THE EFFECT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY PERFORMANCE OF MANUFACTURING FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE: KENYA

Master Thesis

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This thesis titled "**The Effect of Working Capital Management on Profitability Performance of Manufacturing Firms Listed At The Nairobi Securities Exchange: Kenya**" has been prepared and submitted by **Sharmarke ABDULLAHI ALI** in partial fullfillment of the requirements in "**Anadolu University Directive on Graduate Education and Examination**" for the Master of Arts **in International Business Program of Business Administration Department** has been examined and approved on **25/05/2017.**

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ÖZET

NAİROBİ MENKUL KIYMETLER BORSASINDA YER ALAN İMALAT FİRMALARININ IŞLETME SERMAYESİ YÖNETİMİ VE KARLILIK PERFORMANSI İLİŞKİSİ: KENYA

Sharmarke ABDULLAHI ALI

Uluslararası İşletme Anabilim Dalı

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Çalışma, 2010-2015 döneminde Nairobi Menkul Kıymetler Borsasında listelenen imalat firmalarının işletme sermayesi yönetiminin ve kârlılık performansının etkisini analiz etmiştir. İşletme sermayesi yönetiminin bileşenleri, stoklarınn elde kalma süresi (stok dönüşüm periyodu), alacakların tahsil süresi, borçların geri ödenme dönemi ve nakit dönüşüm süresi ile; karlılık performansı ise varlıkların getirisi (aktifin geri dönme oranı) ile sınırlandırılmıştır. Çalışmada, verilerin kolay erişilmesi ve güvenilirliği nedeniyle, imalat şirketinin finansal tablolarından ve Nairobi Menkul Kıymetler Borsası yayınlarından elde edilen ikincil veriler kullanıldı.

Araştırmacı, araştırmanın amaçlarına ulaşmak için bağımlı ve bağımsız değişkenler arasındaki ilişkiyi değerlendirmek için tanımlayıcı, korelasyon ve regresyon analizi yapmıştır. Araştırmanın sonunda, alacak tahsil süresi ve borçların geri ödenme döneminin aktif kârlılığı ile pozitif bir ilişki içinde olduğu; nakit dönüşüm süresinin ise %5 anlamlılık düzeyinde negatif bir ilişki içinde olduğu bulunmuştur. Bununla birlikte, çalışmada, imalat firmalarının yöneticilerinin, işletmelerin nakit dönüşüm döngüsünü minimum düzeye indirerek ve borç ödeme süresini uzatarak kârlılık performansını artırabilecekleri sonucuna varılmıştır.

Anahtar Kelimeler: Çalışma Sermayesi Yönetimi, Nakit Yönetimi, Alacak Yönetimi, Stok Yönetimi ve Varlık Getiri.

ABSTRACT

THE EFFECT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY PERFORMANCE OF MANUFACTURING FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE: KENYA

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The study analyzed the effect of working capital management and profitability performance of manufacturing firms listed at NSE for a period of 2010-2015. Working capital management components were inventory conversion period, accounts receivable collection period, accounts payable period and cash conversion cycle while profitability performance was limited to return on assets. The study used secondary data from manufacturing company's financial statements and Nairobi Security Exchange handbook produced annually due to the easy access and reliability of the data.

The researcher conducted descriptive, correlation and regression analysis to evaluate the relationship between dependent and independent variables to achieve the objectives of the study. The study found accounts receivable collection period and the accounts payable period had a positive association with return on assets while cash conversion cycle had a negative relationship at 5% significant level. However, study concluded that the managers of manufacturing firms can increase the profitability performance of their business while reducing cash conversion cycle at the minimal levels and prolonging the accounts payment period.

Keywords: Working Capital Management, Average Collection Period, Average Inventory Period, Average Payment Period, Cash Conversion Cycle, and Return on Assets.

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30/05/2017

STATEMENT OF COMPLIANCE WITH ETHICAL PRINCIPLES AND RULES

I hereby truthfully declare that this thesis is an original work prepared by me; that I have behaved in accordance with the scientific ethical principles and rules throughout the stages of preparation, data collection, analysis and presentation of my work; that I have cited the sources of all the data and information that could be obtained within the scope of this study, and included these sources in the references section; and that this study has been scanned for plagiarism with "scientific plagiarism detection program"used by Anadolu University, and that "it does not have any plagiarism" whatsoever. I also declare that, if a case contrary to my declaration is detected in my work at any time, I hereby express my consent to all the ethical and legal consequences that are involved.

Sharmarke ABDULLAHI ALI

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ETİK İLKE VE KURALLARA UYGUNLUK BEYANNAMESİ

Bu tezin bana ait, özgün bir çalışma olduğunu; çalışmamın hazırlık, veri toplama, analiz ve bilgilerin sunumu olmak üzere tüm aşamalardan bilimsel etik ilke ve kurallara uygun davrandığımı; bu çalışma kapsamında elde edilemeyen tüm veri ve bilgileri için kaynak gösterdğimi ve bu kaynaklara kaynakçada yer verdiğimi; bu çalışmanın Anadolu Üniversitesi tarafından kullanılan ''bilimsel intihal tespit programı''yla tarandığını ve hiçbir şekilde ''intihal içermediğini'' beyan ederim. Herhangi bir zamanda,çalışmamla ilgili yaptığım bu beyana aykırı bir durumun saptanması durumunda, ortaya çıkacak tüm ahlaki ve hukuki sonuçlara razı olduğumu bildiririm.

Sharmarke ABDULLAHI ALI

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LIST OF ABBREVIATIONS

ANOVA	: Analysis Of Variance
APP	: Accounts Payable Period
ARP	: Accounts Receivable Period
CCC	: Cash Conversion Cycle
COGS	: Cost Of Goods Sold
DAP	: Days' Account Payables
EAC	: East African Community
EOQ	: Economic Order Quantity
GDP	: Gross Domestic Product
GPM	: Gross Profit Margin
ICP	: Inventory Conversion Period
KAM	: Kenya Association Of Manufacturers
NOP	: Net Operating Profit
NPM	: Net Profit Margin
NSE	:Nairobi Securities Exchange
PBIT	: Profit Before Interest And Tax
ROA	: Return On Assets
ROCE	: Return On Capital Employed
ROE	: Return On Equity
ROI	: Return On Investment
WCM	: Working Capital Management

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CHAPTER ONE

BACKGROUND OF THE STUDY

1. INTRODUCTION

In the global view, manufacturing industries are regarded the most predominant drivers for economic transformation and growth of the countries from weak to strong or under-developed to developed. In the same way, Kenya's manufacturing firms play a tangible role in the country's economic development by contributing about 10% to GDP and employs about 20% of the total workers in the economy; this indicates that the manufacturing sector gets lion's share in the Kenyan economy Kung'u, (2015). However, there are several challenges facing manufacturing sector such as liquidity problems and poor management which led the collapse of many firms. The problem of the study will be explained in more details about all those challenges.

1.2 Statement Of The Problem

The primary target of the study is to examine the effect of working capital management (WCM) on the profitability of manufacturing firms operating in Somalia; unfortunately, Somalia faced almost 25 years of unstable and lawlessness, so it became hard to gather currently or previously collected data from either public institutions or other private organizations. For these limitations and many others, the researcher has chosen Kenya as best case study alternative since Kenya is the neighbor country to Somalia and has some common economic factors affecting both states particularly manufacturing sector. Therefore, the findings of this study are beneficial to both countries in improving their manufacturing firms in terms of working capital management and profitability performance.

Most of the Kenyan manufacturing firms are facing working capital problems which negatively affected the financial performance of the sector as reported by different

researchers. Many of Kenya's manufacturing companies are struggling only to survive while others have been pushed out from the markets. Others have already stopped to operate as evidenced by the closure of Pan Paper Mill in Webuye and Cadbury East Africa. Many other companies are on their way to stop operations whereas some others are operating at breakeven point KAM,(2006).

According to (Kamunge, Njeru, and Tirimba, 2014, p. 1), despite the positive contribution of Kenyan manufacturing firms to the national growth, "three out of five businesses do fail within the first few months of operation due to several challenges such as improper financing and poor management".

Most recently research carried out by Githinji (2015, p. 8), also stated that the main reason for the firm's collapse is having imbalance of working capital levels such as having excessive or inadequate; having too excessive working capital locks up the capital for unnecessary assets that might reduce the rate of return on investments while insufficient working capital is a threat to the continuation of the business operations and the liquidity of the firms, hence this consequently reduces the profitability as well as the shareholders' value. Therefore, all types of businesses must maintain an optimal level of working capital to avoid both problems of holding excessive or insufficient levels.

Considering the significance of the working capital management, several researchers invested their time to investigate the nature of the relationship between working capital management and firm's profitability such as Makori and Jagongo (2013) and Githinji (2015) among others. They found that manufacturing and construction firms in Kenya are facing working capital management problems which have severely affected the profitability of the manufacturing firms and in turn the value of the companies. However, the above researchers analyzed the effect of WCM on firm's profitability with different variables and methods. None of them separately focused on manufacturing firms. Therefore, if Kenya's manufacturing trend remains unchanged, the failure of the firms may further affect a large number of firms. Additionally, Kenya's expectation to double-digit the contribution of manufacturing sector to the national growth in 2030 vision for transforming the country to the middle-income economy might not be realized and vice versa.

To better understand these assertions, this study is sought to be the solution by examining the effect of working capital management on manufacturing firm's profitability performance listed on NSE for period 2010 – 2015.

1.3 Objectives Of The Study

The main objective of this study is to provide empirical evidence about the effect of working capital management on profitability for manufacturing firms for enhancing the investment returns.

1.3.1 Specific objectives of the study

 To assess whether there is a significant relationship between accounts receivable collection Period (ARP) and profitability performance of manufacturing firms listed at NSE Kenya.

 To determine whether there is a significant relationship between inventory conversion period (ICP) and profitability performance of manufacturing firms listed at NSE Kenya.

 To examine if there is a significant relationship between accounts payable Period (APP) and profitability performance of manufacturing firms listed at NSE Kenya.

 To evaluate if there is a significant relationship between cash conversion cycle (CCC) and profitability of manufacturing firms in Kenya.

1.3.2 Research hypothesis

To achieve the objectives of the study, researcher formulated the following null hypothesis:-

H_o1: There is no significant association between accounts receivable collection period (ARP) and profitability performance of manufacturing firms listed at NSE Kenya.

H_o2: There is no significant association between inventory conversion period (ICP) and profitability performance of manufacturing firms listed at NSE Kenya.

H_o3: There is no significant association between accounts payable period and profitability performance of manufacturing firms listed at NSE Kenya.

