the firms as some like Firm 5 and 9 had ROA's trend that were decreasing. Firm 7 had erratic ROA trend which showed significant disruptions year on year. However, firms 1, 2, 3, 4, 6, 8 and 10 showed trends which did not have significant changes year on year. Due to these differences, POLS model was not appropriate for the data and panel data model was more preferable.

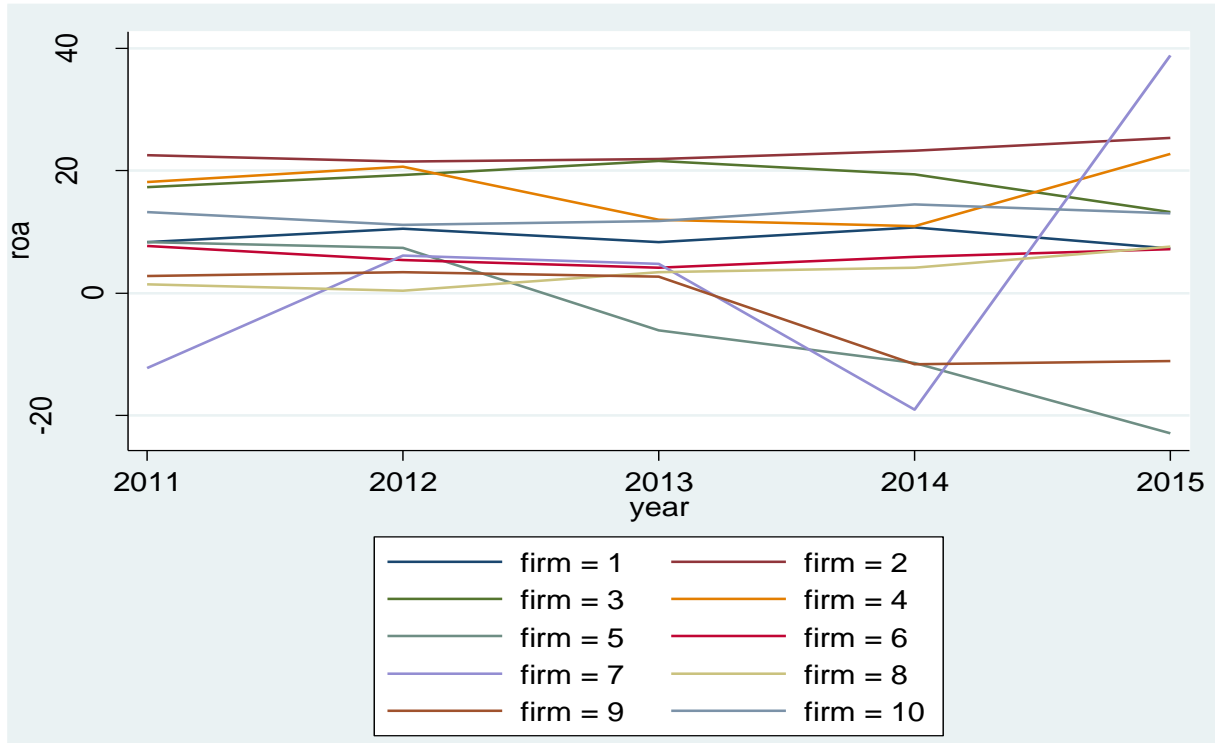
FIGURE2
ROA Trend Plot for Each Firm



Source: Author (2018)

Analysis of differences between firms was done by use of overlain plots as indicated in Figure 3. Unless for three firms, the trends of the other seven firms seemed to be not affected by firm specific effects. The results also indicated that POLS model was not appropriate for the data.

FIGURE3
Overlain Plots for ROA for the 10 Firms



Source: Author (2018)

4.3 Diagnostic Tests

4.3.1 Test of Multicollinearity

The next step involved checking the correlation of the independent variables to assess for multicollinearity. Results in Table 3 below indicate that there was no multicollinearity. This is because the highest correlation among the independent variables was between ITP and CCC (0.3694). This hence indicated that no two variables had high correlation with each other.

TABLE3**Correlation of Independent Variables**

	dcp	ccc	itp	Assets
dcp	1.0000			
ccc	0.0794	1.0000		
itp	-0.2608	0.3694	1.0000	
Assets	-0.1601	-0.2416	-0.0888	1.0000

Source: Author (2018)

VIF was also applied to test for multicollinearity. This tests whether any two variables are highly correlated. The higher the VIF, the higher the correlation between the variables with the higher VIFs. VIF values of 10 and above indicate presence of multicollinearity. The test results presented in Table 4 indicate that all the VIF values were below 10 and hence the conclusion was reached that there was no multicollinearity.

