

**EFFECTS OF WORKING CAPITAL MANAGEMENT ON FINANCIAL
PERFORMANCE OF MANUFACTURING COMPANIES LISTED AT THE
NAIROBI SECURITIES EXCHANGE, KENYA**

BY

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DECLARATION

STUDENT'S DECLARATION

I declare that this project is my original work and has not been presented at any other university for a degree requisite.

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DEDICATION

I dedicate this work to my family for their understanding and support during the study period.

ABSTRACT

Management of working capital aims at maintaining an optimal balance between all of the working capital components which are cash, accounts receivables, accounts payables and inventory. The general objective of the study was to establish the effect of working capital management on financial performance of manufacturing firms listed in the Nairobi Securities Exchange. Specifically, the study analyzed the effect of cash conversion circle, inventory conversion period account collection period and account payment period on financial performance of the said firms. This study used the explanatory research design and the population of the study included all the 10 manufacturing firms listed at the NSE by 31 December 2016. Seven (7) manufacturing firms whose financial statements were available were purposefully selected for the study. Secondary data collection template was used to extract relevant data from the financial statements of the said firms. The data collected was analyzed using and data was analyzed using descriptive statistic in which means and standard deviation were calculated and inference was to the rest of the population. The study also used regression analysis to establish the relationship, between the independent and dependent variables. . The study established that, manufacturing industry had experienced the highest ROA in 2015 compared to the lowest ROA in 2014. This was attributable to a less aggressive investment in current assets and current liabilities which negatively impacted firm profitability. The study findings therefore rejected the null hypothesis of no relationship existing between working capital management and financial performance of manufacturing companies listed on NSE in Kenya, The study recommended that it is important for manufacturing firms to make a preliminary cost-benefit analysis of the various working capital management decisions before committing the firms' resources towards a specific decision.

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LIST OF ABBREVIATIONS

CCC	Cash Conversion Cycle
CMA	Capital Markets Authority
DSE	Dar es Salaam Stock Exchange
NSE	Nairobi Securities Exchange
QC	Quality Control
ROA	Return on Assets
WCM	Working Capital Management
WIP	Work-In Progress
EBIT	Earning Before Interest and Tax
ACP	Average Collection Period
APP	Average Payment Period
ICP	Inventory Conversion Period

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Management of working capital aims at maintaining an optimal balance between all of the working capital components which are cash receivables and inventory (Waithaka, 2012). These are a fundamental part of the overall corporate strategy to create value and are important sources of competitive advantage in businesses (Deloof, 2013). In practice, it has become one of the most important issues in organizations with many financial executives struggling to identify the basic working capital drivers and the appropriate level of working capital to hold so as to minimize risk, effectively prepare for uncertainty and improve the overall performance of their businesses Lamberson (1995). Thus, working capital management is a very important component of corporate finance because it directly affects the liquidity and profitability of the company. It deals with current assets and current liabilities.

In firms listed at NSE, current assets account for more than half of its total assets. Excessive levels of current assets can easily result in a firm realizing a substandard return on investment, however, when the level of current assets is low the firm may incur shortages and its operations will be affected, Horne and Wachowiz (2005). The firm is responsible to pay off its current liabilities as and when they fall due. Efficient working capital management controls current assets and liabilities in a manner that eliminates the risk of inability to meet the short term obligations and avoid excessive investment in current assets (Afza & Nazir, 2007).

This management of short-term assets is as important as the management of long-term financial assets, since it directly contributes to the maximization of a business's profitability, liquidity and total performance (Makori & Jagongo, 2013). Consequently, businesses can minimize risk and improve the overall performance by understanding the role and drivers of working capital (Messah, 2011). It is important that a firm preserves its liquidity to enable it meet its short term obligations when due. Increasing profits at the cost of liquidity exposes a company to serious problems like insolvency and bankruptcy. While on the other hand, too much working capital results in wasting cash and ultimately the decrease in profitability (Makori & Jagongo, 2013). Liquidity is thus also very important for a company. A tradeoff between these two objectives of the firms should be obtained so as to ensure that one objective is not met at cost of the other yet both are equally important. If a firm does not care about profit, it cannot survive for a longer period (Apuoyo, 2010). On the other hand, if it does not care about liquidity, it faces the problem of insolvency or bankruptcy. For these reasons working capital management should be given proper consideration for this will ultimately affect the profitability of the firm.

1.1.1 Working Capital

In accounting and financial statement analysis, working capital is defined as the firm's current assets and current liabilities. Net working capital represents the excess of current assets over current liabilities and is an indicator of the firm's ability to meet its short-term financial obligations (Vahid, Mohsen & Mohammadreza, 2012). Effective working capital management consists of applying the methods which reduce the risk and lack of ability to

pay short term commitments and prevent over investment in current assets by planning and controlling current assets and liabilities (Khravish, 2011).

Management of working capital has profitability and liquidity implications and proposes a familiar front for profitability and liquidity of the company, Gill, (2011) stated that working capital policy is a function of two decisions: the appropriate level of investment incurrents assets and the chosen methods of financing the investment. He explained further that the level of company's current assets and working capital, in respect of the company's total corporate structure and flow of funds is a tradeoff between profitability and risk (Afza & Nazir, 2007). Thus, if there were little risk, an aggressive working capital would be used whereby the company should maintain a minimum level of cash, securities, debtors and stocks. However, if there is little stability, a more conservative policy will be called for, requiring high cash balances and high stock reserves.

In many organizations, liquidity position is a major issue that must be put into consideration by financial managers. Therefore, risk and return tradeoff is inherent in alternative working capital policies(Mathura, 2010). High risk, high return working capital investment and financing strategies are referred to as aggressive; lower risk and return strategies are called moderate or matching; still lower risk and return is called conservative (Shaskia, 2012). A firm may choose an aggressive working capital management policy with a low level of current assets as percentage of total assets, or it may also be used for the financing decisions of the firm in the form of high level of current liabilities as percentage of total liabilities (Afza & Nazir, 2007). Sathamoorthi (2012) states that increase in current asset to total asset has a negative effect on

profitability, while an increase in current liabilities to total liabilities will have a positive effect on profitability. Keeping an optimal balance among each of the working capital components is the main objective of working capital management. Working capital to total assets of the firm ratio will indicate the liquidity position of the firm as at a given point in time. Business success heavily depends on the ability of the financial managers to effectively manage receivables, inventory, and payables (Guerard et al., 2007).

1.1.2 Performance

Financial Performance is a measure of the results of a firm's policies and operations in monetary terms. These results are reflected in the firm's return on investment, return on assets, shareholder value, accounting profitability and its components (Frankfurt Business Media, 2012). Financial Performance of an entity refers to the subjective measure of how well a firm can use assets from its primary mode of business and generate revenues and create value for its shareholders.

Performance of a firm is affected by multiple external and internal factors. It is important to note that the external factors affecting a firm are across the board and they are beyond a firm control this include government rules and regulations, market preference and perception and economy of the country (Ellisabeth, 2011). The internal factors that might affect the performance of a company are corporate governance practices of the company, ownership structure, and risk management of the firm, capital structure of the firm and firms characteristic and policies (Guerard et al. 2007).

Classical indicators of a company's financial performance include the rates of return, Return on asset, return on investment, Return on Equity, Gross profit margin, debt ratio, current ratio and the acid test ratio. Modern indicators of a company's financial performance are the economic value added, Market value added, that were developed by stern steward and company (2002) and the total shareholder return, rate of return on cash flow ,developed by Boston consulting group (1996) economic margin earnings per share and the market value ratio. However we cannot use all of the above ratios given that most have other factors influencing them other than the working capital of a firm(Carl; Dan; Ellisabeth, 2011).

As per the DuPont model, generated by Dupont cooperation (1920s), return on assets (ROA) is the product of net income per sales, usually called the operating profit margin, and sales per total assets, usually called the asset turnover. Total assets include fixed assets and current assets, butcurrent assets constitute gross working capital. Hence, working capital management decisions directly impacts the assets turnover, which consequently affects the overall return on assets(Gill & Mathur, 2010).

Financial performance in manufacturing firms is greatly impacted by working capital decisions a firm undertakes given the fact that working capital primarily constitutes current assets and current liabilities. Some of the key current asset instruments that are encountered on daily basis include inventories, cash and accounts receivables(Attari & Raza, 2012). The effectiveness with which a firm manages its inventory has direct impact on the overall sales, and consequently sales revenues, therefore, maintaining low levels of inventory may lead to stock outs leading loss of sales, on the other hand, high levels of

inventory may result in huge amounts of capital tied up thus leading to loss of investment opportunities or high costs of short term financing (Owolabi & Obida, 2012).

1.1.3 Effect of WCM on Financial Performance

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

Efficient management of various working capital components carries a direct influence on a firm's financial performance. Working capital policy that ensures a shorter cash conversion cycle with low number of days is preferred for profitability as it is expected to reduce the need for external financing. Inventories form a core element in working capital, this therefore call for effective management of inventory levels. Manufacturing firms have three main types of inventory: raw materials, work in progress and finished goods. Therefore to effectively manage their inventory, manufacturing firms are expected to apply a number of procedures for example just-in-time, make to order and lean

manufacturing initiatives in order to improve on their processes. This ensures that the inventory levels are maintained at optimum and thus ensuring minimum financing costs due reduced levels of short term capital held. Proper management of inventory is hence expected to enhance financial performance by improving on revenues and reducing on capital costs (Deloof & Jegers, 1996).

1.1.4 Manufacturing Firms Listed at the Nairobi Securities Exchange

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

The Kenyan manufacturing sector is considered as one of the key segments of the economy. In addition, the Kenyan vision 2030 blue print, one of the key pillars of the attainment of the objectives of the strategy is the need for the manufacturing sector to grow at the rate of 8 per cent over a period of 20 years. This can only be achieved if there is growth in the profits of the sector and this will depend upon identifying all the variables that can influence profit of a firm including the management of working capital. The inability of a firm to meet its obligations will lead to the disruption of its manufacturing process by actions such as labor strikes and blacklisting by suppliers. Further these firms are characterized by high intensive working capital requirement and high competition because of high technology changes (Kenya's Economic Outlook, 2011).

1.2 Statement of the Problem

The Kenya government together with companies and individuals in the private sector has put concerted efforts in ensuring the existence of a favorable environment for doing business in the country. Consequently, while most firms listed in the NSE have improved in performance, manufacturing firms have experienced declining fortunes and some have even been delisted from the NSE over the last decade. Significant efforts to turn around such companies or even liquidate them have focused mainly on financial restructuring. However, managers and practitioners still lack adequate guidance for attaining optimal financing decisions (Kibet et al, 2011). Although many problems experienced by the companies that have been put under statutory management (occasioning loss of stakeholders' wealth and the overall investors' confidence in the NSE) were largely attributed to financing (Chebii, Kipchumba & Wasike, 2011), there was no systematic empirical evidence to support this.

Effective working capital management practices are expected to improve the financial performance of organizations. Effective working capital management practices reduce losses from bad debts, losses incurred through inventory stock units and pilferage and also losses from cash pilferage and associated problems. The financial performance of listed firms (manufacturing firms) has been fluctuating across time. In some years, the performance has improved while in others it has declined. Overall, several listed firms have failed to meet their financial targets and have ended up giving profit warnings. Examples include: Uchumi Supermarkets, Kenya Airways, Express Kenya and Hutching Biemer.