H_o4: There is no significant association between cash conversion cycle and profitability performance of manufacturing firms listed at NSE Kenya.

1.4 Significance Of The Study

This study will contribute to the existing knowledge by explaining how working capital management affects manufacturing firm's profitability performances. The findings will help managers of manufacturing firms in a way they can use working capital to increase their profits as well as the firm's market value. At end of this study, financial managers will be able to avoid experiencing imbalance working capital and maintain sufficient balance between a firm's current assets and liabilities to overcome liquidity problems and improve the firm's overall profit. On the other hand, the findings will be beneficial to regulatory bodies like the Kenya association of manufacturers (KAM) and respective government institutions involving the policy regulations such as the ministry of industry, so that, they use to frame the best suitable strategies that can help manufacturers to realize their full potential. Moreover, this study will be used by the financial analysts, stock brokers and other parties interesting to invest manufacturing sector. The study will also be beneficial to scholars and academicians who will be undertaking research on WCM or related areas since it will contribute to the existing literature for reference. Finally, it will help the researcher himself to gain skills in conducting research for instance data collection, data analysis and interpretation of the data.

1.5 Limitations

There is one main challenge in this study; the manufacturing firms registered at KAM (Kenya Association Of Manufacturers) are 853 firms under lied 14 different sectors named as Service and Consultancy, Building, Mining and Construction, Chemical and Allied Sectors, Energy, Electrical and Electronics, Food and Beverages, Leather and Footwear, Metal and Allied Sector, Motor Vehicle and Accessories, Paper and Board, Pharmaceutical and Medical Equipment, Plastics and Rubber, Fresh Produce, Textiles and Apparels, Timber, Wood and Furniture Were (2016, p. 9)**.** So, the population of the study is very highly heterogeneous. Again, most of the firms registered at KAM are not trading on NSE market. Therefore, the observation might not fully represent all the manufacturing firms operating in the whole countries since the majority of the firms are not registered at NSE.

1.6 Definition Of Key Terms

- Manufacturing firms are regarded firms dealing with business activities that process raw materials and convert into finished goods with the intention to meet the customer's demand.

- Working capital: is considered as the difference between short-term assets and short-term liabilities. It is used to measure the overall performance of the company's such liquidity, solvency and overall financial health.

- Working capital management is the policies and procedures firms use to control effectively and efficiently the optimal balance between working capital components that firms need to generate revenues.

- Profit is the surplus of revenues minus all expenses related to the business activities for certain period. Lord Keynes remarked that "Profit is the engine motor that drives the business enterprise".

- Profitability is the capacity of the business entity to generate profit out of the business activities with the utilization of the all available resources, it indicates the level of efficiency that management team is using the resources to make more returns. (Gnanasooriyar, 2014, p. 358)

- Accounts receivable collection period: its measures the ability to collect the cash (credit sales) from the customers, in other words, it measures the frequency of collecting the credit sales within a specific period. Lower ratios of collection period show weak policy for collecting the cash from the customers while higher ratios show the credit policy might be tough and tight. Shorter the collection period is better for the firms.

- Inventory conversion period: It refers the average time to convert inventory held in the firm into sales. It shows the relationship between total days in a year and inventory turnover.

- Average payment period: It is the average time taken firms to clear their obligations as they due. This period indicates the average amount of time that firms can able to clear out their outstanding debts.

- Cash conversion cycle (CCC): it is defined as the time interval between payment for the purchases and the collection of the credit sales. According to Zakari and Saidu (2016, p. 343), the average length time firms take to convert goods and services into cash is termed as cash conversion cycle.

- Return on assets (ROA): according to the simple definition given by Makori and Jagongo (2013, p. 8), it's “a ratio of earnings before interest and tax to total assets”. It demonstrates how efficient management is utilizing the firm’s assets to make profits.

CHAPTER TWO

LITERATUREREVIEW

2. WORKING CAPITAL AND WORKING CAPITAL MANAGEMENT

The concept of working capital has been reviewed and explained by various researchers using different forms and ideas. In the financial literature, the commonly accepted definition of working capital is the company's current assets (inventories, accounts receivable, cash and short-term credit) deducted from short-term liabilities (accounts payable and any short-term debt). Working capital refers to the money invested in the firms operating activities such as work in progress, finished goods, account receivables and cash etc, therefore, working capital is regarded the life-blood and nerve center of the commercial organization as it measures firm's efficiency and its short-term financial health Khandelwal (2016).

All assets owned by firms are classified into two main categories called long term assets and short term assets, long-term assets serve more than one financial year such property plant and equipment while short-term assets are restricted to the assets having one financial year useful lives such as cash, inventories, and accounts receivable, therefore, these are termed as working capital.

In financial management, investment decisions taking by managers are grouped into two main categories; long-term investment decisions and short-term investment decisions. Long-term investment decisions are referred to capital budgeting which mainly concerns investment of fixed assets such as land, machines, buildings etc while short-term investment decisions concentrate investment of short-term assets and it's known as working capital management.

Working capital management (WCM) is not new to the finance literature rather it has gone through series of developmental stages. In these stages, managers and academicians were working hand in hand for analyzing the best way to manage working capital

components. During this cooperation, managers behaved like problem providers while academicians become solution finders Darun, Roudaki, and Radford (2015, p. 987).

Decisions relating to the management of working capital components (current assets and short-term liabilities) are considered to as working capital management (WCM). Therefore, firm's activities can only remain viable and profitable provided with efficient working capital management, which consequently will increase shareholder wealth Zariyawati, Annuar, and Pui-san (2016, p. 365).

In general, an efficient working capital management is expected to contribute significantly positive to the overall performance of the business operations as well as increasing the value of the owners' investment in the firm, because financial manager will enable to reduce the risk of not meeting the short-term debts as they are due and avoid unnecessary investment in the current assets Eljelly (2004, p. 1).

According to Harsh (2014, p. 53) management of working capital is referred to the maintenance of adequate working capital components that enable firms to operate smoothly and fulfill the two parallel of objectives of the firm, liquidity and profitability.

According to Oceano (2016), working capital management is regarded managerial activities that are intended to control and supervise investment level of current assets and short -term liabilities to the best efficient economic manner.

Decisions relating to working capital components (current assets and short-term liabilities) are referred to as working capital management (WCM). Firms require efficient working capital management to ensure that their operations remain continuously profitable, which further increases shareholder wealth Zariyawati et al. (2016, p. 366).

Working capital management is defined the proper management of cash, receivables, payables and inventories to their optimal levels; the implementation of an effective strategic management of working capital is believed to develop the overall revenue of the firms and subsequently reduce the risk of running shortage of cash, inventories and inability to meet

the short-term obligations as well as the other essential expenses necessary for the generation of the revenues Nimalathasan (2010).

Working capital management is very crucial and important component of corporate finance since its management directly affects the profitability of the business firms; the efficient management of working capital is one of the pre-conditions for the success of an enterprise. Therefore, how working capital is managed decides the future direction of the company whether it's the wrong direction which may lead a failure of firm's operation or the right direction for the prosperity of the firm.

Competition in the market among the business firms become very critical point as innovation and technology continually changing very rapidly, so the management of the working capital should be in an efficient manner because it's expected that an efficient WCM is will contribute positively to the overall corporate strategy for maximizing the value of the owners' investment in the firm. With an efficient WCM and liquidity, a firm may be able to eliminate the risk of inability to meet its short-term obligations when they are due and avoid excessive investment in current assets Eljelly (2004, p. 48).

Khan, M. Y.and Jain P .J (2007), postulates that working capital management is concerned with the problems that arise in attempting to manage the current assets, the current liabilities and the interrelationship that exist between them. The goal of working capital management is to manage the firm's current assets and liabilities in such a way that satisfactory level of working capital is maintained in the business.

In the aspect of the manufacturing firms, WCM is considered the only income generation source of the manufacturing firms because over half of the total assets are considered to be working capital, therefore, proper WCM can be used to increase the sales volume which will definitely increase profitability and maintain the existence of the company in the market.

2.1 Components Of Working Capital

In a simple and understandable term, working capital is the arithmetic difference between two balance sheet-aggregated sections: current assets and current liabilities; both of them comprised sub-accounts such as *cash accounts and short-term investments for marketable securities*:- these accounts are labeled cash on hand and in bank accounts, and any short-term investments which are marketable securities that management can use earn quick return, *accounts receivable:*- this is a category of current assets including all credit sales where the customers are expected to be cleared within one year, *inventory*:- is a combination of raw materials, work in process (that is, partially manufactured and assembled), and finished goods, *payables:*- the accounts payable account represents the amounts owed to creditors for purchases of goods or service at specific date and *other working capital accounts:* -prepaid expenses and accrued expenses often appear on balance sheets Sagner (2011, p. 3).

In finance, the concept of working capital is defined using different terms such as gross working capital and net working capital. Assets with one-year useful life are referred to be gross capital while networking capital is the difference between current assets over the current liabilities. Firms should avoid having low networking capital as it can cause liquidity problems.

Atarere (2016, p. 56), stated that working capital may be defined into five concepts; gross working capital, net-working capital, permanent, temporary and negative working capital. Gross working capital refers to the firm's investment in total current assets that can be converted into cash within year such as cash, short-term securities, accounts receivable, bills receivable and inventory while net working capital is regarded the excess of current assets over current liabilities (creditors, bills payable and outstanding expenses), permanent working capital marked as the minimum amount of investment in all current assets which are required at all times to carry out minimum level of business activities on other hand temporary working capital considered the amount of such working capital that keeps on fluctuating from time to time on the basis of business activities while negative working

capital is regarded when short-term liabilities exceeds the short-term assets, it is shows the financial crisis of the firms when such situations occur.

2.1.1 Cash management

Cash management is a part of sensitive items in working capital components and it's regarded as the process of managing the movement of the cash (inflow and outflow) to facilitate both short-term needs of the business operations and the long-term investments of the business activities. Cash management is circulation of money for optimizing liquidity and increase firm's investments as well as the shareholder's value.

According to Mclaney, (2000), cash is not just limited to one element of working capital rather it's the bridge connecting all the financial activities of the firm's operation as a medium of exchange, therefore, its management plays a big role in all business activities regardless of the sizes.

According to Service (2002, p. 2), the main aim of cash management is the appropriate utilization of firm's cash movement. He summarized the fundamental functions of cash management into three areas which are 1) elimination of idle cash 2) timely deposit collections and 3) prompt disbursement of cash as needs arise. Achievement of good cash management procedures will enable firms to improve their internal control systems, easy providing cash budgeting and reduce the likelihood of cash shortages.