TABLE 4**Test for Multicollinearity using VIF**

Variable	VIF	1/VIF
DCP	3.18	0.314
CCP	2.46	0.407
ITP	1.11	0.901
Mean VIF	2.25	

Source: Author (2018)

4.3.2 Testing for Serial Correlation

Another test that was conducted was a test for serial correlation. Presence of serial correlation means that observations of a variable are not independent and thus past values influences future observations. The test for serial correlation was conducted using the Wooldridge test. The null

hypothesis in the Wooldridge test is that there is no first order serial correlation while the alternate hypothesis states that there is first order serial correlation. The results of the Wooldridge test are presented in Table 5. The results indicate that the F statistic was 0.233 which was not significant at 5% ($p = 0.6408$). This indicated that the null hypothesis could not be rejected and thus there was no first order serial correlation.

TABLE 5
Serial Correlation Test

Wooldridge test for autocorrelation in panel data			
H0: no first-order autocorrelation			
F(1,	9)	= 0.233
	Prob > F =		0.6408

Source: Author (2018)

4.3.3 Test for Heteroscedasticity

Further, the model was tested for homoscedasticity. This is where all variances of residuals are assumed to be constant. The Modified Wald test for groupwise heteroskedasticity was applied. The results presented in Table 6 indicate that there was no heteroscedasticity in the models as the significance (p value) was above 0.05.

TABLE 6
Modified Wald Test for Groupwise Heteroskedasticity

Model	Dependent variable	χ^2 - value	p-value
1	ROA	3.97	0.217

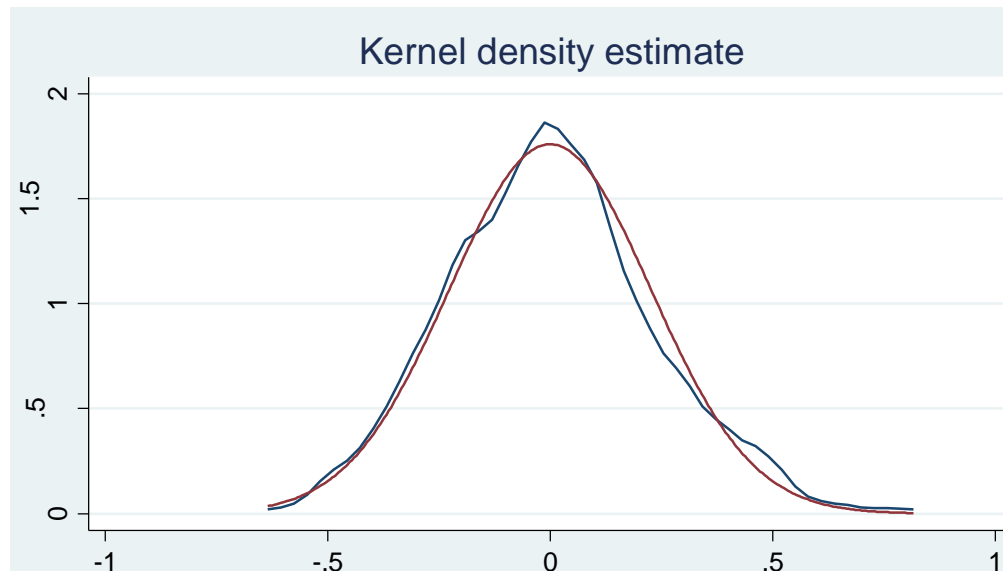
Source: Author (2018)

4.3.4 Test of Normality of Residuals

The last diagnostic test conducted was test of normality of residuals. The last post diagnostic test conducted was test of normality of residuals. This was tested using the kernel density estimate

which fits the residuals against the normal curve. The plot was as indicated in Figure 4. This indicates a good fit to the normal distribution and hence the residuals were considered to be normally distributed.

FIGURE 4
Test of Normality of Residuals



Source: Author (2018)

4.4 Descriptive Statistics

The study also analysed the data using descriptive statistics for all the study variables. The analysis for panel provided the mean, standard deviation, minima and maxima. The descriptive analysis also provided the overall, between and within statistics. The results are presented in Table 7. The results indicated that the average return on assets (ROA) for the firms over the five-year period was 8.52% whereas average DCP was 87.37 days. Results further indicated that average CCC was 38.86 days while average ITP was 89.95 days.