Poor financial performance affects shareholders negatively through the loss in market value of shares and non-declaration of dividends. Poor financial performance also affects the government through reduction of tax revenue and increased unemployment in the event that layoffs arise.

Studies on working capital management practices and performance of firms is an area that has received a lot of scholarly attention. For instance, Waithaka (2012), Ondoge (2014), Makori and Jagongo (2013) and Omesa et al (2013) focuses on the relationship between working capital management firm profitability. However, none of the identified studies focuses specifically on manufacturing firms listed on the Nairobi Security Exchange. Result from similar study use an aggregated approach (all firms listed on the NSE) and fail to disaggregate the firms into sectors. This study therefore seeks to find out whether results from disaggregation (manufacturing firms) differ or compare with the results of aggregated firms.

1.3 Study Objectives

The study was guided by the following general and specific objectives:

1.3.1 General objective

The general objective of the study was to establish the effect of working capital management on financial performance of manufacturing firms listed at the Nairobi Securities Exchange.

1.3.2 Specific Objectives

The study was guided by the following specific objectives:

- i. To analyze the effect of cash management on financial performance of manufacturing firms listed at the Nairobi Security Exchange
- ii. To investigate the effect of inventory management on financial performance of manufacturing firms listed at the Nairobi Security Exchange
- iii. To determine the effect of account receivable management on financial performance of manufacturing firms listed at the Nairobi Securities Exchange
- iv. To establish the effect of accounts payable management on financial performance of manufacturing firms listed at the Nairobi Securities Exchange

1.4 Research Hypothesis

A few numbers of research hypothesis can be made in view of the effect of working capital management on firms' performance. In light of the research objective the following discussion covered the hypotheses that this study attempted to test.

H0₁: Cash management has no significant relationship on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange

H0₂: Inventory management has no significant relationship on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange

H0₃: Account receivable management has no significant relationship on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange

H0₄: Accounts payable management has no significant relationship on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange

1.5 Justification of the Study

1.5.1 Justification of the Study to the Policy Makers

This study highlighted the significance of working capital management on financial performance of manufacturing firms. The findings provided a framework for working capital strategies for corporate institutions that are focused on value creation to their shareholders. Corporate managers appreciated the value that lies in effective management of working capital components.

Firms that put in place effective working capital management policies would be viewed as profitable firms with prospects for future value creation. Such firms would be perceived to offer stock with promising returns with respect to capital gains and dividends.

1.5.2 Justification of the Study to the Firms

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

1.5.3 Justification of the Study to the Academicians/Researchers

This research was based on existing body of knowledge and point out areas for further research; hence researchers who wish to study the area of working capital management will be made aware of the areas that require further studying. This study was of use to security analysts, financial analysts, stock brokers and other parties whose knowledge of the relationship between working capital management and the financial performance is an important input into investment analysis and portfolio investments.

1.6 Scope of the Study

The scope of this study covered manufacturing firms listed at NSE since it would give better results due to the publication of their financial statements. This research had then limited the study to the effect of working capital management on financial performance of manufacturing firms listed at the Nairobi Securities Exchange. The study was conducted during the months of January and October 2018.

1.7 Limitations of the study

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

1.8 Operational Definition of Terms

Account Receivable- Accounts receivable is short-term amounts due from buyers to a seller who have bought goods or services from the seller on credit and have to pay it back (Sagner, 2010).

Account Payable- The aggregate amount of an entity's short-term obligations to pay suppliers which provided products and services which the firm purchased on credit (Brigham & Ehrhardt, 2005).

Inventory Holding- Measures the rate at which inventory is used over a measurement period (Reilly & Brown, 2006)

Working Capital- Business's net investment in current assets which includes debtors, stock material, work-in-progress, finished goods, cash and short-term deposit and investments (Ryan, 2004).

Cash Conversion Cycle- The length of time between a firm's purchase of inventory and the receipt of cash from accounts receivable (Ehrhardt & Brigham, 2008)

Working capital management Working capital management is a tactical focus on maintaining a sufficient amount of working capital to support a business, while minimizing the investment in this area (Preve & Sarria-Allende, 2010).

1.9 Chapter Summary

This chapter covers the statement of the problem along with the purpose of the study in which this report had introduced as well as the background of the study. The research questions have indicated the direction as well as the focus of this study which later outlined the importance of this study and how it could benefit those that use this study findings. In the next chapter, the literature review which was looked at and gave an understanding of the literature that has been written by many scholars and other researchers. Chapter Three looked at the methodologies which were used to gain data from the targeted sample. Further this study showed Chapters four and five of the research showing the results of data collected from participants and further analyzed to provide conclusion and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

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

2.2 Firms Listed at the Nairobi Securities Exchange

OECD (2005) defines a listed company as widely held company whose shares unlike those of unlisted firms' trade freely in the public markets because the shares are held by a large number of persons and there are not subject to restrictions that limit their transferability. By their nature, listed firms employ various different legal forms to govern their systems. In trying to establish themselves, these firms undergo many challenges including financial and governance issues and are governed by the Capital Markets Authority (CMA) and other sectoral regulators. To enhance depositors' confidence, there is need to introduce effective corporate governance mechanism that will ensure fairness in their businesses.

As at 30th August 2016, there were 66 firms that are listed at the NSE with 55 of them being non-financial entities. The non-financial firms are spread over several sectors including agricultural, automobiles and accessories, construction and allied, energy and petroleum, insurance, investment, manufacturing and allied as well as the

telecommunication and technology sectors. The manufacturing firms has majority of the firms in the bourse. Like most of the firms that operate in competitive business environments, the manufacturing firms at the NSE face liquidity challenges has evidenced by the level of current liabilities level in their financial statements. Consequently, there is need to investment any practice that will affect its level of liquidity, including working capital.

NSE has experienced continuous growth from an initial single stock broker to twenty-seven (27) licensed member firms to date operating under rules and regulations provided by the capital markets authority (The Exchange, 2011). The NSE is categorized into ten sub-sector classifications with fifty-seven firms. Its major roles are promoting a culture of saving; assisting in the transfer of savings to investment in productive enterprises; assisting in the rational and efficient allocation of capital; promoting higher standards of accounting, resource management and transparency in the management of business among others.

2.3 Theoretical Review

In theoretical review, this study reviews three major theories namely contingency, configurational and asset profitability theories.

2.3.1 Contingency Theory

Contingency Theory was developed by Saxberg in 1979. Contingency theory of working capital management states that the effectiveness of working capital is highest where the structure fits the contingencies, hence only those organizations that align their working

capital with the current environment achieve maximum output. The theory therefore advocates that in determining the level/approach of working capital management to approach, firms must put into consideration the strategically significant external variables such as include economic conditions, demographic trends, sociocultural trends political/legal factors and industry structure. The theory further notes that there is no level of working capital and is said to be constantly optimal in any particular industry. Rather, given that external factors may change rapidly, managers must constantly adopt their organizations levels and approaches of working capital management to the new situation to ensure effectiveness. The Contingency Theory therefore implicitly treats organizations as loosely coupled aggregates whose separate working capital components may be adjusted or fine-tuned.

2.3.2 Configurational Theory

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

reward/incentive systems and coordination systems likewise affect the level of optimal working capital.

Therefore, with regard to working capital management, the Configurational Theory claims that available parameters have to be set according to the contextual variables of the firm, such as the economic situation, industry structure, supplier variables, and demand behavior. However, it is not enough merely to align the contextual variables with working capital parameters. To maximize overall organizational efficiency and effectiveness, working capital parameters themselves must be aligned with the other relevant organization parameters. Based on the Configurational theory there exist only one distinctive configuration of manufacturing performance, supply chain performance, working capital levels, and the firms supply chain risklevel that maximizes a firms performance. As such the basic question emerge how do the different drivers correlate with each other and finally what is the configuration that maximizes a firm's performance. And this is what informs the need for this study to establish whether or not it true that in deed, working capital has any effect on performance of the firm Shortell (1977).

2.3.3 Asset Profitability Theory

Asset profitability theory by Sathamoorthi (2002) states that increase in current asset to total assets ratio has a negative effect on firms' profitability, while on the other hand, increase in current liabilities to total liabilities ratios has a positive effect on profitability of firms. This theory notes that decrease in current asset to total assets ratio as well as increase in the ratio of current liabilities to total liabilities ratios, when considered

independently, lead to an increased profitability coupled with a corresponding increase in risk. Increase in the ratio of current assets to total assets decline in profitability because it is assumed that (i) current assets are less profitable than fixed assets; and (ii) short-term funds are less expensive than long-term funds. Decrease in the ratio of current assets to total assets will result in an increase in profitability as well as risk. The increase in profitability will primarily be due to the corresponding increase in fixed assets which are likely to generate higher returns because corresponding increase in fixed assets which are likely to generate higher returns (Sathamoorthi, 2002).

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

In summary, what informs the needs for this research is the contradicting approach and theoretical argument of the effect of working capital on firm's profitability by Deloof and Jegers, (1996) and (Sathamoorthi, 2002). While Deloof and Jegers, (1996) states that large inventory and a generous trade credit policy may lead to high profitability because it stimulates sales, Sathamoorthi (2002) on the other side argues that increase in proportion of current assets to total assets leads to decrease in profitability because fixed

assets are likely to generate higher returns. DeLoof and Jegers, (1996) seems to support the aggressive policy of working capital management. An aggressive policy with regard to the level of investment in working capital means that a company chooses to operate with lower levels of inventory, trade receivables and cash for a given level of activity or sales. An aggressive policy will increase profitability since less cash will be tied up in current assets, but it will also increase risk since the possibility of cash shortages or running out of inventory is increased. An aggressive funding policy uses short-term funds to finance not only fluctuating current assets, but some permanent current assets as well. This policy carries the greatest risk to solvency, but also offers the highest profitability and increases shareholder value.

2.4 Working Capital Management

Working capital is so important for business day-to-day operations. A decision made on one of the Working Capital components has an impact on the other components. In order to maximize the performance of a business, the Working Capital Management should be integrated into the short term financial decision making process (Crum & Tavis, 1983). Working Capital or Net Working Capital is “the difference between current assets less current liabilities” (Arnold, 2008). In financial annual reports, working capital is defined in an algebraic expression as follows:

$$\text{Net Working Capital (NWC)} = \text{Current Assets (CA)} - \text{Current Liabilities (CL)}.$$

The investment in NWC is so vital and helps the capital budgeting analysis of a given firm. Working Capital (WC) can be invested in short-term sources of finance, such as

cash, inventories, account receivables, and notes receivables. WC is minimized in terms of payments made to account payables (creditors), account notes payable and other accrued liabilities. In order to balance out the optimal levels of costs and benefits, then the liquidity components of working capital must be managed with appropriate techniques through raising or lowering the stocks, cash, account receivables and account payables (Arnold, 2008; Gitman, 2009).