The core value and the overall aim of the cash management policies and procedures are to keep optimal cash level that firms can use to operate effectively and avoid cash problems such as shortages of cash or maintaining excess cash. Insufficient cash causes firms not meet their liability obligations as they due and the payment of the necessary expenses for operations. For example, as reported by Uwuigbe, Uwalomwa, and Egbide (2012, p. 50) "In Nigeria, many organizations that are profitable on paper are forced into liquidation due to the inability to meet short-term debts when they fall due". Therefore, in

order to remain to stand, it is indispensable for the business entities to effectively manage their cash levels.

Oluoch (2016, p. 2), argue that Kenya's SMEs are regarded the backbone of the national economy but due to the poor financial management, they are unable to realize their full potential and keen operating productive manner.

Cash management policies enable firms to avoid insufficient cash that might disrupt the operation and excess cash creates idle assets that are not contributing anything to the business profitability. Because holding excess cash is a challenge to the businesses as it shows the inefficient utilization of the firm's resources to generate revenues and this creates opportunity costs. Therefore, it's crucial for the business management team to invest the excess amount of the cash such as buying shares and acquisitions which may increase the profitability performance of the company and shareholders' value.

Cash is considered the primary source of the assets that facilitate the entity's activities such as short term or long term goals. College of San Mateo, in California, claims that many companies struggle to continue their operations, not due to the revenues generations, but the management of cash. It argued that the application of the following five basic principles of cash management companies can improve their profitability performance; -

1) Reduction of average collection period

2) Inventory levels management

3) Increment of average payment period plan

4) Reduction of expenses

5) Investment of excess to the profitable projects

Cash conversion cycle (CCC) is also considered as a cash management strategy since it determines the length of time from the payment for the purchase of raw materials to the

manufacturing of the products until the collection of accounts receivable associated with the sale of the product is achieved. Cash conversion cycle is found by adding the sum of inventory turnover periods and receivable collection periods while subtracting the payment deferral period made to suppliers.

Muscettola (2014, p. 8), stated that cash conversion cycle as a powerful tool to analyze how manufacturing firms handle their working capital since it indicates the ability of a business entity to meet payables, collect receivables as well as the inventory conversion period. This clearly explains that all other working capital management components come under the cash conversion cycle formula as its calculation elements contain inventory conversion period, receivables collection period and average payment period; let us look the formula;

$$\text{Cash Conversion Cycle} = \text{ICP} + \text{ARP} - \text{APP}$$

Whereas:

ICP: Inventory conversion period

ARP: Accounts receivable collection period

APP: Average payment period:

The sub-formula for determining the components used in the cash conversion cycle are as following;

$$\text{Inventory Conversion Period} = \frac{\text{Total Inventory}}{\text{Cost of goods sold}} \times 360$$

$$\text{Accounts Receivable Period} = \frac{\text{Accounts Receivable}}{\text{Net Sales}} \times 360$$

$$\text{Average Payment Period} = \frac{\text{Accounts payable}}{\text{Cost of goods sold}} \times 360$$

Management of cash conversion components; inventory conversion period accounts receivable collection period and average payment period helps firms to remain profitable while its mismanagement leads failure of the business operations.

This signal that how financial managers handle the cash system of the firm will depend on the organization's earnings, this will further mean, if a firm successfully manages its cash, it means that other working capital management components will probably correspond to the same direction; this indicates the significant degree of the cash management. Therefore, it is undeniable that cash management plays important role in the business operations and should be given its worth consideration while taking all the decisions relating to the firm's activity otherwise it will be costly.

Yucel and Kurt (2002, p. 2), the competitive conditions that the companies face in domestic and foreign markets especially under economic crisis environment, importance of the cash management and the liquidity control is increased and firms need to give its worth consideration because companies can survive in economic recessions by minimizing or postponing the long-term investments, but they may experience to stop all their operations if they do not pay attention to working capital management. Efficient cash management is necessary to determine the amount of cash needed by firms in order to maintain optimal cash levels.

Many firms in the developing countries like Nigeria, South Africa, and Kenya fail not due to the lack profit but weak cash management system, therefore, sustainability and profitability of the business is mainly influenced the cash flow management.

Peavler (2016), stated that surveys conducted on failed businesses showed that 60% of the failure come from cash flow, not profit margin so that cash management is regarded one of the key factors determine the success of the businesses

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2.1.2 Receivables management

In today's competitive market, credit sales become an inevitable tool to attract customers and increase revenues; otherwise, no business can remain competitively strong in both domestic and international market. However, there should be rules and policies towards on receivables management to avoid bad debts created by the credit sales. Firms should have put in place policies that clearly state how much credit will be granted to specific groups of customers? What are the terms of the credit that will be extended? How many days will be the standard payment for invoices? Otherwise, mismanagement of receivables might create uncollectible receivables, consequently affecting the profitability performance of the companies.

According to Duru, Ekwe, and Okpe (2014, p. 2), the credit policy and collection procedure of the firm is the determinant of accounts receivable management criteria as they give the framework for the collection of unpaid credit sales to reduce and eliminate the payment delays. If firms achieve to shorten the collection period as much as possible, it will be better for the business to have more cash that it can be used to invest other areas to generate revenues while extended collection period might indicate poor collection management that increases the provisional doubtful debts and bad debts, therefore, the overall aim of receivable collection management is to minimize, the customer payment period and reduce the bad debts to avoid unnecessary expenses that can reduce the profitability performances.

Gorondutse, Ali, and Ali (2016, p. 3), suggested that accounts receivable management approach affect the company's profitability performance level, if company's financial manager focuses on cash collection without regarding the abilities of the customers to meet their obligations, such putting pressure on the customers for early payment, it might be good for the company in the short term collection but it may affect negatively the long term relationship between customers and the firm. Hence customers can switch to the competitors that can give applicable period which is fit to the customer's payment plan. As customers go away, automatically sales volume will be reduced as well

as the profitability levels. Therefore, collection policies and procedures should favor both customer's condition and the firm, so that sales volume is not compromised.

It's widely spread assumption that accounts receivable are the only working capital component that can maximize the sales capacity under credit sales system; therefore, the validation of this assumption depends on accounts receivable management system particularly credit control system, credit control plays key role in the aspect of working capital management, therefore, it always remains beneficial for the business managers to mark large volume of sales through credit sales provided with necessary protections to ensure that the large volume of sales made does not turn into expenses Dr.S. S. Shete and Yadav (2010, p. 6). He emphasized the implementation of the following accounts receivable control procedures in order to increase the sales while reducing uncollectible receivables:-

- When potential customers demand credit sales, there should be a screening process to ensure their credit worthiness degree such as asking referees preferably their bankers and suppliers for evaluation purpose.

- The requirement of financial statements (at least 5 years) to analyze their liquidity ratios and evaluation of the general assets and liabilities.

- Decide according to the evaluation results; if positive results found to set a credit limit for the customers and avoid giving above the pre-specified limit.

- The pre-specified credit limit should not be easily extended.

- There should be proper documentation process.

When firms are formulating policies for controlling the optimal levels of accounts receivable, they should not forget to consider the costs of financing receivables, collection, the possibility of bad debts and extension plans so that sales volume is increased without incurring more expenses on accounts receivable.

Brealey, Myers, and Marcus (2003, p. 512) firm's credit terms and conditions mainly influence the levels of accounts receivable that firms allocate to offer their customers, maintenance of appropriate level of accounts receivable tend to increase sales volume, firms should not focus on restricting too much on accounts receivable by only considering the risks associated the collection costs and provisional bad debts because maintenance of too low accounts receivable decreases the sales volume as well as loss of customers.

2.1.3 Inventory management

Inventory management is necessary to all business enterprises especially for the manufacturing firms regardless of their size and nature because inventory is like fuel for engines, if the engine does not have fuel regardless of the size and cost of the engine, it cannot perform any task, same applies to the inventory for firms. Inventory management contains mainly coordination of raw materials, work in progress and finished products. So, it's very clear that inventory management is vital for the manufacturing operations as it influences short-term solvency as well as productivity and profitability of the firms.

According to Sagner (2011, p. 124), inventory management system that targets the minimization of inventory level become the primary goal of the business entities as they start adopting the JIT system (just in time), where all the required raw materials and other involved parts are purchased as need arises. The JIT system recognizes any excess inventory as wastage of resources and costs so that it should be eliminated to avoid incurring unnecessary costs. However, implementation of JIT approach requires a high level of a quality control system that guarantees the purchase and delivery time of all materials in the production process to be on time.

Douissaa and Jabeurb (2016, p. 550) ABC approach are considered among the most commonly used inventory management system that classifies all inventories into three main categories called category A, B and C. This classification is based on items overall

performance in the participation of the consumption and usefulness. The first category A constitutes the most important items that account 5% -10% of inventory but has 70% - 80% of the annual consumption. The second category is labeled B, it has a moderate significant role in the items and it contains 50% -70% of the items while it takes 15-25% of annual consumption, the final category is C which has the lowest score in the consumption rate. The main purpose of this technique is to control inventory in an effective way to determine the inventory items that are necessary to use for each category. This will help firms to control inventory costs to their minimum level.

Preve and Sarria-Allende (2010, p. 86), argued that the inventory management system used by firms depends on the nature of the business firms involve different areas (e.g. manufacturing firms, retails and service firms), so inventory management approach adopted will mainly have connection with the type of the business that firms deal to trade and make profits. For instance, a manufacturing firm's inventory is totally different from retailers and service firms; in the same angle, the approaches used to manage inventory level should be the most appropriated one that is fit to the manufacturing sector. Preve and Sarria-Allend suggested that the best appropriate approach for managing inventory is the adoption of *economic order quantity* (EOQ) approach. This method focuses on minimizing the investment costs related to the inventory levels. The fundamental objective of EOQ approach is the order quantity that minimizes the costs associated with the inventory holding and inventory ordering by identifying the optimal number of units that are required for the business operation. This will enable financial managers to avoid or minimize incurring unnecessary purchase costs, delivery and storage costs.