TABLE7**Descriptive Statistics of the Study Variables**

Variable		Mean	Std. Dev.	Min	Max	Observations	
roa	overall	8.51812	11.91952	-23.01044	38.8858	N =	50
	between		9.168169	-4.992107	22.95015	n =	10
	within		8.054888	-14.257	43.72322	T =	5
dcp	overall	87.37458	44.48784	26.05511	226.6697	N =	50
	between		43.00898	36.01148	173.3324	n =	10
	within		16.74508	29.80643	140.7119	T =	5
ccc	overall	38.86015	75.29565	-135.2164	180.9366	N =	50
	between		69.54231	-83.0544	164.0901	n =	10
	within		35.0441	-102.2249	104.3088	T =	5
itp	overall	89.95253	48.66007	29.42689	213.6305	N =	50
	between		47.14016	40.96139	184.7333	n =	10
	within		18.08346	50.82731	138.5051	T =	5

Source: Author (2018)

4.5 Panel Data Model

Before running the panel data model, a test to establish which of the two models was appropriate (fixed effects or random effects model) was conducted. The Hausman test is the one that is used to establish which one of the two models is appropriate for the data. The null hypothesis in the Hausman test is that the model preferred is the random effects model while the alternate hypothesis is that fixed effects model is preferred. The Hausman test hence assesses whether the regressors are correlated with the unique errors (ui) in the models. The results in Table 8 indicate that the null hypothesis was rejected (chi square = 10.09; p = 0.0390). This indicated that the regressors were correlated with the unique errors and hence the fixed effects model was appropriate.

TABLE8

Hausman Test Results

	—— Coefficients ——			
	(b) fixed	(B) random	(b-B) Difference	sqrt (diag(V_b-V_B)) S.E.
dcp	-.1587619	-.1279311	-.0308308	.0482978
ccc	.0545552	.0166173	.0379379	.0183202
itp	-.0030226	.0059656	-.0089882	.0476542
Assets	50.74313	1.755112	48.98802	18.86585

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

$chi2(4) = (b-B)' [(V_b-V_B)^{-1}] (b-B)$
 = 10.09
 Prob>chi2 = 0.0390

Source: Author (2018)

After selection of the fixed effects model, a test to establish whether there were time related fixed effects was carried out. To completely preclude presence of time related fixed effects, the ‘testparm’ command was run immediately after running the fixed effects model in stata. The results are as presented in Table 9. The results indicated that $F = 0.97$ and Probability = 0.04357. the p value was greater than 0.05, therefore indicating that the null hypothesis that all the coefficients for all years are jointly equal to zero could not be rejected. This hence means that there were no time fixed effects and therefore dummy variables were not required in this case.

TABLE9**Test for Time Related Fixed Effects**

year						
2012	-.792243	3.871715	-0.20	0.839	-8.678667	7.094181
2013	-4.200329	4.430057	-0.95	0.350	-13.22406	4.823402
2014	-6.900271	4.315183	-1.60	0.120	-15.69001	1.88947
2015	-1.922145	4.855095	-0.40	0.695	-11.81165	7.967361
_cons	-396.5836	159.6775	-2.48	0.018	-721.836	-71.33111
sigma_u	54.275693					
sigma_e	8.1107185					
rho	.97815679	(fraction of variance due to u_i)				
F test that all u_i=0: F(9, 32) = 5.09 Prob > F = 0.0003						
. testparm i.year						
(1)	2012.year = 0					
(2)	2013.year = 0					
(3)	2014.year = 0					
(4)	2015.year = 0					
F(4,	32) =	0.97				
Prob > F =		0.4357				

Source: Author (2018)

The next step involved running the fixed effects panel data model. The regressors in the model were DCP, CCC and ITP while the log of assets was used as a control variable. Log of assets was hence used as an extra independent variable in the model so as to control the effect of the three independent variables on performance. The dependent variable in the model was financial performance which was measured using ROA. However, after running the model, there was heteroscedasticity. This necessitated the use of robust errors. The fixed effects model with robust errors was hence used and the results are presented in Table 10.