Working Capital represents the current assets of a firm which is the portion of financial resources of business that changes from one type of resources to another during the day-to-day execution of business (Gitman, 2009). Current assets comprise cash, prepaid expenses, short-term investments, accounts receivable, inventory and other current assets. Net working capital can be measured by deducting current liabilities of a firm from its current assets. If the value of current assets is less than that of current liabilities then net working capital would have a negative value showing a deficit working capital. When a business entity takes the decisions regarding its current assets and current liabilities then it can be termed as working capital management (Ricci & Vito, 2000).

The management of working capital can be defined as an accounting approach that emphasizes on maintaining proper levels of both current assets and current liabilities. It provides enough cash to meet the short-term obligations of a firm. Working capital management has to do with the administration of all aspects of current assets, namely cash, marketable securities, stock and current liabilities. It is the functional area of finance that covers all the current accounts of the firm. It is concerned with the adequacy of current assets as well as the level of risk posed by current liabilities. Working capital

management is an aspect of financialmanagements that seeks proper policies for managing current assets, liabilities and practicallyfor maximizing the benefits from managing working capital. The basic purpose of managingworking capital is controlling of current financial resources of a firm in such a way that a balanceis created between profitability of the firm and risk associated with that profitability (Ricci & Vito,2000).

Every business requires working capital for its survival. Working capital is a vital part ofbusiness investment which is essential for continuous business operations. It is required by a firm to maintain its liquidity, solvency and profitability (Mukhopadhyay, 2004). The importance ofmanaging working capital of a business efficiently cannot be denied (Filbeck & Krueger, 2005).Working Capital management explicitly impacts both the profitability and level of desired liquidityof a business (Raheman & Nasr, 2007). If a firm will invest heavily in working capital i.e. morethan its needs, then the profits which can be generated by investing these resources in fixed orlong term assets will be diminished. Moreover, the firm will have to incur the cost of storinginventory for longer periods as well as the cost of handling excessive inventory (Arnold, 2008).

2.4.1 Cash Management

According to Hampton (2004) cash refers to all money items and sources that are immediately available to help pay firms bills. Managing cash is becoming ever more sophisticated in the global and electronic age of the 1990s as financial managers try to squeeze the last dollar of profit out of their cash management strategies (Block & Hirt, 1992). The management with account payables and receivables goes under the term of cash management. According to Lantz, (2008) cash management extends the credit time

for account payables; shorten the credit time for account receivables; incorporate more efficient methods for the management of account payables and receivables and improve the procurement of capital surplus and deficits (Lantz, 2008)

Despite the ambition to minimize the cash conversion time and therefore the costs in the conversion cycle, the companies cannot escape all costs since they have their own obligations to consider. Taking into the account these responsibilities companies must keep some cash for expected as well as unexpected expenditures that occur in their everyday business. Lantz have mentioned about these three motives why companies should hold cash (Lantz, 2008); the transaction motive: the company must be able to manage their own obligations like payments to suppliers. They should not be dependable on customers paying in time since they can be late and pay after due date which will involve extra costs. The speculative motive: the market is unpredictable and opportunities could turn up at any time and when they do, companies should see to that they have money available if they would like to invest. The precautionary motive: as well as the market is unpredictable so are the activities in the business. Unexpected events like; machines breaking down, a suddenly increase or decrease of the demand and more, can occur and could have a very negative influence for the whole company if not taken care of (Lantz, 2008).

2.4.2 Inventory Management

According to Cinnamon et al., (2010), raw materials are concerned with the goods that have been delivered by the supplier to purchaser's warehouse but have not yet been taken into the production area for conversion process. The minimizing of the raw materials is

ideal in this particular part of working capital. However, this must be offset by the economic order quantities available from suppliers (Cinnamon et al., 2010).

Birt *et al.*, 2011; Cinnamon et al., (2010) indicated that work in progress concerns are when the product has left the raw material storage area, until it is declared for sale and delivery to customers. In this process the working capital must be considered in terms of reducing the buffer stocks, eliminating the production process, reducing the overall production cycle time. The raw materials and finished goods must be minimized in the production area. WIP must be carefully examined to justify how long it takes for products to be cleared for sale. This stage is normally done by the quality control (QC) procedures (Birt *et al.*, 2011; Cinnamon *et al.*, 2010).

Cinnamon *et al.*,(2010) indicated that finished goods refer to the stock sitting in the warehouse waiting for sale and delivery to customers. They could be sitting in the warehouse or on the shelf for quite some time. The owner/manager of the business should find what options are available to dispose of the slow moving items. Should the stock be repacked or reprocessed, and sold at lower discount prices. Sales and operations planning can reduce or eliminate the need for finished goods. The best example of stock management is car manufacturing. The manufacturers normally used the Just in time system to deliver finishedproducts. In this way they minimize or eliminate both raw material stock and work in progress, as the stock is now in finished goods (Brealey, Myers, and Allen, 2006; Van Horne & Wachowicz, 2008).

The management of inventory is one of the more challenging tasks for working capital managers who, if they could decide, would like to minimize the inventory as much as

possible in order to shorten the cash conversion cycle and reduce costs. The risk of minimizing an inventory down to a level close to zero is that it increases the possibility of running out of materials needed in the production or running short of finished goods during a high demand. Such situation would be costly for any company due to the revenues they would lose (Maness & Zietlow, 2005). As mentioned earlier, one of the challenges for a working capital manager is to have all the companies' managers to agree about how to manage the inventory. Each manager has their own interests they first and foremost would like to satisfy which complicate the task to reach a joint decision. Each company should find the balance that they will benefit most from (Pass & Pike, 2007). The just-in-time approach is a strategy for effective inventory management and help keeping inventory levels on a lower level. The strategy aims to make the orders of material, produce and deliver just in time when it is required and not before (Brealey, Myers & Allen, 2006).

2.4.3 Account Receivable Management

Account receivables are assets representing amounts owed to the firm as a result of the sale of goods or services in the ordinary course of business (Van Horne & Wachowicz, 2008). Kelly and McGowen (2010) suggest that credit customers who pay late or don't pay at all only aggravate the problem. Thus, it is important for the financial manager or account receivables manager to establish a good policy that controls the advantages of offering credit with the associated costs. The firm should establish its receivables policies after carefully considering both the benefits and costs of different policies (Hampton 2004). Three factors should be analyzed: Profits. The firm should investigate different possibilities and forecasts the effect of each on its future profits. The cost of funds tied up

in receivables, collection costs, bad debt losses, and money lost discounts for early payment should be compared with additional sales or losses of sales as a result of each proposed policy. Growth in sales. Sometimes firms are willing to accept short term setbacks with respect to profits if a new policy enables the firm to increase its sales significantly (Pass & Pike, 2007). A firm may adopt a certain policy to gain a foothold in previously closed market. Because growth is so important as side from profits, it should be viewed as a separate factor in determining receivables policies. Possible problems. In spite of increase sales and profits, some policies may be accompanied by obvious and annoying problems (Van Horne & Wachowicz, 2008).

4.4.4 Account Payable Management

The general guidelines for optimizing the managing of account payables involve the timing of payments. Companies should try prolonging the time of payment as long as possible as they can use the advantage of their suppliers financing their investments until payment has been made. Another argument for prolonging the time for payment is that the producing companies, for example, need some time to convert their purchased raw material into products they can get sold and get cash in return (Maness and Zietlow, 2015). Some suppliers offer their customers discount rates as an attempt to get them to pay their receivables before maturity date which may sound tempting but this is not always the most profitable option. To avoid being misled by these discounts offers, companies should carefully consider every discount offer they get to see that it is beneficial in terms of their conditions. For a discount to be beneficial for the buyer the discount rate should be higher than the interest rate the company would have to pay for a loan over the same period as the discount period (Maness and Zietlow, 2015). If there is

no discount offer given companies should use the whole credit period and pay their payables on due date. Paying after due date should always be avoided unless the company has fallen in financial difficulties and there is no other choice. The reason for this is that delayed payments can result in unnecessary costs as late fees (Dolfe and Koritz, 2011).

Deloof (2013) found a significant negative relation between gross operating income and number of day's inventories. This explains that an increase of the inventories is an affect from a decrease in sales which leads to lower profit for the companies. Another research by Boisjoly (2013) found an increase of inventory turnover over a period of fifteen years that indicates that companies have improved their inventory management. To manage inventory, there are several manufacturing operating managements to apply, such as; just-in-time procedures, make-to-order procedures, lean manufacturing initiatives to improve their operating processes, quality programs to reduce number of parts and supplier rationalization to reduce number of suppliers (Boisjoly, 2013).

2.5 Conceptual Framework

This diagram shows the relationship between dependent and independent variables. The dependent variable is represented by financial performance, while the independent variable is represented by Working capital Management. From the diagram it clearly indicates that working capital influences financial performance of manufacturing firms listed in the Nairobi Securities Exchange

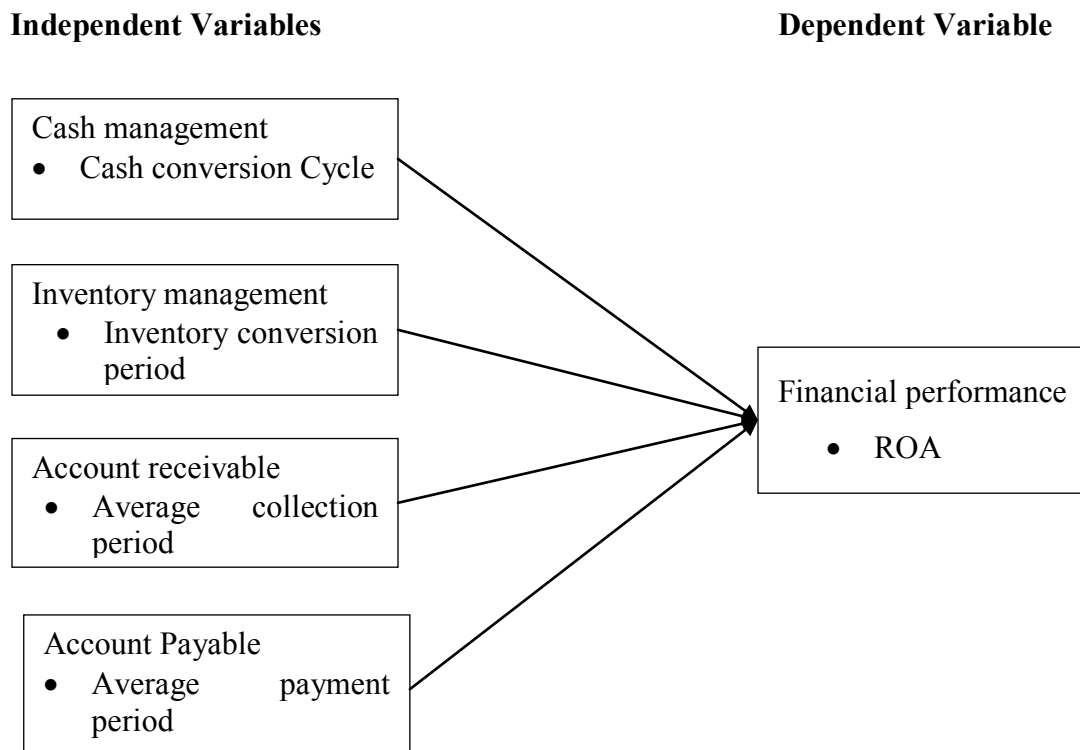


Figure 2. 1 Conceptual Framework

Source: Researcher, 2017

This study proposed four variables that influenced working capital management in Kenya's manufacturing sector. The choice of these variables had been influenced by the previous studies related on working capital management done by previous researchers. All these variables are of great help to test hypothesis of this study. The independent variables used in this study were account receivables, accounts payables, cash management and inventory management. These are the estimated core components of working capital that need to be managed to increase efficiency and effectiveness of working capital. The efficiency of these variables affects dependent variable (financial performance). In the case of this study, profit used return on assets. The relationship between WCM and Return on Assets several interveners affecting it. The kind of technology adopted by a firm, the size of that firm, the amount of sales the firm makes and the current ratio intervene between the relationship of working capital and

profitability. The presentation of these intervening variables is similar to those presented by Makori and Jagongo (2013).