Manyo (2013, p. 67) suggested that the commonly used approach to deal with inventory level is the economic ordering quantity model to overcome experiencing too much or too little inventory such that all unnecessary cost are reduced to their minimal level. The following chart illustrates the process of determining the ordering quantities that might minimize the inventory costs using the approach EOQ model: -

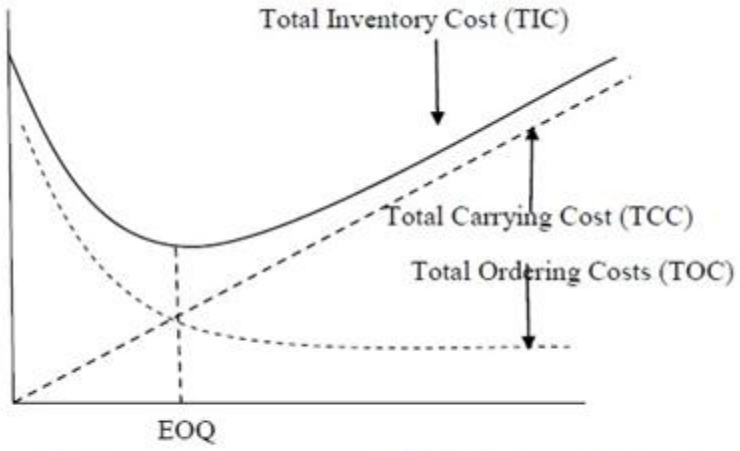

Figure 2.1.3 Economic Ordering Quantity, Takon 2013 p, 68

The point at which the total cost curve is minimized is the point where Economic Ordering Quantity (EOQ) is marked which all lines intersect. This point is considered the determiner of the optimal average inventory level that firms should maintain in order to avoid both over redundant costs such as carrying costs and ordering costs. The formula for calculating the quantity at that point is as following: -

$$EOQ = \frac{\sqrt{2\,(\mathrm{F})(\mathrm{S})}}{(\mathrm{c})(\mathrm{p})}$$

Whereas:

EOQ: The economic ordering quantity.

F: Fixed costs of placing and receiving an order.

S: Annual sales in units.

C: Carrying cost expressed as a percentage of inventory value.

P: Purchase prices that firm pay per unit of inventory.

EOQ model has four assumptions that seem to be its weakness which is 1) its take grant for the forecasted sales i.e. as perfect 2) it assumes that the demand remains unchanged throughout the year 3) It assumes the lead time as a constant and orders are received on time whole the time 4) the purchase price is assumed as a fixed rate.

Aro-Gordon (2016), argues that EOQ is not the best appropriate approach for managing inventory system while criticizing its assumption for not compatible with the real-world situation. This approach assumes that sales remain constant at all periods which is not true because seasonal or economic fluctuations might occur at any time. Additionally, it assumes that firms should certainly pre-determine all the required level of inventories in the whole period which is not easy in the real application.

The commonly used approach for measurement inventory is the inventory turnover period which is the average amount of time that companies maintain inventories. This approach states the time necessary to get the supplies of raw materials plus the processing the material to convert finished products up to the final stage of transferring goods to the customer's hand through sales. The turnover period is very crucial as it influences the efficiency and effectiveness of the manufacturing process and the sales period which firms need to converts products into sold goods.

According to Thomas R. Robinson, Paul Munter, and Julius Grant (2004, p. 231), inventory management ratio or inventory turnover is among the activity ratios that focuses the core operation of the day to day business activities. This ratio is suitable for manufacturing companies as they keep different types of physical inventories that need a diverse management style. Therefore, the inventory management ratios become the appropriate one that can be used to manage the overall inventory system. With the use of inventory turnover, firms will enable to examine the optimal level of inventory that is needed in order to avoid both access and inadequate inventory level. The formula used to assess is as following:

$$\text{Inventory turnover period} = \frac{\text{Inventory}}{\text{Cost of sales}} \times 360 \text{ days}$$

Different business firms engaging different sector may use different or same approach to managing their inventory management system but the main overlapping goal is to have an efficient system to handle inventory issue. Abdulraheem, Yahaya, Isiaka, and

Aliu (2011, p. 53), examined the inventory management in small business finance in Nigeria. They found that inventory level has a significant impact on the profitability performance of the business; therefore, they suggested the high profitability of the firms will mainly depend on the inventory management systems they adopt. This research clearly states the important of inventory management and the need to practice effective and efficient inventory management system.

2.1.4 Accounts payable management

Accounts payable are obligations or claims needed to be cleared out within one financial year and they often arise due to the credit purchases such as accounts payable and short-term loans from the financial institutions.

Accounts payable arise due to the goods and services taking from suppliers under credit purchases which bills will be paid at some future date; organizations should keep a smart relationship with suppliers and see this association as an opportunity for short term source of finance to invest the daily operation activities without charge of interest. However, irresponsible handling of accounts payable management causes to restrain the relationship between firms and its suppliers which may finally end up the loss of trust and reputation problems. Hence experiencing such situation will impact cash flow system as well as the profitability performance.

Business firms that maintain a good relationship with their supplier harvest enjoying good discount rates, easy facilitation of credit terms and conditions such as simplification of paperwork, an extension of the credit limit and period etc. these facilitations save time and money which in turn increases the profitability of the firm. Additionally, these firms take the opportunity of getting free interest source of finance as need arises to pay their day to day business activities. Therefore, having and maintaining a good relationship with supplier aids to get all the benefits surround the credit purchases such prolonging the payment period as long as possible. These suggestion are consistent with prior researchers

of Makori and Jagongo (2013), Öner (2016) and Gul et al. (2013). On the other hand, Cristea and Cristea (2016), Gorondutse et al. (2016), and Vahid, Elham, Mohsen, and Mohammadreza (2012) disagreed the validity of this statement of prolonging the time of account payment to increase profitability in their studies.

Niresh (2012, p. 29), examined the relationship between working capital management and financial performance of manufacturing firms, recommended that manufacturing firms can manage their working capital in the best manner particularly delaying accounts payable in line with the agreed credit terms and conditions will lead an increase in profitability. However, sometimes suppliers offer discounts to encourage early payments so financial officers should mind discounts offered by the supplier before it expired when it's beneficial to firm's condition.

2.2 Profitability

Profitability is defined as the capacity to utilize all the available resources of the organization to make sufficient returns that will enable firms to run properly Gnanasooriyar (2014, p. 358). Profitability ratios disclose the business ability to earn the adequate and reasonable amount of profit which further proves the financial goodness of the business operations. Profitability level is commonly interested by managers, creditors, and investors as well as the general public to evaluate the company's operation worthiness.

Business entities are obliged to be profitable to keep operating uninterruptedly and for the survival of long run because earning a profit will enable firms to cover their expenses with the generated revenues and invest expansion of the business for further growth and development. Hofstrand (2009, p. 1), profitability is a tool to measure with income and expenses. He further explained the Income as revenues from business activities while expenses are referred to the costs incurred due to the generation of the revenues.

According to Tulsian (2014, p. 19), profitability analysis is common techniques for determining the productivity and the business operation efficiency compared to the capital invested. Profitability level is the main important issue for stockholders and investors as it reflects the rate of earnings based on invested capital.

Measurement of profitability level is the main important issue for all interested parties such as stockholders and investors as it reflects the rate of earnings based on invested capital. However, firms use to measure profitability performance by adopting different profitability ratios such return on assets (ROA), return on equity (ROE), return on investment, net profit margin (NPM) and gross profit margin (GPM).

The researchers reviewed have used various components to assess the level of association between working capital management and profitability via different methods. Therefore, researcher grouped the different variables used for profitability measurement according to three main sections which are as following:-

●***Profitability measurement according to sales***; under this category, there are three measurements of profitability ratios which are gross profit margin ratio, operating profit margin ratio and net profit margin ratio.

Profit margin compares component of income with firm's sales, it give shareholders and potential investors an idea about factors that make up a firm's income, for instance, if shareholders need to examine how well production resources are managed, they can just employ gross profit margin via this formula;

$$\text{Gross profit margin} = \frac{\text{Sale Revenue} - \text{Cost of goods sold}}{\text{Sale Revenues}}$$

On the other hand, if shareholders, investors, and suppliers are more interested in evaluating and examining the cost of operations that are not directly associated with the

production costs, they can use operating profit margin, since it gives consideration of the overhead costs. This formula is as following;-

$$\text{Operating profit margin} = \frac{\text{Sales revenue} - \text{Cost of goods sold} - \text{Operating expense}}{\text{Sale Revenues}}$$

Or

$$\text{Operating profit margin} = \frac{\text{Earnings before interest and tax}}{\text{Sale Revenues}}$$

Gross profit margin and operating profit margin are almost same but the difference is consideration of operating expenses. Operating profit margin considers all operating expenses incurred during the period when calculating the profit margin while gross profit ratio disregards the operating costs.

Net profit margin is a ratio that addresses the both operation costs and other financing expenses that are used to invest the company's operation such as preferred stocks. Gross profit margin and operating profit margin disregards how firm's operation is financed. Therefore, net profit margin takes this role to evaluate both operating and financing costs.

$$\text{Net profit margin} = \frac{\text{Net income}}{\text{Revenues}}$$

$$\text{Net profit margin} = \frac{\text{Earnings after interest and tax}}{\text{Revenues}}$$

The main purpose of preferring to use this ratio is to analyze the net income generated from each dollar of the revenue and how management minimizes the expenses in order to increase the profit.

● ***Profitability measurement based on sources;*** these ratios are used to assess the correlation between returns generated by business and the resources employed by considering the source of finance. Return on equity and return on capital employed are regularly used when returns are compared to the invested capital.

Return on equity (ROE) is an important profitability ratio that measures a firm's earning ability by providing common shareholders how effectively their money is being employed. With the use ROE, investors can determine whether managers have successfully achieved the firm's objective (i.e. whether the firm is a profit-making or not) and management's profit-earnings efficiency. The following formula is used to find ROE:

$$\text{ROE} = \frac{\text{Net profit}}{\text{Owner's equity}}$$

When calculating the ROE, it can be taken either net profit before tax or after tax. When financial managers want to evaluate how much dividends are available for distribution to shareholders, profit after tax is more important; but when the focus is the evaluation of management efficiency profit before tax is more useful and suitable. Financial analysts recommended that the higher a company's return on equity, the better management is at employing investors' capital to generate profits.

Return on capital employed (ROCE): According to Wood and Sangster (2005, p. 625) adequate return on invested capital is what many investors seek and is, therefore, one of the main reasons why people invest their money in a business in the first place. So that, ROCE ratio assesses the efficient usage of the resources provided to the business. With the use of this formula is examined:-

$$\text{ROCE} = \frac{\text{Net profit}}{\text{Capital employed plus long-term borrowings}}$$

The difference between ROE and ROCE ratio is just the consideration of the long-term loans. When calculating ROCE ratio, capital employed consists both long-term loans as well as the equity while ROE is just limited to equity. Equity is share capital plus all the reserves.