TABLE 10**Fixed Effects Model (Robust)**

Fixed-effects (within) regression		Number of obs	=	50		
Group variable: firm		Number of groups	=	10		
R-sq: within	= 0.2573	Obs per group: min	=	5		
between	= 0.0199	avg	=	5.0		
overall	= 0.0185	max	=	5		
		F(4, 9)	=	18.32		
corr(u _i , Xb)	= -0.9741	Prob > F	=	0.0002		
(Std. Err. adjusted for 10 clusters in firm)						
roa	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
dcp	-.1587619	.0254087	-6.25	0.000	-.2162403	-.1012835
ccc	.0545552	.0293194	1.86	0.096	-.0117699	.1208803
itp	-.0030226	.0496459	-0.06	0.953	-.1153293	.1092841
Assets	50.74313	38.39635	1.32	0.219	-36.11544	137.6017
_cons	-315.0629	257.0277	-1.23	0.251	-896.5	266.3742
sigma_u	44.056					
sigma_e	8.098682					
rho	.96731223	(fraction of variance due to u _i)				

Source: Author (2018)

The results in Table 10 indicate that the model was statistically significant ($F = 18.32$; $p = 0.0002$). This indicates that all or some of the coefficients in the model were different from zero. This is interpreted to mean that the model is significant and some variables have a significant effect on the response variable. The results also indicated that within r squared was 0.2573 while the between r squared was 0.0199 the overall r squared (ignoring the panels) was 0.0185. This further indicated that the panel data model was better than the POLS regression as the panel model explained 25.75% of the variation within firms and 1.99% between firms while POLS only explained 1.85% of the variation.

Moreover, results indicated that correlation among the unique errors and the regressors was very strong (-0.9741) which further supported the use of fixed effects model rather than the POLS of the random effects model. Further results indicated that 96.73% of the variance was due to differences that existed across panels ($\rho = 0.9673$). The results also indicated that DCP had a negative and significant effect on financial performance of the manufacturing firms quoted in the NSE ($\beta = -0.1588$; $p < 0.05$).

Regarding the effect of CCC on financial performance, findings revealed that CCC did not have a significant effect on financial performance of the manufacturing firms listed in the NSE ($\beta = 0.0546$; $p > 0.05$). Moreover, study results established that inventory turnover period did not have a significant effect on financial performance of the manufacturing firms listed in the NSE ($\beta = -0.0030$; $p > 0.05$). assets owned by the manufacturing firms had a positive but not significant effect on financial performance of the manufacturing firms listed in the NSE ($\beta = 50.74$; $p > 0.05$).

The resultant model was of the form;

$$Y = \alpha - 0.1588X_1 + 0.0546X_2 - 0.0030X_3 + \dots \dots \dots \text{(iv)}$$

Where; Y= Financial Performance (ROA)

X₁= Debtors Collection Period

X₂= Cash Conversation Cycle

X₃= Inventory turnover period

The model depicts that DCP and ITP had a negative effect on financial performance while CCC had a positive effect on financial performance.

The study used the results to test the hypotheses. The results in Table 8 indicate that debtor collection period (DCP) has a negative and significant effect on financial performance of the manufacturing firms quoted in the NSE ($\beta = -0.1588$; $p < 0.05$). This indicates that reducing the debtors collection period by one day would result to an increase in profitability (ROA) by 0.15%. These results were used to test the first hypothesis of the study which was;

H₁: Debt management practices have an important effect on the financial performance of manufacturing & allied firms listed in NSE.

The results led to acceptance of the hypothesis since DCP was found to have a significant negative effect on financial performance of the manufacturing forms listed in the NSE. These findings support the major theory that this study was anchored on. The theory indicates that including accounts receivable into an operating cycle concept brings a more clear view of liquidity management than the reliance on the acid-test ratio. This in turn leads to better performance of the firm. According to Weston and Eugene (2012). The theory also posits that additional liquidity measures bring out the fact that the cycle of some working capital components depend upon the extent to which three basic activities- production, sales, and collection are synchronized. This hence ensures that efficiency in managing the working capital items and mostly accounts receivables can enhance performance of the company. The findings from this study support this view by implying that reducing the debtors collection period for the manufacturing firms listed in the NSE can enhance financial performance.

The findings that DCP had a significant negative effect on financial performance of manufacturing firms are contrary to the results on food and beverages manufacturing companies in Nigeria by Duru et al. (2014). In the study by Duru and colleagues, accounts receivable turnover period had negative and non-significant relationship with profitability. Other

contradicting results were by Sharma and Kumar (2011) who found a positive relation between ROA and accounts receivable. This contradiction may have been due to the different methodologies used in the studies. The current study applied panel data model while the studies by Duru et al. (2014) and Sharma and Kumar (2011) had applied multiple linear regression.