Inventory management involves how a company manages its inventory measured by the amount of inventory the company holds at a given period, the number of days it takes the company to convert inventory into cash, and the number of times a company sells its inventory in a year. Accounts receivable days refers to the number of days it takes a company to collect money it is owed. This is calculated by dividing average accounts receivables by the daily revenue. Accounts payable days refers to the number of days it takes a company to pay its creditors. It is estimated by dividing the average accounts payables by the daily cost of goods sold. Cash management is calculated subtracting the days it takes a company to pay its creditors from the sum of the days the company takes to convert inventory into cash and the days it takes a company to collect its receivables. Firms leverage is measured by dividing the sum of short-term and long-term loans by the total assets while size is measured as the natural logarithm of total assets of the firm while sales growth is measured as $(\text{this year's sales} - \text{last year's sales}) / \text{this year's sales}$ similar to what Garcia-Teruel and Martinez-Solano (2007) did.

2.6 Empirical Review

Melita, Elfani and Petros (2010) empirically investigated the effect of working capital management on firm's financial performance in an emerging market. Their data set consisted of firms listed in the Cyprus Stock Exchange for the period 1998-2007. Using multivariate regression analysis, our results revealed that working capital management leads to improved profitability. Specifically, results indicate that the cash conversion

cycle and all its major components; namely, days in inventory, day's sales outstanding and creditors' payment period – are associated with the firm's profitability. This study covered all firms and not specifically on manufacturing firms. Different industries have their own specific characteristics and therefore, what favours one industry may not favour the other industry. For instance, manufacturing firms have to consider manufacturing plants that convert raw materials into finished good while commercial industries don't have plants since they only deal with finished goods. Also, unlike manufacturing industry, raw materials are never part of inventories for the commercial industry. Therefore, assuming that the effect of working capital on profitability is the similar for each is misleading.

Ani et al. (2012) studied on the effects of working capital management on profitability: evidence from the top five beer brewery firms in the world. They focused on working capital management as measured by the cash conversion cycle (CCC), and how the individual components of the CCC influence the profitability of world leading beer brewery firms. Multiple regression equations were applied to a cross sectional time series data. The study found that working capital management as represented by the cash conversion cycle, sales growth and lesser debtors' collection period impacts on beer brewery firms' profitability. His study only focused on the inventory, payables and receivables turnover ratios and not their levels or their proportion to the total assets and liabilities. The study also only looked at only top five beer companies in the world and therefore this may not be representation of all manufacturing firms. This study also is not representative of African Manufacturing firms.

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

Ponsian, Kiemi, Gwatako and Halim (2014) carried out a study to find out the effect of working capital management on company profitability. The study aims at examining the statistical significance between a company's working capital management and profitability. In light of this objective, the study adopts quantitative approaches to test a series of research hypotheses. A sample of three manufacturing companies listed on the Dar es Salaam Stock Exchange (DSE) is used for a period of ten years (2002-2012) with a total of 30 observations. Data was analyzed on a quantitative basis using Pearson's correlation and Regression analysis. Findings were that there exists a positive relationship between cash conversion cycle and profitability of the firm. It also established a negative relationship between liquidity and profitability showing that as liquidity decreases, the profitability increases. The third finding was that there exists a highly significant negative relationship between average collection period and profitability. It further found that there is a highly significant positive relationship between average payment period and profitability. The gap in this study was that the key focus was on payment period. Also,

the sample was of only three manufacturing firms and it may not be representation of the entire industry in Tanzania, let alone Kenya.

Kirwa (2012) did a study also on the effects of working capital management on the profitability of manufacturing firms listed on the Nairobi Securities Exchange. Data was obtained from document analysis of consolidated financial reports of years ending December: 2006, 2007, 2008, 2009 and 2010. Multiple regression and correlation analysis were carried out on the data to determine the relationships between components of working capital management and the gross operating profit of the firms. The study established that gross operating profit was positively correlated with Average Collection Period and Average Payment Period but negatively correlated with Cash Conversion Cycle. It also established significant relationship between inventory Turnover in Days and gross operating profit. The gap in this study therefore was that it only focused on Average Collection Period, Average Payment Period and Cash Conversion Cycle and left out the effect of levels of working capital on firms' performance.

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

assets-to-total assets ratio, current liabilities as well as current liabilities/total liabilities ratio has any effect on profitability of the firm.

Arthemon (2014) investigated the relationship between liquidity and profitability in manufacturing cement firms. Purposive sample design was applied in this study which suited to the selected samples of top cement companies of Kenyan Cement Industry namely Athi River Mining, Bamburi Cement and East African Portland Cement. Secondary data extracted from the income statements, balance sheets starting from 2008 to 2012 and was analyzed by use of descriptive statistics and relationship drawn using multiple regression analysis. The research findings revealed that the mean values of current ratio was 1.71 which is below the standard conventional rule of 2:1. The investigation using both correlation and regression analysis revealed that liquidity ratios measured by Current Ratio, Quick ratio and cash conversion cycle have a relationship with profitability measured by return on capital employed. The findings revealed that Current Ratio and Quick Ratio were positively associated with return on capital employed while cash conversion cycle was negatively associated with Return on Capital Employed. The gap in this study was that it only focused on the current and quick ratios, which do not inform us on how the level of current assets and current liabilities measured against the level of total assets and total liabilities respectively affect profitability of the firm.

Ofunya (2015) did a census study that evaluated the relationship between Working Capital Management and Profitability of five Cement Companies in Kenya. Sample selection was purposive in that respondents for the study were the various heads of

finance. Findings of the study indicate that indicate that efficient working capital management increases profitability, and hence a negative relationship exists between the measure of working capital management (cash conversion cycle, sales growth, debt ratio and credit ratio) and profitability variable. Function from each of the cement companies.

2.7 Chapter Summary

The reviewed studies focus on the effect of debt Collection Period, Inventory Conversion Period, Payments Payables Period and Cash conversion circle on performance of the manufacturing firm. None has established whether or not and how the level of current assets and current liabilities affects firm's profitability. Further, others have only looked at the effects of Working Capital Management on Performance for all firms combined, without looking at industry per industry. Such findings are therefore misleading because industries are different, and this may affect how their profitability is affected by the working capital. Third, some studies took too small samples which may not be representative on the entire manufacturing industry. For instance, Ani, Uchenna, Okwo, Ifeoma, Ugwunta, & Okelue (2012) study only looked at only top five bear companies in the world and therefore this may not be representative of all manufacturing firms. Additionally, this also is not representative of other manufacturing firms within Africa.

In light of the above, while evaluating the effect of working capital management on profitability of manufacturing firms listed in the Nairobi Securities Exchange, this study mainly focused on the effect of cash management, inventory management and account receivable management and how they affect profitability of the manufacturing firms listed in the Nairobi Securities Exchange. This shed light as to which among the Deloof

and Jegers, (1996) argument on inventory and trade credit policy, Current asset to total assets ratio theory and, Zariyawati, Annuar, Taufiq, & Abdul Rahim, (2009), argument on risk and return best describes the effect of working capital in manufacturing firms.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the methodology that was used in gathering the data, analyzing the data and reporting the results. Here the researcher aimed at explaining the methods and tools used to collect and analyze data to get proper and maximum information related to the subject under study.

3.2 Research Design

Research design, according to Creswell (2003), is the scheme, outline or plan that is used to generate answers to the research problems. This study used the explanatory type of study with a quantitative approach to analyse the collected data. The research design used in this study was a pooled panel data analysis. Pooled panel data analysis, also called the constant coefficients model is one where both intercepts and slopes are constant, where the cross-section firm data and time series data are pooled together in a single column assuming that there is no significant cross section or temporal effects (Gujarati, 2013). In addition, Statistical Package for Social Science (SPSS) (version 23.00) was applied to get results. It was aimed at getting relative information related to the effect of working capital management on performance of manufacturing firms listed in the Nairobi Securities Exchange. The independent variable of this study was the working capital management whilst the dependent variable was performance of manufacturing firms listed at the Nairobi Securities Exchange. The independent

variables of the working capital management in this study were account payable, account receivables and inventory management.

3.3 Target Population and Sampling Procedures

According to Ngechu (2004), a study population is a well-defined or specified set of people, group of things, households, firms, services, elements or events which were being investigated. Kothari, (2014) stated that a population is an entire group of individuals, events or objects having common characteristics that conform to a given specification.

The population of interest in this study constituted of all manufacturing companies quoted at the NSE for the period of five years from 2012 to 2016. The study was limited to listed companies due to lack of readily available data from private companies not listed in NSE. There was a total of ten (10) manufacturing firms listed in NSE.

3.4 Sampling Design

The study was based on financial statements of the manufacturing firms listed on the Nairobi securities Exchange. Observations of firms with anomalies such as negative values in their total assets and current assets were eliminated. In addition, only firms that had continuously traded over the period 2012 to 2016 were considered in the study. Further observations of items from the statement of financial position and statement of comprehensive income showing signs contrary to reasonable expectations were removed.

Eight manufacturing firms were purposively selected for this study. The firms that had merged and those that had been de-listed from the Nairobi Securities Exchange, due to

any reason/restriction imposed by the regulators during the period under review were not included in this study.

3.5 Data Collection

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

3.6 Data Analysis and Presentation

This study used multiple linear regression analysis to determine the effect of the working capital on the performance of manufacturing firm listed at NSE as measured by its Return on Asset. Kothari (2014), regression analysis is concerned with the study of how one or more variables affect changes in another variable.

To establish the relationship, a regression was established. For each working capital management practice, an overall mean was determined and matched with the overall mean of the firm's performance. From this relationship, the model was generated to determine the relationship. The regression equation assumed the following form

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where;

Y = Financial Performance

β = Un-standardized coefficient

X_1 = Cash Management

X_2 = Inventory Management

X_3 = Accounts receivable

X_4 = Accounts Payables

ε = error term.

β_0 = the constant which is the value of dependent variable when all the independent variables are 0.