● ***Profitability measurement according to assets;*** this section there are two main groups which are returns on assets (ROA) and return on investments (ROI). Some studies use ROA while others prefer to use ROI but as a general no difference between the two ratios, therefore, the study will use ROA.

Return on assets (ROA) measures the ratio of net income to the total assets invested in the firms. It measures the firm's capacity to use its assets to make profits while comparing the earning profit with the utilized assets. ROA is a financial tool used by most of the financial managers to assess the level of returns generated by the total assets in the business. Investors prefer to get higher ratio instead of lower. The following formula is used to calculate the return on assets ratio:

$$\text{Return on Assets} = \frac{\text{Net profit before tax}}{\text{Total Assets}}$$

There are several variables employed to measure the profitability performance of the company for evaluating the return of the business such as gross profit margin, operating margin, return on assets, and return on equity, return on capital employed and return on investment. However, Grimsley (2014), Heikal, Khaddafi, and Ummah (2014) and Julius Enqvista, Grahamb, and Nikkinenc (2014) preferred to use ROA while considering it as the appropriate ratio to be used to assess the profitability performance but the ultimate decision to choose specific ratio depends on the researcher's motive.

2.3 Relationship Between Working Capital Management And Profitability

To determine the relationship between working capital management and profitability, the researcher reviewed a number of studies and the summary of the studies are firstly presented in the following table 2.4 in a time sequential order.

Table 2.4 *Summaries Of Studies Reviewed Related To WCM And Profitability*

Researchers	**Countries**	**Independent variables**	**Dependent Variables**	**Remarks**
(Shin and Soenen, 1998)	America	Net- trade cycle (NTC)	Operating income plus depreciation related to total assets and to net sales	Study found a Strong negative association between NTC and its profitability.
(Deloof, 2003)	Belgian	Number of days accounts receivable, inventories and accounts payable.	Gross operating income	Results revealed a significant negative relationship between gross operating income with the number of days accounts receivable, inventories and accounts payable.
(Nimalathasan, 2010)	Sri Lanka	Cash conversion cycle, inventory conversion period, accounts receivable conversion period and accounts payable conversion period.	Return on assets	Cash conversion cycle and returns on assets were negatively correlated; increasing level of inventory conversion period, ROA and cash conversion cycle had an inverse relationship.
(Saghir, Hashmi, and Hussain, 2011)	Pakistan	Cash conversion cycle.	Return on asset	The study revealed a negative relationship between the return on asset and the cash

				conversion cycle.
(Niresh, 2012)	Sri Lanka	Cash conversion cycle, current assets to total assets and current liabilities to total assets.	Return on assets and return on equity.	There is a negative relationship between cash conversion cycle and performance measures.
(Vahid et al., 2012)	Iran	Average collection period (ACP), inventory turnover in days (ITP), average payment period (APP), cash conversion cycle (CCC), and net trading cycle.	Net operating profits.	The study found negative association between ACP, ITP, APP, net trading cycle and the performance of firms. No evidence to prove the existence of a significant relationship between CCC and the company's performances (NOP).
(Gakure, Cheluget, Onyango, and Keraro, 2012)	Kenya	Average collection period, inventory holding period, average payment period, cash conversion cycle. The study further used leverage ratio, and age of the firm, current ratio and a log of sales as control variables.	Net operating profit	The study found a negative relationship between NOP and ACP, IHP, APP while CCC had a positive association.
Gul et al. (2013, p. 43)	Pakistan	Number of days' account receivable, the number of day's inventory, cash	Return on assets (ROA	The study found an inverse association between average collection period,

		conversion cycle and number of days' account payable.		inventory conversion period and cash conversion period to ROA while accounts payable remained positive relationship with ROA.
(Makori and Jagongo, 2013)	Kenya	Average collection period (ACP); inventory conversion period (ICP); average payment period (APP); accounts receivable period and the cash conversion cycle (CCC).	Return on assets (ROA	The study found a negative association between profitability and ACP and CCC, but a positive relationship between profitability and ICP and APP
(Mengesha, 2014)	Ethiopia	Cash conversion period, accounts receivable period, inventory conversion period and accounts payable period.	Return on total assets (RTA), and return on investment (ROI)	The negative relationship between CCC and profitability of the firms. However, CCC, ARP, ICP and APP had no significant with ROI, but ARP, ICP and APP and CCC were found to have a negative relationship with return on asset.
(Githinji, 2015)	Kenya	Cash Conversion Cycle (CCC), Inventory turnover period (ITP), average collection period (ACP), and	Return on equity (ROE)	The study found ACP, ITP, CCC, liquidity; leverage and sales turnover had positive effects on ROE

		average payment period(APP) and liquidity.		
(Öner, 2016)	Turkey	Cash conversion cycle(CCC), days in accounts receivable (DAR), days of inventory outstanding (DIO) and days in accounts payable (DAP).	Operating profit margin	CCC, DAR and DIO have a significant negative impact on firms' profitability while average payment period has a significant positive relation.
(Cristea and Cristea, 2016)	Romania	Conversion cycle (CCC).	Return on assets	The study found a negative association between CCC and profitability.
(Gorondutse et al., 2016)	Malaysia	Cash conversion cycle (CCC), days account receivables (DAR), inventory turnover in days (ITD) and days account payables (DAP).	Return on assets returns on equity and net operating profit.	Study found negative relationship between DAR and three dependent variables i.e., ROA, NOP and ROE while DAP had a positive correlation with ROA and ROE but negative association with NOP. Furthermore ITD was found to have a negative correlation with three dependent variables.

Shin and Soenen (1998, p. 43) had studied the association between the firm's net-trade cycle and profitability using correlation and regression analysis. Based on a Compustat sample of 58,985 listed American firm years during the period of 1975 to 1994. Net- trade cycle (NTC) was used to measure the efficiency of working capital while the firm's profitability performance is measured by operating income plus depreciation related to total assets and to net sales. The study found that shorter Net- trade cycle leads to higher present value of net cash flow and higher shareholders value. Thus, if the firms have shorter Net- trade cycle, it means that the firms can manage their working capital efficiently as the firm requires less external financing which denote an improved financial performance.

Deloof (2003, p. 581) had examined the relationship between working capital management and firms' profitability of 1,009 large Belgian non-financial corporations' from 1992 to 1996. His results revealed a significant negative relationship between gross operating income with the number of day's accounts receivable, inventories and accounts payable. Hence, from the result obtained, it is proposed that shareholders value can be enhanced by maintaining a minimum number of day's accounts receivable, inventories and accounts payable. Noted that firm's profitability is being represented by gross operating income instead of return on assets as for firm that has mostly financial assets on its balance sheet, the operating activities had less influence to the return on assets.

Nimalathasan (2010, p. 76), studied the association between working capital management on the profitability of listed manufacturing companies in Sira Lanka from 2003-2007. He used correlation and regression analysis to establish the relationship between variables. Working capital management variables were cash conversion cycle, inventory conversion period accounts receivable conversion period and accounts payable conversion period while profitability performance was measured return on assets. The results revealed that cash conversion cycle and returns on assets were negatively correlated, in addition to that, inventory conversion period and ROA had a positive relationship. The study suggested that firms can increase their profitability levels by reducing the number of day's inventories and accounts receivable.

Saghir et al. (2011, p. 1092), the study examined the effect of working capital management and firm's profitability textile companies listed at Karachi Stock Exchange (KSE) for the period of 2001- 2006 by using Pearson Correlation model. Researchers used cash conversion period, accounts receivable, accounts payables and inventory turnover as independent variable while return on asset was used as a dependent variable for profitability measurement. The study found statistically negative significance between the return on asset and the cash conversion period.

Niresh (2012, p. 23), examined the association between working capital management and financial performance of manufacturing companies listed on Colombo Stock Exchange in Sri Lanka for a period of 2008 - 2011. Return on assets and return on equity were profitability performance indicators, whereas cash conversion cycle, current assets to total assets and current liabilities to total assets were working capital components. Using correlation and regression analysis, the study found a negative relationship between cash conversion cycle and profitability performance. The study suggested that manufacturing companies can manage their working capital efficient manner if they improve inventory control process, collecting receivables in line with the agreed credit terms and by delaying payments to suppliers.

Vahid et al. (2012, p. 1313), investigated working capital management and its impact on profitability performance of 50 different entities listed on Tehran stock exchange from 2006 and 2009. Working capital management was used to measure average cash collection period, inventory turnover, average payment period, cash conversion cycle, and net trading; profitability measurement was net operating profit. Results revealed a negative correlation among the variables of the average collection period, inventory turnover in the day, average payment period, net trading cycle and profitability of the firms. There was no significant association between cash conversion cycle and net operating profit. The results also proved that increase in collection period, accounts payment period, and net trading will likely lead to decrease the profitability levels. Therefore, managers are advised to decrease the

collection period, inventory turnover, and payment period in order to increase the profitability of the companies.

Gakure et al. (2012, p. 680), assessed working capital management and profitability performance of manufacturing companies listed on the Nairobi Securities Exchange (NSE) for the period 2006-2010. Pearson's correlation and regression analysis to determine the relationship between a dependent (Net operating profit) and independent variables (average collection period (ACP), inventory holding period (IHP), average payment period (APP), cash conversion cycle (CCC). Additionally, the study used leverage ratio (LEV), and age of the firm (AGE), current ratio (CR) and a log of sales (LOS) as control variables. The study revealed a negative correlation with NOP and ACP, IHP, APP while CCC had a positive association. The study figured out that reducing accounts receivable, payment period and inventory level to their minimal level can increase profitability.

Gul et al. (2013, p. 60), researched working capital management and profitability performance of small medium enterprises in Pakistan during 2006 to 2012. The study preferred to use secondary data from SMEDA, Karachi Stock Exchange, tax offices, Bloombreg business week and the company's financial statements. Profitability was measured return on assets (ROA) while working capital management measurement were accounts receivable period (ACP), the number inventory conversion period, cash conversion cycle and accounts payable period. In addition to these, firm Size (SIZE), debt ratio (DR) and growth (GROWTH) were considered as control variables. The study found an inverse correlation between collection period, inventory conversion period and cash conversion period to return on assets while accounts payable period remained positive association with return on assets.

Makori and Jagongo (2013, p. 2), examined the association between working capital management and profitability of manufacturing and construction firms listed on the Nairobi

Securities Exchange (NSE) for ten years starting from 2003 to 2012. Profitability performance measurement was returned on assets (ROA) while working capital component variables were average collection period (ACP), inventory conversion period (ICP), accounts payment period (APP), accounts receivable period and the cash conversion period. The study found an inverse association between ROA and accounts receivable and cash conversion cycle, but a positive relationship between ROA and inventory conversion period and accounts payable period. Researchers suggested that reducing accounts receivable, cash conversion period and increasing inventories conversion to a reasonable level and extension of accounts payable (if it's not damaging relationships with suppliers) can increase the profitability levels.