However, the study results on the significant and negative effect of DCP on financial performance concurred with previous study results from studies such as Deloof (2003), Laziridis and Tryfonidis (2006), Garcia and Martinez (2007), Samiloglu and Demrigunes (2008) and Mathura (2010), in Belgium, Greece, U.S.A, Spain, Turkey and Kenya respectively. These studies had established that account receivables turnover period had a negative and significant effect on firm profitability.

Study results also established that CCC did not have a significant effect on financial performance of the manufacturing firms listed in the NSE ($\beta = 0.0546$; $p > 0.05$). These results indicated that change in the CCC for the manufacturing firms was not expected to lead to any significant change in the financial performance of the firms. These results were also used to test the second hypothesis of the study which was:

H₂: Cash management practices have an important effect on the financial performance of manufacturing & allied firms listed in NSE.

The results led to rejection of this hypothesis. This was because the study results had indicated that CCC did not have a significant effect on the financial performance of manufacturing firms listed in the NSE. These study results contradicted the Cash Conversion Cycle Theory which indicates that CCC is a yardstick measure of the liquidity health of the company which can have a significant effect on the financial health of the company (Jose and Lancaster, 2006).

The results from the study also were contrary to the results by Njeru et al (2015) who had studied the effect of cash management on financial performance of deposit taking SACCOs in Mount Kenya Region. The study by Njeru and colleagues established a strong positive linear relationship between financial performance and cash management of Deposit taking SACCOs in Mount Kenya Region. However, the current study established that CCC had a positive but insignificant effect on financial performance of manufacturing firms.

Another study with contradicting findings was by Abioro(2013) on manufacturing companies in Nigeria. The results of the study showed that there existed a significant relationship between cash management on performance of manufacturing companies in Nigeria. The difference in the results can be due to the models applied as this study applied OLS model while the current study applied a more robust panel data model.

Further, the study results revealed that inventory turnover period did not have a significant effect on financial performance of the manufacturing firms listed in the NSE ($\beta = -0.0030$; $p > 0.05$). These findings were interpreted to mean that change in the inventory turnover period was not expected to have a significant effect on financial performance of the manufacturing firms when all other factors remained constant. Likewise, these results were used to test the third hypothesis of the study which was:

H₃: Inventory management practices have an important effect on the financial performance of manufacturing & allied firms listed in NSE.

The results led to the rejection of this hypothesis as inventory turnover period did not have any significant effect on the financial performance of the manufacturing firms listed in the NSE. These results disagreed with the assumptions of the transaction cost theory that firms should reduce these transaction costs by having competencies in their value chain which will

lead to reduced costs and hence to improved performance. The theory also posits that the right level of inventory should be reached on the basis of the costs and benefits associated with the levels of inventory being held(Emery & Marques, 2011). The findings however indicated that reducing the inventory turnover period would lead to an increase in profitability but this effect was not significant.

These study results contradicted with the findings by Lwiki et al (2013) whose study on sugar manufacturing firms in Kenya indicated that there existed a positive correlation between inventory management and Return on Sales ($r=0.740$) and also with Return on Equity ($r=0.653$) which were found to be statistically significant at 5% level. The differences in these two studies can be explained by two factors. First is the models applied. The current study applied panel data model while the study by Lwiki and colleagues applied correlation analysis. Secondly, the current study applied ROA as the measure of financial performance while the study by Lwiki and colleagues applied ROE and return on sales.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of results, conclusions and recommendations. The conclusions that are made in the study are in the regard to the study findings. This chapter also summarizes the findings and relates them to the theory that the study was anchored upon. Moreover, the findings are interpreted, compared and contrasted with earlier findings. Lastly, the chapter presents the recommendations that were made in the study and suggests areas that more research is recommended.

5.2 Summary of Findings

This section provides a summary of the findings. The part is presented in regard to the study objectives which sought to establish the effect of DCP, CCC and ITP on financial performance of manufacturing firms listed in the NSE.