β_i - β_3 = the regression coefficient or change induced by X_1 , X_2 , X_3 and X_4 on Y . It determines how much each (X_1 , X_2 and X_3) contributes to Y (Financial performance)

3.7 Operationalization of the study Variables

Table 1. 1 Operationalization of the study Variables

Hypothesis	Independent Variables	Measurements	Scale type	Data Analysis
H01: Cash management has no significant relationship on the financial performance of manufacturing firms at the NSE	Cash conversion cycle	ACP+ICP-APP	Discrete	Descriptive statistics Regression analysis
H02: Inventory management has no significant relationship on the financial performance of manufacturing firms at the NSE	Inventory conversion period	Inventory/Cost of Sales*365 days	Discrete	Descriptive statistics Regression analysis
H03: Account receivable management has no significant relationship on the financial performance of manufacturing firms at the NSE	Average collection period	Accounts Receivables/Net Sales*365 days	Discrete	Descriptive statistics Regression analysis
H04: Accounts payable management has no significant relationship on the financial performance of manufacturing firms at the NSE	Average payment period	Accounts Payables/Cost of Sales*365days	Discrete	Descriptive statistics Regression analysis
Financial Performance	ROA	EBIT/Total Assets	Continuous	Descriptive statistics Regression analysis

CHAPTERFOUR

RESULTS AND FINDINGS

4.1 Introduction

This chapter presents data analysis, results and discussion. The data used in this study has been analyzed using descriptive and quantitative research techniques. This is to enable the performance of the multivariate regression analysis on the panel data that has been collected for this particular study. The data used in this study has been sourced mainly from secondary data sources. This chapter specifically, seeks to answer and accomplish the research questions and objectives as stated in chapter one of determining the effect of working capital management on financial performance of manufacturing companies listed at the Nairobi Securities Exchange. This chapter is organized into sections, where the first section will provide a descriptive analysis of the financial performance of the manufacturing firms as measured by the return on assets. The second present a numerical summary of the descriptive data and a graphical representation of the dependent and independent variables in the study. The third section will explore the results generated by this study and finally the fourth section will provide both a theoretical and practical discussion of the multivariate regression results of the study.

4.2 Financial Performance Descriptive

To be able to measure financial performance and profitability of the manufacturing firms listed at the NSE; return on assets (ROA) has been used as a yardstick for this particular study. Nazir and Afza (2009) used the same yardstick as a measure of financial performance. This section will provide detailed information on the return on asset for the

manufacturing firms listed at the NSE. The return on assets for the manufacturing firms in Kenya has been increasing steadily over the last few years mainly due to the good economic conditions. This implies that the profitability of the manufacturing firms has also been increasing at a steady rate.

Table 4.1: Financial Performance Descriptive

Descriptive Statistics									
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Std. Error
Financial Performance (Percentage)	50	4.60	38.20	17.8280	9.02808	.395	.337	-.842	.662
Valid (list wise)	N 50								

Source: Researcher, 2017

The findings in table 4.1 reveal that the mean percentage rate of return of the manufacturing firms listed at the NSE was 17.828% for the period under consideration. The results imply that the capital invested had on average a considerably significant return for manufacturing firms listed at the NSE. The percentage of ROA among the manufacturing firms listed at the NSE did not differ significantly as indicated by a standard deviation of 9.02808. The findings from the study also show that the data of financial performance (ROA) were positively skewed. The responses being positively skewed implies that most of the data was to the left of the mean. If we drew a normality

graph to show symmetry then the bulk of the data will be concentrated to the left of the graph and the right tail will be longer.

The researcher also sought to establish the individual descriptive statistics of financial performance with respect to each year under consideration. The results are shown in the table 4.2 below;

Table 4.2: Yearly Descriptive

Year	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
2012	5.1	27.8	15.23	7.47485	0.416	-0.872
2013	7.5	28.1	18.26	6.33407	-0.594	0.055
2014	4.6	22.4	13.14	6.07366	-0.164	-1.124
2015	6.5	38.2	23.86	10.42808	-0.389	-1.04
2016	6.4	33.1	18.65	11.35001	0.333	-2.107

Source: Researcher, 2017

The findings from the table reveal that 2015 was the year that the manufacturing firms listed at the NSE attained the highest ROAAs shown by a mean of 23.86. From the table 4.2, we can also deduce that average ROA was least in the year 2014 as shown by a mean of 13.14. In addition, the highest variation in percentage of ROA among the manufacturing firms listed at the NSE was in the year 2016 as shown by a standard deviation of 11.35001 while the least variation in percentage of ROA among the manufacturing firms listed at the NSE was registered in the year 2013 as shown by a standard deviation of 6. 33407. In general, for the four years the performance of the manufacturing firms listed at the NSE was relatively good based on the findings.

Further, the researcher also sought to establish the individual descriptive statistics of financial performance with respect to each manufacturing firms listed at the NSE. The results are shown in the table 4.3 below;

Table 4.3: Company's Descriptive

Company	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
B.O.C Kenya Ltd	7.5	33.1	16.9	9.93554	25.6	1.94
British American Tobacco Kenya Ltd	6.5	31.7	13.78	10.62601	25.2	2.683
Carbacid Investments Ltd	13.4	30.4	20.92	6.84449	17	-1.051
Mumias Sugar Co. Ltd	10.9	30.8	20.2	7.18436	19.9	1.455
Unga Group Ltd	8.4	31.1	20.64	9.39537	22.7	-1.781
East African Breweries Ltd	4.6	38.2	19.6	12.27823	33.6	1.418
Eveready East Africa Ltd	8.5	28.1	18.08	8.22843	19.6	-2.09
Kenya Orchards Ltd	6.4	27.5	18.3	8.51645	21.1	-1.181
A.Baumann CO Ltd	4.7	33.8	14.62	11.83837	29.1	1.752
Flame Tree Group Holdings Ltd	7	31.3	15.24	9.64381	24.3	2.464

Source: Researcher, 2017

According to the results in table 4.3, Carbacid Investments Ltd was the manufacturing firms listed at the NSE that attained the highest ROAAs shown by a mean of 20.92. We can also deduce that British American Tobacco Kenya Ltd was the manufacturing firms listed at the NSE that attained the least ROAAs shown by a mean of 13.78. In addition, the highest variation in percentage of ROA among the manufacturing firms listed at the NSE was experienced by East African Breweries Ltd as shown by a standard deviation of 12.27823 while the least variation in percentage of ROA among the manufacturing firms listed at the NSE was registered by Carbacid Investments Ltd as shown by a standard deviation of 6.84449.

4.3 Predictor Variables Descriptive

The researcher also sought to find the summary statistics of the independent variables for the 5 years under consideration. The study called for the averages, skewness and kurtosis of the data to understand the distribution of the data. The results are shown in the table below;

Table 4.4: Predictor Variables Descriptive

Descriptive Statistics									
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis		
Predictor	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Cash Management(Millions)	50	90.13	363.15	182.5106	41.63733	1.527	.337	6.395	.662
Inventory Management (Millions)	50	29.50	76.00	68.8164	7.48497	-4.085	.337	18.795	.662
Accounts receivable (Millions)	50	22.00	50.00	33.4000	8.17912	.556	.337	-.834	.662
Accounts Payable(Millions)	50	14.00	24.00	20.2200	2.27937	-.347	.337	-.040	.662
Valid N (listwise)	50								

Source: Researcher, 2017

Results in table 4.4 indicate that the mean of cash management of the manufacturing firms listed at the NSE was 182.5106 for the period under consideration. Value of cash management as had the highest level of variation indicated by a standard deviation of 41.63733. The findings from the study also show that the data of cash management were positively skewed. The responses being positively skewed implies that most of the data was to the left of the mean. If we drew a normality graph to show symmetry then the

bulk of the data will be concentrated to the left of the graph and the right tail will be longer.

Further, from the results we can deduce that mean of inventory management of the manufacturing firms listed at the NSE was 68.8164 for the period under consideration. Value of inventory management as the least level of variation indicated by a standard deviation of 7.48497. The findings from the study also show that the data of cash management were negatively skewed. The responses being negatively skewed implies that most of the data was to the right of the mean. If we drew a normality graph to show symmetry then the bulk of the data will be concentrated to the right of the graph and the left tail will be longer.

In addition, the findings show that mean of accounts receivable of the manufacturing firms listed at the NSE was the second lowest as indicated by an average of 33.40 for the period under consideration. Value of accounts receivable as had slight variation indicated by a standard deviation of 8.17912. The findings from the study also show that the data of accounts receivable were positively skewed. The responses being positively skewed implies that most of the data was to the left of the mean. If we drew a normality graph to show symmetry then the bulk of the data will be concentrated to the left of the graph and the right tail will be longer.

Moreover, the findings show that mean of accounts payable of the manufacturing firms listed at the NSE was the least as indicated by an average of 20.22 for the period under consideration. Value of accounts payable as had slight variation indicated by a standard deviation of 2.27937. The findings from the study also show that the data of accounts

receivable were positively skewed. The responses being negatively skewed implies that most of the data was to the right of the mean. If we drew a normality graph to show symmetry then the bulk of the data was to be concentrated to the right of the graph and the left tail was longer.

The research also to assess the trend of ROA, cash management, inventory management, accounts receivables and accounts payable of the manufacturing firms listed at the NSE for the 5 years under consideration. The results are as shown in the figure below;

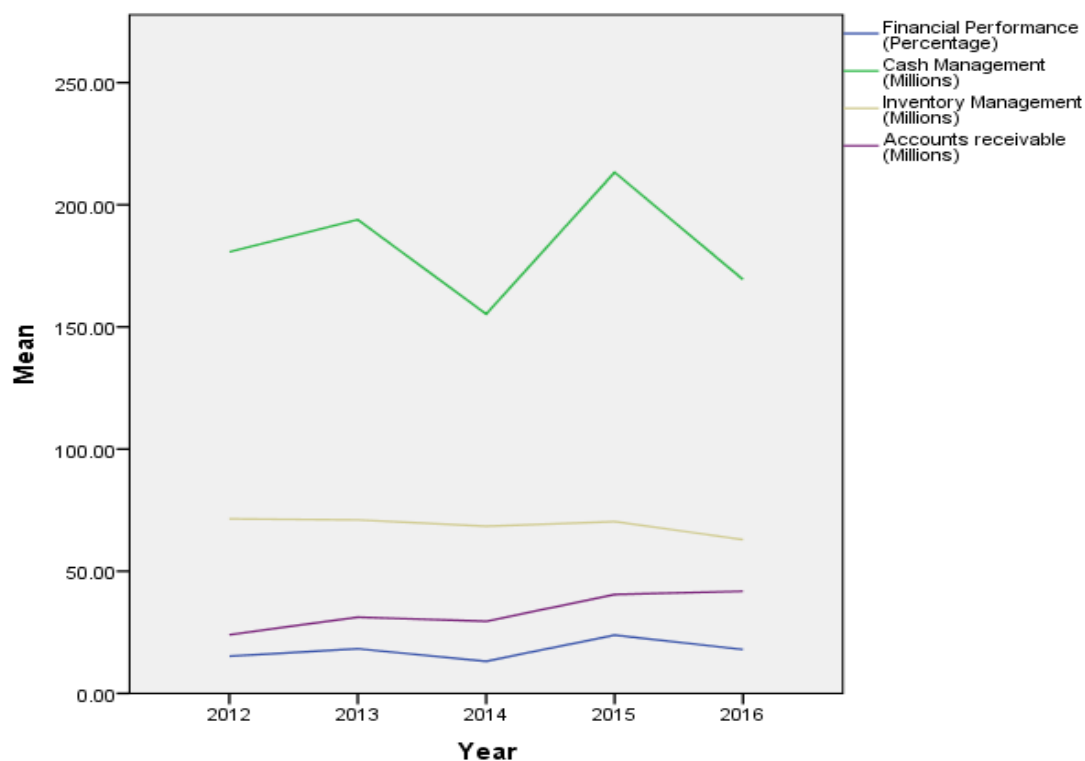


Figure 4.1: Graphs of the Variables

Source: Researcher, 2017

As shown above figure 4.1 the return on assets for the manufacturing firm has been increasing steadily for the past five years with an exception of 2014 when the return on asset fell sharply due to the harsh economic conditions in the country.