Mengesha (2014, p. 5), studied the relationship between working capital management and profitability performance of metal manufacturing private limited companies in Addis Ababa, for a period 2008 - 2012. Secondary data was collected from company's audited financial statements. Profitability measurement was return on total assets, and return on investment while working capital management components were cash conversion, accounts receivable, inventory conversion and accounts payable. On the other hand, control variables used were a current ratio, firm size, growth rate and financial leverage. The study witnessed a significant negative correlation with cash conversion cycle and profitability However, cash conversion cycle, accounts receivable period, inventory conversion period and accounts payable period had no significant with return on investment capital, but accounts receivable period, inventory conversion period and accounts payable period and cash conversion cycle were found to have a negative relationship with return on asset.

Githinji (2015, p. 9), assessed the relationship between working capital management and profitability performance of manufacturing and construction firms listed in Nairobi Security Exchange (NSE) for a period of 2005 to 2014. Working capital management was measured using four variables which are inventory conversion period, collection period, payment period and liquidity whereas profitability measured by return on equity. The study

revealed a positive association with working capital management components and return on equity.

Philip (2015, p. 9)studied the relationship between working capital management and profitability of sugar manufacturing firms operating in Kenya from 2008-2013. Independent variables used were average collection period; average payment period, inventory conversion, and cash conversion cycle whereas profitability performance measurement were considered to return on assets. On the other hand, debt ratio, the size of the firm and the current ratio was considered as control variables. The study used Pearson's correlation and regression analysis, to assess the association between variables. The study found a negative relationship between accounts payable period and accounts collection period whereas cash conversion period and inventory conversion period had proved a positive relationship with return on assets. The study recommended that increase in cash conversion cycle subsequently, leads to decrease in profitability level of the firm, so firms should strive to shorten the cash conversion cycle.

Öner (2016, p. 63), studied the relationship between working capital management and profitability of manufacturing firms listed on Borsa Istanbul during the period of 2005-2014. The researcher used cash conversion cycle, accounts receivable, inventory conversion and accounts payable period as explanatory variables while operating profit margin was regarded as the dependent variable. The study discovered a negative association between cash conversion cycle, average collection period and days of inventory conversion with profitability performance whereas average payment period had a positive relation with profitability variable. The researcher suggested that a firm might use to increase its profitability by minimizing the cash conversion period, average collection period and inventory conversion period.

Cristea and Cristea (2016, p. 107), examined the effect of working capital management and the profitability of manufacturing industry listed on the Bucharest **S**tock Exchange for a period 2011 - 2015. Working capital management components were

measured with the use of cash conversion period. On the other hand, profitability performance was measured by return on assets (ROA) as a proxy for profitability. The findings showed a negative relationship between the working capital management and profitability performance variables. Therefore, the study suggested that profitability can be increased by reducing inventory conversion period while managing inventories efficiently.

Gorondutse et al. (2016, p. 1), investigated the effect of trade receivables and inventory management on small and medium manufacturing enterprises performance in Malaysia from 2006-2012. The study used cash conversion, accounts receivables, inventory conversion and accounts payable period as explanatory variables while dependent variables were returned on assets, return on equity and net operating profit. The results revealed a negative association between accounts receivable and inventory conversion period with return on assets, return on equity and net operating profit. The study advised the financial manager to shorten the cash conversion period, accounts receivable collection period, accounts payable period and inventory conversion period so that profitability level might be increased.

In summary, the literature reviewed proved the most commonly adopted variables to analyze the relationship between working capital management were average collection period, inventory conversion period, average payment period and cash conversion cycle as explanatory variables while profitability performance measurement variables were different but majority used return on assets and operating profit ratio. In addition to that, the researchers agreed that with the adoption of effective and efficient working capital management system, manufacturing firms will be able to increase their profitability and can easily avoid problems relating to both excess and shortage of working capital. Although studies relating to the working capital management were carried out by various researchers in different locations, we found few studies relating to Kenya manufacturing sector. These studies showed there is an ambiguity in choosing the best appropriate variables that might explain profitability performance of manufacturing firms. Studies also provided no clear-cut direction about the relationship between working capital and firm's profitability.

Additional, the investigation of these studies shows that there is little empirical evidence of working capital management and its impact on manufacturing firm's profitability in Kenya.

According to Kamunge et al. (2014, p. 1) despite the significance of manufacturing firms, "three out of five businesses do fail within the first few months of operation due to several challenges such as improper financing and poor management". Therefore, the present study is an attempt to fill this gap and examine the relationship between working capital management variables (average collection period, inventory conversion period, and average payment period and cash conversion cycle) and ROA for profitability performance measure of manufacturing firms in Kenya.

CHAPTER THREE

RESEARCH METHODS

3. INTRODUCTION

This chapter begins to present the research methodology used to accomplish the study objectives. This chapter presents the research design, study population, data collection and analytical model.

Before directly going to the research method, the study explains the main reason for choosing this market; unlike other emerging markets in the world, African stock markets are grappling with a number of challenges including limited participants and liquidation problems caused by poor infrastructures that would restrict the potential investors to use the financial market. However, Kenya is considered to rank one of the fastest developing countries in terms of economic aspect compared to other regional countries as well as the entire continent.

According to UNCTAD (2014, p. 47), Kenya's stock market (Nairobi Securities Exchange) was ranked 8th position in terms of listed companies in African markets after Bourse Régionale des Valeurs Mobilières, Casablanca Stock Exchange, Johannesburg Stock Exchange, Nigerian Stock Exchange, Stock Exchange of Mauritius, Tunis Stock Exchange and Zimbabwe Stock Exchange; this development of the NSE market led the attraction of many investors from the local community and outside of the communities. However, in East African Community (EAC) member states (Kenya, Uganda, Tanzania, Burundi, South Sudan and Rwanda) Kenya's stock market is regarded the first and most developed financial market in the region as per listed companies and the market capitalization as shown in the table below.

Table 3 (a) *East African Community Financial Market Size*

Countries	Market Capitalization (US$)	Number of Companies
Dares Salaam Stock Exchange	8,497,749,163.00	11
Nairobi Stock Exchange	18,602,307,704.00	57
Ruwanda Stock Exchange	1,941,963,068.00	2
Uganda Security Exchange	7,510,034,574.00	8

Source: *UNCTAD 2014*

These developments stepped by Nairobi Stock Exchange market attracted the attention of many researchers for analyzing the strength and weakness of the market and its participants so that involved parts such government and the listed firms take the necessary steps to turn the weakness into strengths and focus the future growth of the market.

NSE market is expanding year after year as indicated by the NSE annual report produced by the Kenya's the Capital Markets Authority; the registered firms at NSE were 59, 68 in 2014 and 2016 respectively.

Table 3 (b) *Nairobi Security Exchange-Listed Companies*

No	Sectors	No. Registered Companies
1	Agricultural Sector	6
2	Automobiles Sector	3
3	Banking Sector	11
4	Commercial Services Sector	11
5	Construction and Allied Sector	5
6	Energy and Petroleum Sector	5
7	Insurance Sector	6
8	Investment Services Sector	2
9	Investment Sector	5
10	Manufacturing and Allied Sector	9
11	Telecommunication Sector	1
12	Real Estate Investment Trusts	1
13	Bonds	3
	Total	68

Source: NSE Annual Handbook 2015/2016

As indicated the above table, manufacturing sector accounts the third largest sector in the market after Banking and Commercial sector, however, in production activities it's the first and largest sector in the market which Kenya considers it's the major sector that can create employment and wealth to the public as envisaged in the vision 2030.

NSE's role in Kenya and the EAC region attracted the researcher to focus on this market as other regional markets are still underdeveloped compared to NSE market, in addition to that, the reason for targeting manufacturing sector is that government believes the only sector where indigenous people can easily participate in a productive way provided with the required capital compared to other sectors that needed extended knowledge and skills to manage despite the capital. On another hand, this sector experienced many challenges that bottlenecked the smooth running of the firms; therefore, this research is supposed to assist the sector in assessing the relationship between working capital management and the profitability performance of the sector.

3.1 Research Design

It's indispensable to have a roadmap for any project that is expected to yield systematic and scientific results; therefore, research design is the strategy to be followed to achieve the research results (Oso, 2013). Understanding the significance of research design, this study used the longitudinal design for the collection of the data. It's believed that this design is going to facilitate analytical procedures to assess the association between working capital management components and the profitability of manufacturing firms listed on NSE. The main aim for choosing the longitudinal method is that it studies the same variables on multiple times to show the changes of the variable over a long period of time. The study covers a period of the seven-year period starting from 2010 to 2015.

3.2 Study Population

The scope of the study population comprises manufacturing firms listed on Nairobi Security Exchange starting from 2010 to 2016. The reason for targeting the listed manufacturing firms are that availability and reliability of financial reports since it's mandatory to every firm listed on NSE to produce externally audited financial reports while disclosing all their financial status to the public.

3.3 Data Collection And Variables

3.3.1 Data collection

The two main sources of data collection procedures followed by every researcher to collect the required information are named primary and secondary data. Data obtain from the original source in a form of direct engagement by the researcher such as face-to-face interview is regarded as primary data while secondary data is referred to already collected data by any agents other than the researcher, this means that the researcher did not participate the collection of the data from the field.

This study preferred to adopt secondary data collection approach for easy access, less cost, time-saving and high reliability. Data was collected from manufacturing firms and the Nairobi Security Exchange data service center. The required data was audited financial reports particularly comprehensive income statements and financial positions of all manufacturing firms listed on NSE from 2010-2016. The studies found nine manufacturing firms that are registered at NSE in the year 2016 as indicated tables 3.3.1 (a).

Table 3.3.1 (a) *Number Of Manufacturing Firm Registered At Study NSE (2016)*

No	Names
1	Boc Kenya
2	British American Tobacco Ltd
3	Carbacid Investments Limited
4	East African Breweries Ltd
5	Eveready East Africa Limited
6	Mumias Sugar Company Ltd
7	Unga Group Ltd
8	Flame Tree Group Holdings Ltd
9	Kenya Orchards Ltd

Source: *NSE Handbook 2016/15*

All the above-listed manufacturing firms are trading on NSE with different starting periods but majority of the manufacturing were registered on NSE since 2010 except Flame Tree Group holdings and Kenya Orchards Ltd which started from 2013 and 2014 respectively, therefore, it has been excluded from the study since they have failed to fulfill the two selection criteria which are period and the availability of the data starting from 2010-2016 as shown in the criteria table 3.4.2 (b).