5.2.1 Effect of Debt Management Practices on Financial Performance

This study was anchored on the operating cycle theory which posits that how the firms manage production, sales, credit terms and receivables affects its operations and hence its performance (Richards & Laughlin, 2013). This theory was partially supported by the findings in this study which indicated that debtors collection period had a negative and significant effect on financial performance of the manufacturing firms listed in the NSE. These results concurred with previous results from studies such as Deloof (2003), Laziridis and Tryfonidis (2006), Garcia and Martinez (2007), Samiloglu and Demrigunes (2008) and Mathura (2010), in Belgium, Greece, U.S.A, Spain, Turkey and Kenya respectively which had established that DCP had a negative and

significant effect on financial performance. The study findings on the significant negative effect of DCP on profitability, however, contradicted the findings by Duru et al. (2014) that accounts receivable turnover period had negative and non-significant relationship with profitability.

However, other findings from the study did not support this theory. For instance, the study findings that cash conversion cycle and inventory turnover period did not have a significant effect on the financial performance of the manufacturing firms contradicted the theory.

5.2.2 Effect of Cash Management Practices on Financial Performance

Study results established that CCC did not have a significant effect on financial performance of the manufacturing firms listed in the NSE. These results contradicted the results by Mauchi et al (2011) which was conducted on Hunyani Flexible Products (HFP) with data obtained in the period 2000-2010. The study established that there was a positive relationship between the level of cash conversion and the profitability of the company. However, this study was a study on only one company while the current study focussed on 10 manufacturing firms listed at the NSE.

5.2.2 Effect of Inventory Management Practices on Financial Performance

Lastly, the study results revealed that inventory turnover period did not have a significant effect on financial performance of the manufacturing firms listed in the NSE. These results contradicted the transaction cost theory which affirms that reduction of inventory turnover which depicts efficiency is expected to lead to cost reduction and also improved financial performance (Emery & Marques, 2011). These results also contradicted the study results by Mwangi (2011) who studied manufacturing firms listed at the NSE for the period of five years from 2007 to

2011. The study applied regression models and established that inventory turnover has negative relationship with Return on Equity which means that companies' performance can be improved by reducing inventory turnover in days.

5.3 Conclusion

The study concludes that DCP has a significant and negative effect on financial performance of manufacturing firms listed in the NSE. These findings hence imply that by reducing DCP, manufacturing firms listed in the NSE can enhance their performance.

Secondly, the study concludes that cash conversion cycle does not have a significant effect on the financial performance of manufacturing firms listed in the NSE. These results imply that changing the cash conversion cycle in days would have a positive but insignificant effect on the financial performance of the manufacturing companies listed in the NSE.

Lastly, the study concludes that inventory turnover period does not have a significant effect on the financial performance of manufacturing firms listed in the NSE. These results imply that though inventory turnover had a negative effect on financial performance, this effect was not significant and hence changing the inventory turnover days would not lead to any significant change in financial performance of the manufacturing firms.

5.4 Recommendations

The following recommendations are made. First, manufacturing firms listed in the NSE should ensure that strict efficiency in management of accounts receivables collection is observed. However, though reducing the accounts receivable collection period would result to an increase in profitability, management should do this with caution as haphazard reduction in debtors days

would have a negative effect on sales. Every manufacturing firms should therefore adjust its debtor days and credit terms after careful consideration of its customers, economic climate and sector.

Secondly, the study recommends that firms should take careful analysis of the cash conversion cycle as it is a outcome of inventory turnover, payables days and debtor days. Though the study established that CCC does not significantly affect financial performance, management should not entirely ignore CCC since profitability is not the only goal of the firm.

Lastly, the study recommends that management should apply advanced techniques of management of inventory to ensure that resources allocated for inventory are commensurate with the value and cost of the inventory.

5.5 Areas of Further Research

The study derived interesting findings which gave a deeper insight into the effect of working capital management on financial performance of manufacturing firms listed in the NSE. This study was informed by the importance of the manufacturing sector in the industrialization of the country on its path towards attaining Vision 2030. However, in order to attain the status of a middle level country, the country needs to focus not only on the listed companies in Kenya or the manufacturing sector. As such, the study hence recommends more research on other sectors of the economy such as agricultural sector, construction and allied sector and also in the energy sector.

Furthermore, the small and medium enterprises are touted to play a pivotal role in advancing the economy of the country to middle income status. Their profitability is therefore important and

how working capital management affects their profitability is an area that needs to be studied. This would inform them on how their working capital management practices affects their profitability which will inform their policies and practices. Lastly, this study presumed a liner relationship whereas other forms of relationships can be explored for further research.

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APPENDIX: Data collection Form

Company:								
Yr	Trade receivables	Credit sales	Purchases	Payables	Inventory	Cost of sales	Profit	Assets
2011								
2012								
2013								
2014								
2015								