4.4 Comparative Analysis

The study sought to establish whether there was a significant difference in the financial performance and profitability of the manufacturing firms listed at the NSE measured by the return on assets for the 10 companies. A one-way analysis of variance was used to assess the significance of this difference among the years and the companies under consideration. The table 4.5 shows the results when the ROA is compared across the five years to establish if the difference was statistically significant;

Table 4.5: Yearly Comparison of ROA

ANOVA						
Financial Performance (Percentage)						
Source Variation	Sum of Squares	Df	Mean Square	F	Sig.	
Between Groups	659.743	4	164.936	2.226	.081	
Within Groups	3334.058	45	74.090			
Total	3993.801	49				

Source: Researcher, 2017

Analysis of variance (ANOVA) is a data analytic technique which is performed in order to determine whether differences exist among the years. The interpretation of the results obtained in the test was based on the significance levels. If the P-value was found to be significant ($< .05$), the conclusion was drawn that ROA did not differ significantly in the years under consideration. If the P-value was found not to be significant, the conclusion was drawn that the ROA did not differ significantly in the years under

consideration. The P-value ($0.081 > 0.05$) hence we reach a conclusion that ROA did not differ significantly in the years under consideration.

The table 4.6 shows the results when the ROA is compared across the manufacturing firms listed at the NSE to establish if the difference in their ROA was statistically significant;

Table 4.6: Manufacturing Firms Comparison of ROA

ANOVA						
Financial Performance (Percentage)						
Source Variation	Sum of Squares	Df	Mean Square	F	Sig.	
Between Groups	303.785	9	33.754	.366	.945	
Within Groups	3690.016	40	92.250			
Total	3993.801	49				

Source: Researcher, 2017

In the interpretation of the results obtained in the test was based on the significance levels. If the P-value was found to be significant ($< .05$), the conclusion was drawn that ROA did differ significantly among the manufacturing firms listed at the NSE. If the P-value was found not to be significant, the conclusion was drawn that that ROA did not differ significantly among the manufacturing firms listed at the NSE. The P-value ($0.945 > 0.05$) hence we reach a conclusion that ROA did not differ significantly among the manufacturing firms listed at the NSE.

4.5 Inferential Statistics

Inferential statistic is a technique that allows use of samples to make generalizations about the populations from which the samples have been drawn from. Pearson's product

moment correlation analysis was used to assess the relationship between the independent variables while multiple regression $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$ was used to determine the predictive power of the factors affecting financial performance of manufacturing firms listed at the NSE.

4.5.1 Correlation Analysis

Correlation is a statistical measure that determines the relationships between two or more variables or sets of variables. It also shows the level of significance of the relationship. The correlation analysis also shows the direction of the relationship between the variables and the magnitude. In this study, Pearson Product moment correlation was used to determine the relationship between independent variables and dependent variable. Table 4.7 indicates the correlation matrix between independent variables and dependent variable.

Table 4.7: Correlation Matrix

		Correlations				
		Financial Performa nce (Percenta ge)	Cash Management(Mil lions)	Inventory Managem ent (Millions)	Accoun ts receiva ble (Millio ns)	Accou nts Payabl e
Financial Performance (Percentage)	Pearson Correlation Sig. (2- tailed) N	1				
Cash Management(Millions)	Pearson Correlation Sig. (2- tailed) N	.611**	1			
Inventory Management (Millions)	Pearson Correlation Sig. (2- tailed) N	-.144	.251	1		
Accounts receivable (Millions)	Pearson Correlation Sig. (2- tailed) N	.581**	.306*	-.234	1	
Accounts Payable	Pearson Correlation Sig. (2- tailed) N	.144	.012	.115	-.061	1
		.318	.934	.427	.676	
		50	50	50	50	50

** . Correlation is significant at the 0.01 level (2-tailed).
* . Correlation is significant at the 0.05 level (2-tailed).

Source: Researcher, 2017

The table above indicates the correlation matrix between the independent variables and dependent variables. According to table 4.7, there is a very high positive relationship between financial performance and cash management, accounts payables and accounts receivables of magnitude 0.611, 0.144 and 0.518 respectively. The positive relationship

indicates that there is a correlation between the independent variables and dependent variables with cash management having the highest value and inventory management having the lowest correlation value. The results also reveal that there is a weak negative correlation between inventory management and the financial performance as shown by a correlation of magnitude -0.144.

This notwithstanding, two of the factors had a significant p-value ($p < 0.05$) at 95% confidence level. The significance values for relationship between financial performance and cash management and accounts receivables $p < 0.05$. This implies that all the independent variables (cash management, accounts receivables) were significantly correlated with financial performance.

4.5.3 Test of Assumptions

The study performed tests on statistical assumptions i.e. test of regression assumption and statistic used. This included test of normality, autocorrelation, homogeneity of variance and multicollinearity.

4.5.3.1 Test of Normality

Normality was tested using the Shapiro-Wilk test which has power to detect departure from normality due to either skewness or kurtosis or both. Its statistic ranges from zero to one and figures higher than 0.05 indicate the data is normal (Razali & Wah, 2011). Shapiro-Wilk test assesses whether data is normally distributed against hypothesis that:

H_0 : Sample follows a Normal distribution.

H_a : Sample does not follow a Normal distribution.

Table 4.8: Test of Normality

	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Financial Performance (Percentage)	.096	50	.060*	.952	50	.082
Cash Management(Millions)	.134	50	.526	.889	50	.070
Inventory Management (Millions)	.290	50	.710	.533	50	.200
Accounts receivable (Millions)	.128	50	.840	.928	50	.705
Accounts Payable	.134	50	.725	.964	50	.130

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Source: Author (2017)

When the p-value is greater than the alpha value, then one fails to reject the null hypothesis and don't accept the alternative hypothesis. From the table above, we fail to reject the null hypothesis because all the significant values are greater than 0.05. Hence the assumption of normality was not violated.

4.5.3.1 Multicollinearity Test

Multicollinearity was tested by computing the Variance Inflation Factors (VIF) and its reciprocal, the tolerance. It is a situation in which the predictor variables in a multiple regression analysis are themselves highly correlated making it difficult to determine the actual contribution of respective predictors to the variance in the dependent variable. Thus, collinearity diagnostics measure how much regressors are related to other regressors and how this affects the stability and variance of the regression estimates. To

detect for multicollinearity, the study examined the correlation matrix or by using Variance Inflation Factor (VIF) as shown in Table below. The Variance Inflation Factor (VIF) quantifies the severity of multicollinearity in an ordinary least- squares regression analysis. VIF's greater than 10 are a sign of multicollinearity; the higher the value of VIF's, the more severe the problem.

Table 4.9:Multicollinearity Test

Variables	Tolerance	VIF
Cash Management(Millions)	.797	1.255
Inventory Management (Millions)	.822	1.261
Accounts receivable (Millions)	.803	1.246
Accounts Payable	.986	1.015

Source: Author (2017)

Results show that all the variables had a variance inflation factors (VIF) of less than 10. This implies that there was no multicollinearity with the variables thus all the variables were maintained in the regression model.

4.5.3.1 Homogeneity Test

Homogeneity tests are used to describe the statistical properties of a particular data set. The test is done to check whether all the items in the population have same characteristics. Homogeneity of variance is also called homoscedasticity and is used to describe a set of data that has the same variance. Graphically, plotting the model residuals

(the difference between the observed value and the model-estimated value) vs the predictor is also a simple way to test for homogeneity of variance. The figure below is the resulting scatter plot generated;

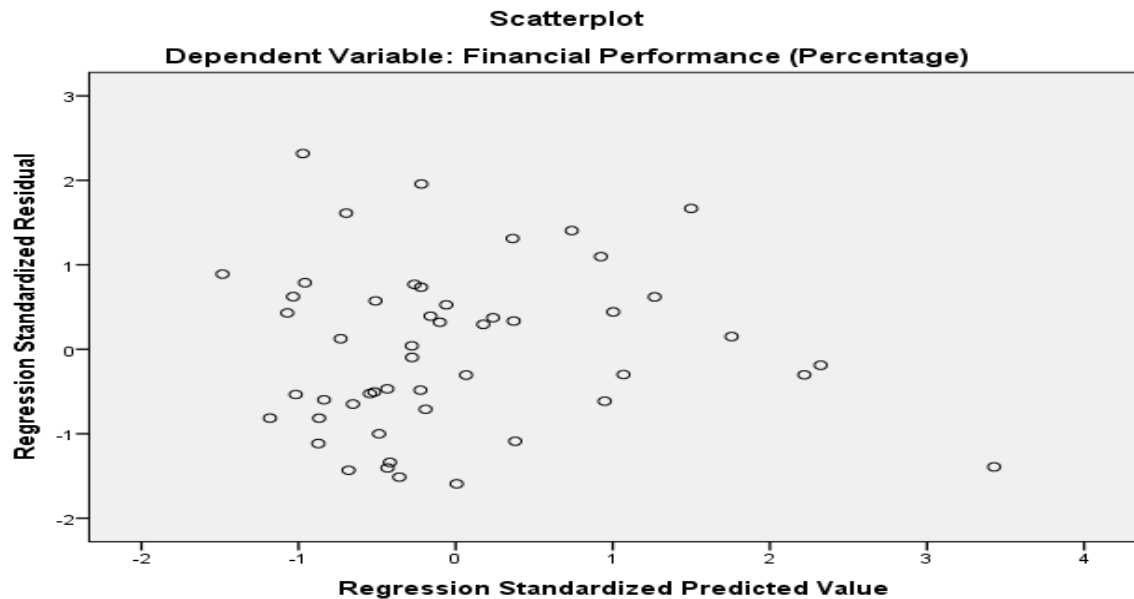


Figure 4.2:Residuals Scatter plot

Source: Author (2017)

From the graph, there is an indication of homoscedasticity. If the model is well-fitted, there should be no pattern to the residuals plotted against the fitted values. Scatter plots are a useful way to look at the variance of a data and are, typically, our first step in assessing homogeneity. In the figure, it appears that the dots are spread out fairly evenly across the line; this is what is meant by homogeneity of variance.

4.12.6 Tests of Autocorrelation

Autocorrelation was assessed through the Durbin-Watson test. Durbin Watson (DW) test check that the residuals of the models were not auto correlated since independence of the residuals is one of the basic hypotheses of regression analysis. Its statistic ranges from zero to four. Scores between 1.5 and 2.5 indicate independent observations (Garson, 2012). The DW statistics was close to the prescribed value of 2.0. Thus, it can be concluded that there was no autocorrelation and the residuals were independent.