Table 3.3. 1(b) *Summary Of The Required Data*

Years	2016	2015	2014	2013	2012	2011	2010	2009
Net Profit								
Sales								
Cost of Sales								
Total Assets								
Current Assets								
Total Liabilities								
Current Liabilities								
Accounts Receivable								
Accounts Payable								
Inventory								

Boc Kenya and British American Tobacco manufacturing firms have not yet finished preparation of their 2016 annual report due to the financial year ending difference so that, the study preferred to reduce the study period to six years from 2010-2015, so that these manufacturing firms (Boc Kenya and British American Tobacco) qualify to participate the study. After screening the firms based on the selection criteria, the successfully qualified firms are summarized in the following table.

Table 3.3.1 (c) *Successfully Qualified Manufacturing Firms For The Study NSE (2010-2015)*

1	Boc Kenya	2015	2014	2013	2012	2011	2010
2	British American Tobacco Ltd	√	√	√	√	√	√
3	Carbacid Investments Limited	√	√	√	√	√	√
4	East African Breweries Ltd	√	√	√	√	√	√
5	Eveready East Africa Limited	√	√	√	√	√	√
6	Mumias Sugar Company Ltd	√	√	√	√	√	√
7	Unga Group Ltd	√	√	√	√	√	√

Source: *NSE Handbook 2016/15*

During the correlation and regression analysis, the research data experienced outliers in data that misled extremely the normal distribution of the data. However, the researcher used different outlier identification techniques such as conduct analysis with and without outliers, chi-squared difference test, and Mahalanobis distance techniques. After identified the legitimate outliers, the study adopted one of the best outlier handling techniques of Winsorization as suggested by Herman Aguinis, Ryan K. Gottfredson, and Harry Joo (2013, p. 277).

3.3.2 Variables

This study attempted to investigate the association between working capital management and profitability performance of manufacturing firms listed on NSE during

2010-2015. For analyzing the function, researcher desired to use return on assets to measure profitability performance as used by many researchers such as Öner (2016), Cristea and Cristea (2016) and Nimalathasan (2010). On the other hand, measurement of working capital was commonly used to measure cash conversion cycle (CCC), inventory conversion period (ICP), average collection period (ACP) and average payment period (APP) as these studies also used Gul et al. (2013), Githinji (2015) and Yucel and Kurt (2002). ACP is referred to the time spent for the collection of cash from customers due to the credit sales, CCC is the sum of inventory conversion and receivable collection period while deducting the time taken to the payment of purchases of materials (payment period). ICP is the days which firms spend to the conversion of inventory held into sales. The following table 3.4.2 shows the formula and the abbreviations of dependent and independent variables used in the analysis.

Table 3.3.2: *Abbreviations And Formula Of Variables*

Variables	**Abbreviation**	**Formula**
Independent Variable		
Cash Conversion Cycle	CCC	ACP + ICP – APP
Accounts payable Period	APP	$\frac{\text{Total Accounts payable}}{\text{Cost of goods sold}} \times 360$
Inventory Conversion Period	ICP	$\frac{\text{Inventory}}{\text{Cost of sales}} \times 360$
Accounts Receivable Period	ARP	$\frac{\text{Accounts Receivable}}{\text{Total sales}} \times 360$
Dependent Variable		
Return on Assets	ROA	$\frac{\text{Net profit before tax}}{\text{Total Assets}}$

3.4 Analytical Model

This section presents the analytical model used in the research for establishing the relationship between the variables with the aid of SPSS program. Firstly, descriptive analysis is used to explain the general features of the collected data in the research. Secondly, Pearson's correlation and regression analysis are also employed based on longitudinal data (2010-2015) acquired from the NSE and the manufacturing companies audited financial reports.

The study formulated model containing the four working capital management components and profitability performance measurement into one equation form as following.

ROA = β0 + β1 (ARP) + β2 (ICP) + β3 (APP) + β4 (CCC) +ε*i* --------- Equation

Where β0 is the intercept of the equation and β1, β2, β3 and β4 are the coefficients of independent variables respectively.

ε: The error term which is the other variables influencing profitability performance.

H_o1**:** There is no significant relationship between accounts receivable collection period and profitability of manufacturing firms registered at NSE.

Model 1: ROA =β0 + β1 (ARP) + ε*i*

H_o2**:** There is no significant relationship between inventory conversion period and profitability of manufacturing firms registered at NSE.

Model 2: ROA = β0 + β1 (ICP) + ε*i*

H_o3: There is no significant relationship between average payment period and profitability of manufacturing firms registered at NSE.

Model 3: ROA =β0 + β1 (APP) + εi

H_o4: There is no significant relationship between cash conversion cycle and profitability of manufacturing firms registered at NSE.

Model 4: ROA =β0 + β1 (CCC) + εi

ROA = Return on assets

ARP: Accounts Receivable Period

ICP: Inventory Conversion Period

APP: Accounts Payable Period

CCC: Cash Conversion Period

ε: The error term which is the other variables influencing profitability performance.

3.5 Test Of Significance

The study used correlation and regression method to evaluate the strength and the direction of the association between the dependent variable and independent variables. Furthermore, the study used the 5% test of significance level as it's the most commonly used in researches. However, 1% and 10% are also used in a certain scenario depending on the researcher.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND INTERPRETATION

4. INTRODUCTION

After collection of the secondary data from NSE annual handbook and the annual reports prepared by the manufacturing firms in the previous chapter, this chapter proceeded to analysis the data and present the results of findings produced by descriptive analysis, correlation and regression analysis in unit four.

4.1 Descriptive Statistics

The following descriptive analysis table 4.2 comprises the mean, minimum, maximum and standard deviation values to assess the association among the variables for the bases of reaching an ideal conclusion.

Table 4.1 *Descriptive Statistics*

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	42	-.31	1.48	.199	.374
ICP	42	26.00	279.81	97.066	61.843
ARP	42	20.59	113.37	57.017	25.074
APP	42	18.00	321.50	113.58	80.279
CCC	42	-1.27	200.92	40.51	77.396

The above table 4.1 summarized the descriptive statistics for seven manufacturing firms listed on Nairobi Security Exchange (NSE) in Kenya for a period of six year years starting from 2010 up to 2015. The mean value of the return on assets is 19.9 % with standard deviation of 37.4%. These figures explain the value of profitability that can deviate from mean to both sides by 37.4%.

The average inventory conversion period found is 97 days which is equivalent to three months and 7days to convert inventories into sales with a standard deviation of almost 62 days. In addition to that, the mean of accounts receivable period become 57 days with a standard deviation of 80 days while the average of accounts payable period reached to almost 114 days with a standard deviation of 80 days. Furthermore, the study found the average cash conversion cycle is to be 41 days with a standard deviation of 77 days.

4.2 Pearson's Correlation Coefficient Analysis

Table 4.2: Correlations Coefficients

		ROA	ICP	ARP	APP	CCC
ROA	Pearson Correlation	1	.168	.328*	.762**	-.550**
	Sig. (2-tailed)		.288	.034	.000	.000
	N	42	42	42	42	42
ICP	Pearson Correlation	.168	1	.023	.336*	.458**
	Sig. (2-tailed)	.288		.886	.029	.002
	N	42	42	42	42	42
ARP	Pearson Correlation	.328*	.023	1	.407**	-.080
	Sig. (2-tailed)	.034	.886		.007	.614
	N	42	42	42	42	42
APP	Pearson Correlation	.762**	.336*	.407**	1	-.637**
	Sig. (2-tailed)	.000	.029	.007		.000
	N	42	42	42	42	42
CCC	Pearson Correlation	-.550**	.458**	-.080	-.637**	1
	Sig. (2-tailed)	.000	.002	.614	.000	
	N	42	42	42	42	42

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

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.2 shows results from the correlation analysis; ROE is found to have a positive relation with ICP, ARP, APP and negative association with CCC. The positive connection between ROA and ICP shows the coefficient correlation of 0.168, with a p-value of (0.288). This implies that manufacturing firms which maintain high inventory levels reduce costs of possible interruptions in the production process. This helps firms to prevent loss of

business due to the scarcity of products and diminish the costs of supplying goods. This result is consistent with Agha (2014 p. 379).

The positive association between ROA and ARP shows the coefficient correlation of 0.328, with a p-value of (0.034). This relation is significant at 5% level. Although this correlation is a weak, it can be interpreted that, when customer's payment period is extended, they will be more satisfied with prolonged payment. On the other hand, firms will achieve to retain customers and even attract new customers because customers favor the extension of the payment period.

The positive relationship between ROA and APP also indicated that coefficient correlation of 0.762, with zero p-values. This relation is strongly significant at 5% level. This positive association shows very strong correlation between the APP and ROA, therefore, it can be interpreted that, prolonging the payment to suppliers and paying bills, firms would be able to use that fund for other profitable investment projects to generate revenue, thus increase their profit. This finding is consistent to Muya and Gathogo (2016, p. 1099).

The cash conversion cycle is the only working capital management components that had **a** negative association with return on assets with a correlation coefficient of (-0.550) attached with zero p-values; in this scenario, the negative association implies that fluctuation of cash conversion period does not affects extremity the profitability of the manufacturing firms. However, shortening the cash conversion cycle would tend to increase the profitability performance of company's ROA. A similar result also was found by Nimalathasan (2010, p. 7) and Gakure et al. (2012, p. 685). They also argued that firms should reduce their cash conversion cycle to the lowest level in order to be profitable. CCC is among the tools used to control the efficiency of working capital management as well as the shareholder's value; generally, financial managers are encouraged to have low CCC because it shows firms money is tied up in inventory, a collection with less time.

4.3 Regression Analysis

The study used regression analysis to estimate the relationship between working capital management and profitability of manufacturing firms listed on NSE during 2010-2015.

Table 4.3 (a) *Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.768	.589	.557	.24928

According to the regression model summary in Table 4.3 (a) shows that the independent variables have an association with profitability performance (R = 0.768). The model also accounted for 55.7% of the variance in profitability performance as proved by the R^2. Adjusted R^2 is the coefficient of multiple determinations which explains the percentage of variance of the dependent variable to the independent variables. In our case, it means 55.7% of the variance in return on assets is explained by the working capital management components. F- Statistics is intended to test the significant of R and in our case, the model fits with F-statistics.

Table 4.3 (b) *ANOVA*

Model		Sum of Squares	D.f		Mean Square	F	Sig.
1	Regression	3.387	3		1.129	18.167	.000
	Residual	2.361	38		.062		
	Total	5.748	41				

Results in Table 4.3 (b) shows that the model fits to explain the association between working capital management and profitability of manufacturing firms listed on NSE since the overall significance level is $p = .000$.

P-value is percentage measurement that indicates how much the observed data agrees or disagrees with the null hypothesis when P-value is very small, there is more

disagreement of data with the null H_0 and it's considered the null is rejected. On the other hand, when P-value is high, there is less disagreement between the data and the null hypothesis; it's considered that we failed to reject the null hypothesis. In our study P = 000, therefore, we reject the null hypothesis, it means we accept H_1.

Table 4.3 (c) *Table Coefficients*

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	-.169	.113		-1.496	.143
	ICP	.003	.001	.511	4.361	.000
	ARP	.004	.002	.255	2.443	.019
	CCC	-.004	.001	-.763	-6.493	.000
	APP	.004	.000	.762	7.437	.000

The result in Table 4.3 (c) shows that there has been a positive association between ICP, ARP, and CCC. The regression analysis results totally agreed with the direction of the results produced by the correlation analysis in Table 4.3**.**

4.4 Interpretation of the Findings

The study attempted to ascertain the association between working capital management and profitability performance of seven manufacturing firms listed on Nairobi Security Exchange (NSE) in Kenya for a period of six years starting from 2010 up to 2015. The explanatory variables of working capital management were three variables; inventory conversion period, accounts receivable period, accounts payable period and finally the cash conversion cycle. On the other hand, return on assets was considered the best measurement of profitability performance since it shows the efficiency management of the assets in

relation to the revenue generation. Additionally, it was used by many researchers that regard ROA as the common measure of profitability including Nimalathasan (2010) and Raheman and Nasr (2007).

The study assessed the effect of accounts receivable collection period and profitability performance of manufacturing firms listed on NSE in Kenya. The study found that average accounts receivable collection period, had a positive association with ROA. Thus, the hypothesis is rejected and it's concluded that ARP has a significant level but and very weak correlation (coefficient determination of 0.004 and p-value of .019). This suggests that ARP's role for influencing the profitability level of manufacturing firms is not recognizable in this study. This result is consistent with the findings (Agha, 2014).

The study examined the effect of inventory conversion period and profitability performance of manufacturing firms listed at NSE in Kenya. The results of the study indicated that there is a positive association between ROA and ICP with the coefficient determination of 0.003 and p-value of 0.000. Thus, the hypothesis is rejected and concluded that ICP has significant at 5% level. Due to the weak correlation ICP the profitability performance of manufacturing firms listed on NSE is not largely influenced by how inventory turnover. This result is interpreted that as a unit increase in ICP leads to 0.003 units increase in profitability performance.

The study determined the effect of average accounts payment period and profitability performance of manufacturing firms listed at NSE in Kenya. The results pointed out that, there is a strong positive association between ROA and APP with the coefficient determination of 0.762 and p-value of 0.000. Thus, the null hypothesis is absolutely rejected and is concluded that average accounts payment period has significant at 5% level. This means that financial performance of manufacturing firms listed at NSE is largely influenced by how APP is managed. This outcome is interpreted that as a unit extension in APP is made leads to increase 0.762 of ROA. The positive association between ROA and APP is consistent with the findings of Gul et al. (2013); Pedro Juan Garcı´a-Teruel and

Garcı´a-Teruel (2007). They argued that when firms do delay in payments, the fund can be invested in other projects that can increase the returns and higher profitability might be achieved. This means that manufacturing firms can increase their profitability by prolonging the payment period while using that opportunity to invest profitable projects or cover other business operation costs instead of borrowing money with interest from banks or other lenders. Therefore, this interest-free finance chance can increase the profitability levels.

This study evaluated if there is a significant relationship between cash conversion cycle and profitability of manufacturing firms listed at NSE in Kenya. The results show that there is a negative association between ROA and CCC with the coefficient determination of (-0.004) and p-value of (0.000). Thus, the hypothesis is rejected and is concluded that CCC has significant at 5% level but very weak correlation with the ROA , although it differs on the basis of sector and firm size, but still cash conversion cycle influences the increment of the profitability of manufacturing firms listed at NSE. This suggestion is consistent with the study of working capital management and profitability performance of manufacturing firms listed at NSE conducted by Gakure et al. (2012) and Makori and Jagongo (2013). Generally, shorter cash conversion cycle is appreciated by firms since it indicates that the level of sales conversion into cash in a shorter period.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5 INTRODUCTION

This chapter is the summary of the research findings, conclusion, recommendations and the limitation of the study. It further gives the direction of the further research.

5.1 Summary

The study analyzed the association between working capital management and profitability performance of seven manufacturing firms listed at NSE for a period of 2010-2015. Working capital management components were inventory conversion period, accounts receivable collection period, and accounts payable period and cash conversion cycle while profitability performance was used to assess return on assets. The study used secondary data from manufacturing company's financial statements and Nairobi Security Exchange handbook produced annually with the objective of readiness and high reliability of the data.

The researcher conducted descriptive, correlation and regression analysis to assess the relationship between dependent and independent variables to achieve the objectives of the study.

The descriptive results showed that the mean ROE was 20% with standard deviation of 37.4%. The mean inventory conversion period was 97 days with a standard deviation of 61 days, the mean of accounts receivable collection period was 57 days with a standard deviation of 80.3 days while the average of accounts payable period was 113 days with a standard deviation of 80 days. Finally, descriptive study shows that the mean of cash conversion period was 40.51 days with a standard deviation of 77.4 days.

The correlation and regression analysis produced almost same results as shown in Table 4.3 and 4.4 (c). The model also accounted for 55.7% of the variance in profitability performance as proved by the R^2. Adjusted R^2 is the coefficient of multiple determinations which explains the percentage of variance of the dependent variable to the independent variables. In this study, it means 55.7% of the variance in return on assets is explained by the working capital management components. F- Statistics is intended to test the significant of R and in our case, the model is fit with F-statistics.

The study found accounts receivable collection period, inventory conversion period and the accounts payable period had a positive association with return on assets while cash conversion cycle had a negative relationship at 5% significant level. However, average accounts payable period had the strongest correlation coefficient influence with ROA.

5.2 Recommendations

Based on the results of the analysis, the study recommends a number of steps for securing the operation of manufacturing firms and increasing the level of the profitability as well as the value of the shareholders.

First, the study generally recommends that manufacturing firms listed on NSE should increase their average accounts payment period and reduce the cash conversion period in order to improve their performance.

The study also revealed that average accounts payment period is the only one variable that has the main influence on profitability performance among other explanatory variables (average collection period, inventory conversion periods and cash conversion period). This indicates the a strong positive coefficient (0.762, P-value 0.000) relationship between accounts payable period and ROA like the prior researches carried out by several researchers in Kenya such as Makori and Jagongo (2013) and M.Mathuva (2010). So, this study strongly recommends that manufacturing firms should give special consideration in the extension of payment period for the purpose of using the fund to invest other profitable

areas that can generate revenues to increase the profitability or even use to cover other business expenses that needed to be met. This will help the financial managers to reduce the risk of cash problems and the short-term borrowings.

Cash conversion period is considered a most sensitive component of the working capital management since it's the only variable that inter-connects all other variables in the study. Based on the negative association (-0.550, P-value 0.000) between CCC and ROA produced by the correlation and regression analysis, the study recommends that manufacturing firms listed on NSE need to shorten their cash conversion period to improve their profitability performance. Cash conversion period attempts to show how firm's cash is tied up in inventory, receivables and how long firms take to pay their payables. Therefore, financial managers can increase the profitability of the manufacturing firms as well as the shareholders value by reducing the CCC. This suggestion is consistent with the study of working capital management and profitability performance of manufacturing firms listed on NSE conducted by Gakure et al. (2012) and (Makori and Jagongo (2013)).

5.3 Limitations of The Study

Despite the availability of the literature review in the similar fields, there were a number of limitations encountered during the research period. There is only one available data source that can be collected the data related to the listed manufacturing firms at NSE which is the NSE handbook produced by the NSE data center annually. This handbook is a very useful starting point but not enough to present all the required data in details as it's a summary of financial reports and view ratios of the listed firms. Therefore, researcher needs further information from the private companies to gather the basic necessary data but unfortunately most of the private firms don't publish their annual report on their sites and not expect to share their data to the third party due to the competition protection strategy. These make it difficult, expensive and time-consuming to the researcher for getting the reliable and credible source of data, particularly from private companies.

5.4 Suggestions For Further Research

During the study, the researcher found that there are very few manufacturing firms registered at NSE compared to the non-registered firms as shows the NSE handbook annual reports produced in 2016-2015, 2014-2013 and 2013-2012. One of the suggested areas of further research is to research the non-registered manufacturing firms in a similar study. This likely to produce a more generalized conclusion on findings and policy recommendation across the manufacturing sector.

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PPENDIX II: RAW DATA

CARBACID INVESTMENTS LIMITED							
Variables	2015	2014	2013	2012	2011	2010	2009
Return on assets							
Inventory conversion period							
Accounts receivable collection period							
Accounts payable period							
Cash conversion cycle							

KENYA ORCHARDS LTD							
Variables	2015	2014	2013	2012	2011	2010	2009
Return on assets							
Inventory conversion period							
Accounts receivable collection period							
Accounts payable period							
Cash conversion cycle							

EVEREADY EAST AFRICA LIMITED							
Variables	2015	2014	2013	2012	2011	2010	2009
Return on assets							
Inventory conversion period							
Accounts receivable collection period							
Accounts payable period							
Cash conversion cycle							

MUMIAS SUGAR COMPANY LTD							
Variables	2015	2014	2013	2012	2011	2010	2009
Return on assets							
Inventory conversion period							
Accounts receivable collection period							
Accounts payable period							
Cash conversion cycle							

UNGA GROUP LTD							
Variables	2015	2014	2013	2012	2011	2010	2009
Return on assets							
Inventory conversion period							
Accounts receivable collection period							
Accounts payable period							
Cash conversion cycle							

EAST AFRICAN BREWERIES LTD							
Variables	2015	2014	2013	2012	2011	2010	2009
Return on assets							
Inventory conversion period							
Accounts receivable collection period							
Accounts payable period							
Cash conversion cycle							

BOC KENYA							
Variables	2015	2014	2013	2012	2011	2010	2009
Return on assets							
Inventory conversion period							
Accounts receivable collection period							
Accounts payable period							
Cash conversion cycle							