Table 4.10: Durbin Watson Test

Model Summary^b	
Model	Durbin-Watson
1	1.982
a. Predictors: (Constant), Accounts Payable, Cash Management(Millions), Inventory Management (Millions), Accounts receivable (Millions)	
b. Dependent Variable: Financial Performance (Percentage)	

Source: Author (2017)

4.5.2 Regression Analysis

Regression analysis is a statistical process for estimating the relationships among variables. With this analysis, one is able to understand how the typical values of the dependent variable change when one of the independent variable is varied, while the other variables are held constant/fixed. For this study, a multiple regression model was applied to identify the impact of cash management, inventory management and accounts receivables on othe financial performance and profitability of the manufacturing firms listed at the NSE.

The model summary provides information about the regression line's ability to account for the total variation in the dependent variable

Table 4.11: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.781 ^a	.610	.575	5.88308

a. Predictors: (Constant), Accounts Payable(Millions), Cash Management(Millions), Inventory Management (Millions), Accounts receivable (Millions)

Source: Researcher, 2017

The findings show that the independent variables had a qualified influence on the dependent variable as shown by an Adjusted R Square =0.575. The output indicates that the strength of association between the variables is relatively high (Adjusted R Square = 0.575). The four independent variables (Accounts receivable (Millions), Inventory Management (Millions), Cash Management (Millions),Accounts Payable (Millions))that were collectively studied, explain only 57.5% of the variation in the NSE share index as represented by the Adjusted R Square. This therefore means that other factors not studied in this research contribute 42.5% of the variation in the financial performance of manufacturing firms listed at the NSE.

Analysis of Variance (ANOVA) consists of calculations that provide information about levels of variability within a regression model and form a basis for tests of significance of the model.

Table 4.12: ANOVA

		ANOVA ^a				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2436.325	4	609.081	17.598	.000 ^b
	Residual	1557.476	45	34.611		
	Total	3993.801	49			

a. Dependent Variable: Financial Performance (Percentage)

b. Predictors: (Constant), Accounts Payable, Cash Management(Millions), Inventory Management (Millions), Accounts receivable (Millions)

Source: Researcher, 2017

In view of the results in table 4.9 above the significance value is 0.000(which is less than <0.05) indicates that the overall model is statistically significant in predicting financial performance of manufacturing firms listed at the NSE. A P-value < 0.05, shows that the overall model was a good fit.

A regression coefficient is a key output of regression analysis. It is interpreted as the proportion of the variance in the dependent variable that is predictable from the independent variable. The results are as shown in the table 4.10 below;

Table 4.13: Regression Coefficients

Model		Coefficients ^a		Beta	t	Sig.
		Un-standardized Coefficients	Std. Error			
1	(Constant)	-14.572	11.655		-1.250	.218
	Cash Management(Millions)	.119	.023	.548	5.258	.000
	Inventory Management (Millions)	-.260	.124	-.216	-2.100	.041
	Accounts receivable (Millions)	.413	.115	.374	3.600	.001
	Accounts Payable	.732	.371	.185	1.971	.055

a. Dependent Variable: Financial Performance (Percentage)

Source: Researcher, 2017

The regression function extracted using the un-standardized betas is as follows

$$(Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon) :$$

$$Y = -14.572 + 0.119X_1 - 0.260X_2 + 0.413 X_3 + 0.732X_4$$

According to the regression function, holding all factors constant at zero, the coefficient for NSE Share Index will be -14.572. Cash management, inventory management and accounts receivable values were found to have a significant influence on the financial performance of manufacturing firms listed at the NSE ($\beta = -0.119$, P-value ($0.000 < 0.05$), ($\beta = -0.260$, P-value ($0.001 < 0.041$), ($\beta = -0.236$, P-value ($0.07 > 0.00$) respectively. Accounts payable values, ($\beta = 0.732$, P-value ($0.07 > 0.055$)) was determined not to significantly influence the financial performance of manufacturing firms listed at the NSE.

4.6 Interpretation of Findings

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

According to the study, the average percentage rate of return of the manufacturing firms listed at the NSE was 17.828% for the period under consideration. In the year 2015, the manufacturing firms listed at the NSE attained the highest ROA as shown by a mean of 23.86 while in the year 2014 the manufacturing firms listed at the NSE attained the lowest ROA as shown by a mean of 13.14. The high ROA in 2015 can be attributed to a less aggressive investment in current assets and current liabilities which has a negative impact on the profitability of a firm. Therefore, conservatism investment in working capital results in low liquidity and higher profitability.

In addition, it reveals that although there was a variation in the percentage of ROA for the five years under consideration, the difference was not statistically significant. The P-value $(0.081) > 0.05$ hence we reach a conclusion that ROA did not differ significantly in the years under consideration. The findings also show that there was a variation in the percentage of ROA among the firms considered in the study but the variation in the average percentage of ROA among the firms was also not significant. The P-value $(0.945) > 0.05$ hence we reach a conclusion that ROA did not differ significantly among the manufacturing firms listed at the NSE.

Correlation and regression analysis results were important in understanding the nature of the relationship of the variables and the predictive power of the proposed model. There is a very high positive relationship between financial performance and cash management and accounts receivables of magnitude 0.611, and 0.518 respectively. The positive relationship indicates that there is a correlation between the independent variables and dependent variables with cash management having the highest value. Inventory management had an insignificant negative association with financial performance. The output indicates that the strength of association between the variables is relatively high (Adjusted R Square = 0.576). The four independent variables (Accounts receivable (Millions), Accounts payable (Millions), Inventory Management (Millions), Cash Management (Millions)) that were collectively studied; explain only 57.5% of the variation in the NSE share index as represented by the Adjusted R Square. This therefore means that other factors not studied in this research contribute 42.5% of the variation in the financial performance of manufacturing firms listed at the NSE.

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

The study is in line with the findings of Sumaira, (2013), who studied the impact of working capital on the profitability of Textile Sector in Pakistan. She found out that the

aggressiveness of working capital policies is inversely related to profitability. Findings of Hina, (2014), on the impact of working capital on profitability are also in concurrence with those determined in the study. He found out that there is a positive relationship between accounts receivables and ROA, a negative relationship between inventory turnover and ROA and a positive relationship between cash management and ROA. In addition, the findings are aligned to those of Daniel, (2013), who studied the impact of working capital and firm profitability. He noted that the management of WC has a significant impact on profitability of firms.

CHAPTER FIVE
SUMMARY OF THE DISCUSSIONS, CONCLUSION AND
RECOMMENDATIONS

5.1 Introduction

This chapter gives the summary of the findings and conclusions as to whether indeed there is effect of working capital management financial performance of manufacturing firms listed in Nairobi Security Exchange. Specifically, the chapter gives an overview of the effect of cash management; inventory management account payables and account receivable on financial performance of manufacturing firms listed in the Nairobi Securities Exchange as revealed by the results in chapter four. It further gives recommendations on company policies and practices on working capital management

5.2 Summary of the findings

The objective of this study was to establish the effect of Working Capital Management on profitability of manufacturing firms listed in the Nairobi Securities Exchange. Linear regression model was used where dependent variable was return on assets while independent variable were cash management (cash budget period), inventory management (inventory turnover), account receivable (average collection period).

According to the results, Carbacid Investments Ltd was the manufacturing firms listed at the NSE that attained the highest ROA while British American Tobacco Kenya Ltd was the manufacturing firms listed at the NSE that attained the least. In addition, the study

found that the manufacturing industry experienced highest ROA in 2015 compared to the lowest ROA in 2014. The high ROA in 2015 can be attributed to a less aggressive investment in current assets and current liabilities which has a negative impact on the profitability of a firm. Therefore, conservatism investment in working capital results in low liquidity and higher profitability.

The findings also show that there was a variation in the percentage of ROA among the firms considered in the study but the variation in the average percentage of ROA among the firms was also not significant. Correlation and regression analysis results showed that there is a very high positive relationship between financial performance and cash management and accounts receivables. The positive relationship indicates that there is a correlation between the independent variables and dependent variables with cash management having the highest value. Inventory management had an insignificant negative association with financial performance. The output indicates that the strength of association between the variables is relatively high.

An Analysis of variance (ANOVA) in results revealed that was conducted to assess whether the percentage ROA was significantly different among in the years considered for the study. The study found that for the years ROA did not differed significantly as revealed by a P-value $(0.081) > 0.05$. The study therefore found that the manufacturing firms realized almost similar percentage of ROA for the years under consideration. The correlation matrix showed the association between the aspects of working capital and financial performance of the manufacturing company. The study found for the manufacturing companies there was a very high positive relationship between financial

performance, cash management, and accounts receivables. The positive relationship indicates that there is a correlation between the independent variables and dependent variables with cash management having the highest value and inventory management having the lowest correlation value.

5.3 Conclusions

As at year 2014, firms in manufacturing the industry in Kenya operated at a very high liquidity risk because current liabilities are more than current assets. The recommended current ratio of 2 has not been applied in manufacturing industries in Kenya given that the industry ratio has remained below this ratio. For any particular year, all firms in manufacturing industry are significantly different in terms on ROA whereby some have high, others medium while others at loss. Further, all firms in this industry are different in terms of trend in ROA from year to year whereby some have experienced consistent decline in ROA, others very random fluctuation whereas have experienced almost a stagnating ROA.

We established from the findings that less 39% of variations in financial performance can be attributed to working capital management in manufacturing firms in Kenya. Therefore, this study has proved that effective working capital management practices play a crucial role in improving the overall profit margins for manufacturing firms. The inverse relationship between inventory management practices and Return on Assets indicates that working capital management policies that promote a lower expenditure on inventory management will ultimately lead manufacturing firms to increased profitability. Further, aggressive policy of

working capital management that requires a company to operate with lower levels of inventory, trade receivables and cash for a given level of activity need to be instituted.

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

The study is in line with the findings of Sumaira (2013), who studied the impact of working capital on the profitability of Textile Sector in Pakistan. She found out that the aggressiveness of working capital policies is inversely related to profitability. Findings of Hina, (2014), on the impact of working capital on profitability are also in concurrence with those determined in the study. He found out that there is a positive relationship between accounts receivables and ROA, a negative relationship between inventory turnover and ROA and a positive relationship between cash management and ROA. In addition, the findings are aligned to those of Daniel, (2013), who studied the impact of working capital and firm profitability. He noted that the management of WC has a significant impact on profitability of firms.

5.4 Recommendations for Policy and Practice

In an attempt to take advantage of the opportunities arising from the relationship between working capital management decisions and the profitability of the manufacturing firms in Kenya, the study provides the following recommendations;

It is important for manufacturing firms that employ the working capital management strategies to balance between profitability of the firm and the firm's liquidity. This is because there is an implicit trade-off between liquidity and profitability. Effective working capital management will ensure that firms do not hold excess inventory that may prove costly in the short term due to cost of capital investment and firm's inability to meet its short term financial objectives due resulting illiquidity.

It is important for manufacturing firms to make a preliminary cost-benefit analysis of the various working capital management decisions before committing the firms' resources towards a specific decision. Proper working capital management practices will enable a firm to effectively manage its capital budgeting function especially with manufacturing firms whose massive chunk of capital needs are channeled to their industrial operation activities. Effective capital management policies will therefore enable firms to carefully evaluate their financing needs whether long term or short term. Manufacturing firms in Kenya should also incorporate a formal risk management framework in their application of the various working capital management strategies.

Although tight working capital management policies have a higher likelihood of improving a firms' financial performance it is imperative for the firm to take a broader perspective of the implication of a particular decision. Trade policies that may involve stringent receivables collections mechanisms may irritate loyal customers exposing the firm to probable risk of losing future business. It is therefore imperative for firms to be cautious when dealing with their clients even as they attempt to reduce their receivables collection period.

5.5 Study limitations

The main challenge for this particular study was in obtaining data directly from the manufacturing firms. This is because reliable data for the component working capital management variables such as the average collection period is rarely published. However, to mitigate this effect data was sought from the Nairobi Securities Exchange Library which facilitated the assessment of the research objectives. In addition, there were difficulties in the compilation of the relevant data for the study since majority of the data published was in raw form. To mitigate this effect, data was compiled and analyzed using SPSS version 21 so as to convert the raw data into relevant data for analysis. Finally, the choice of the items to include in the control variables was also challenging. However, this was mitigated by referring to the various body of literature to come up with the items to include in the control variables.

5.6 Recommendations for Further Studies

Given the scope and limitations of this study, the researcher suggests a number of areas for further study. The scope of this study should be expanded to include other variables not identified in this study as captured by the error term. To get a better perspective of the relationship between working capital management decisions and the manufacturing firms' profitability, this study should be conducted in a different industry/sector other than manufacturing sector. The study can also be improved by using a different yardstick to measure financial performance. Rather than using the return on asset as a yardstick for financial performance, return on equity may be used instead.

REFERENCES

- Afza, T. and Nazir, M.S. (2007). Working Capital Management Policies of Firms: Empirical Evidence from Pakistan. Presented at 9th South Asian Management Forum (SAMF) on February 24-25, North South University, Dhaka, Bangladesh.
- Akoto, K., Awunyo, D. and Angim, L. (2013), Working Capital Management and Profitability: Evidence from Ghanaian Listed Manufacturing Firms, *Journal of Economics and International Finance*, 5(9), 373-379, December, 2013
- Ani, Uchenna, W. Okwo, Ifeoma, Ugwunta, Okelue (2012), Effects of Working Capital Management on Profitability: Evidence From The Top Five Beer Brewery Firms In The World, *Asian Economic and Financial Review* 2(8):966-982
- Apuoyo, B. (2010): *The relationship between working capital management policies and Profitability for companies quoted at the NSE*. Unpublished MBA project, University of Nairobi
- Arthemon, N. (2014). *Liquidity management of cement manufacturing companies listed on the Nairobi securities exchange, empirical study*, United States International University
- Attari K. Raza, (2012) The Optimal Relationship of Cash Conversion Cycle with Firm Size and Profitability, *International Journal of Academic Research in Business and Social Sciences*, 2(12), 189- 203.
- Deloof, M. & Jeger, M. (1996). Trade Credit, Product Quality, and Intragroup Trade: Some European Evidence. *Financial Management*, 25, No. 3, 945-68
- Deloof, M. 2013. Does working capital management affect profitability of firms? *Vikalpa* 28 (2): 537–85.

- Ganesan, (2007). An analysis of Working Capital Management Efficiency in Telecommunications Equipment Industry. *Review Academic Journal* 21.3: 1-10.
- Gill, A., Biger, N., and Mathur, N., (2010), The relationship between working capital management and profitability: Evidence from the United States, *International Research Journal of Finance and Economics*.23 (1), 116-167.
- Gitman, L. J. (2009). *Principles of Managerial finance (12th Ed.)*. Bostos, MA: Pearson Prentice Hall. Gujarati, D. 2004, *Basic econometrics*” 4th ed McGraw–Hill Companies.
- Kharwish, H.A. (2011). Determinants of Commercial Banks performance. Evidence from Jordan. *Research Journal of Finance and Economics*. 5 (5), 19-45.
- Kirwa, K. (2012) *Analysis of effects of working capital management on profitability of manufacturing companies:A case study of listed manufacturing companies on Nairobi securities exchange*, working paper, University of Pennsylvania
- Kothari, C. R. (2014). *Research methodology: Bostos. Methods and techniques*. New Age International.
- Lazaridis, I, and D Tryfonidis. (2006). Relationship between Working Capital Management and Profitability of Listed Companies in the Athens Stock Exchange. *Journal of Financial Management and Analysis* 19.1: 26-35. Print.
- Lamberson M. (1995) Changes in Working Capital of Small Firms in Relation to Changes in Economic Activity, *American Journal of Business*, Vol. 10 Issue: 2, pp.45-50,
- Makori, D.M., Jagongo, A. (2013), Working Capital Management and Firm Profitability: Empirical Evidence from Manufacturing and Construction Firms Listed on Nairobi Securities Exchange, Kenya, *International Journal of Accounting and Taxation*, 1 No. 1, December 2013

- Mukhopadhyay, Samar K. Robert Setoputro, (2004) Reverse logistics in ebusiness: Optimal price and return policy, *International Journal of Physical Distribution & Logistics Management*, Vol. 34 Issue: 1, pp.70-89,
- Mathuva M. D. (2010), The Influence of Working Capital Management Components on Corporate Profitability: A survey of Kenyan Listed Firms, *Journal of Financial Management*, 15, (2), 24-35
- Melita, C., Elfani, M. & Petros, L. (2010), The Effect of Working Capital Management on Firm's Profitability: Empirical Evidence from an Emerging Market, *Journal of Business & Economics Research* – December, 2010 8, Number 12
- Messah, O. B. (2011): Reasons for low listing by Agricultural companies in the Bourse: A case study of Del Monte Limited Kenya. *Research Journal of Finance and Accounting*, 2:3
- Mwangi, M. (2013). *Relationship between working capital management and financial performance of manufacturing firms listed at the Nairobi securities exchange*, University of Nairobi
- Ofunya Afande (2015). Relationship between Working Capital Management and Profitability of Cement Companies in Kenya. *Research Journal of Finance and Accounting* Vol.6, No.7, 2015
- Ogundipe, S.E., Idowu, A. & Ogundipe, L.O. (2012). Working Capital Management, Firms' Performance and Market Valuation in Nigeria. *International Journal of Social and Human Sciences*, 6(1), 143-147.
- Ponsian, N., Kiemi, C., Gwatako, T., Halim, M., (2014), *The effect of working capital management on profitability*, *International Journal of Economics, Finance and Management Sciences*, 2014; 2(6): 347-355

- Sathamoorthi, C.R. (2002). The Management of Working Capital in selected co-operatives in Botswana. *Finance India*Dehli 16 (3), 1015-1034.
- Saxberg, B. O. (1979). A Theory of Performance: *A Contingency and Path Analysis Approach*. *Management Science*, 25(3), 231-244
- Sharma, A.K., & Kumar, S. (2011). Effect of working capital management on firm profitability: Empirical evidence from India. *Global Business Review*, 12 (1) 159-173.
- Shin, H., and L. Soenen, (1998). Efficiency of Working Capital and Corporate Profitability. *Financial Practice and Education*. 8(2), 37-45.
- Vahid, T.K, Mohsen, A.K. & Mohammadreza, E. (2012) .The Impact of Working Capital Management Policies on Firm's Profitability and Value: Evidence from Iranian companies; *International Research Journal of Finance and Economics*, 155-162.
- Waithaka, A. (2012). *The relationship between working capital management practices and financial performance of agricultural companies listed at the Nairobi Securities Exchange*. Master's thesis, The University of Nairobi. 71
- Zariyawati, M., Annuar, M.N., Taufiq, H. and Abdul Rahim, A. S. (2009), Working Capital Management and Corporate Performance: Case of Malaysia, *Journal of Modern Accounting and Auditing*, 5 (11), 47-54.

APPENDICES

Appendix I: Secondary Data collection Form

Year	Company	ROA (%)	Cash Management	Inventory Management	Accounts Receivable	Accounts Payable
2012	B.O.C Kenya Ltd	12.60	154.25	67.75	23.00	16.00
	British American Tobacco Kenya Ltd	6.90	173.25	72.25	22.00	21.00
	Carbacid Investments Ltd	24.60	154.00	66.25	22.00	21.00
	Unga Group Ltd	27.80	184.25	71.25	24.00	24.00
	East African Breweries Ltd	20.60	210.25	74.75	24.00	21.00
	Kenya Orchards Ltd	12.80	176.00	72.50	25.00	17.00
	Flame Tree Group Holdings Ltd	12.00	198.25	73.50	23.00	21.00
2013	B.O.C Kenya Ltd	7.50	186.25	74.50	26.00	16.00
	British American Tobacco Kenya Ltd	8.50	216.00	76.00	27.00	21.00
	Carbacid Investments Ltd	20.50	180.50	69.50	32.00	21.00
	Unga Group Ltd	21.70	187.75	69.50	35.00	21.00
	East African Breweries Ltd	20.50	162.75	66.00	35.00	19.00
	Kenya Orchards Ltd	22.40	209.25	71.00	32.00	21.00
	Flame Tree Group Holdings Ltd	16.50	211.75	73.50	33.00	18.00
2014	B.O.C Kenya Ltd	19.00	179.00	68.00	28.00	22.00
	British American Tobacco Kenya Ltd	15.30	200.50	69.75	28.00	18.00
	Carbacid Investments Ltd	15.70	140.25	68.25	31.00	19.00
	Unga Group Ltd	14.20	151.25	67.75	28.00	18.00
	East African Breweries Ltd	4.60	159.25	71.50	27.00	22.00
	Kenya Orchards Ltd	22.40	148.00	67.50	31.00	20.00
	Flame Tree Group Holdings Ltd	9.40	160.75	69.00	29.00	20.00
2015	B.O.C Kenya Ltd	12.30	182.00	73.75	32.00	21.00
	British American Tobacco Kenya Ltd	6.50	160.25	71.25	29.00	23.00
	Carbacid Investments Ltd	13.40	168.00	71.25	27.00	20.00
	Unga Group Ltd	31.10	247.25	73.50	41.00	24.00
	East African Breweries Ltd	38.20	191.75	65.00	49.00	23.00
	Kenya Orchards Ltd	27.50	196.75	68.25	50.00	18.00
	Flame Tree Group	31.30	203.00	67.00	50.00	14.00

	Holdings Ltd					
2016	B.O.C Kenya Ltd	33.10	262.75	68.75	45.00	23.00
	British American Tobacco Kenya Ltd	31.70	205.00	29.50	44.00	18.00
	Carbacid Investments Ltd	30.40	217.00	70.00	48.00	19.00
	Unga Group Ltd	8.40	125.25	68.00	39.00	18.00
	East African Breweries Ltd	14.10	164.25	73.25	43.00	23.00
	Kenya Orchards Ltd	6.40	148.50	71.25	39.00	20.00
	Flame Tree Group Holdings Ltd	7.00	90.13	41.07	34.00	21.00

Source: Published Audited Financial Reports of the Companies

Appendix II: Manufacturing Companies Listed on the NSE

1	B.O.C Kenya Ltd
2	British American Tobacco Kenya Ltd
3	Carbacid Investments Ltd
4	East African Breweries Ltd
5	Unga Group Ltd
6	Kenya Orchards Ltd
7	Flame Tree Group Holdings Ltd

Source: www.nse.co.ke