WORKING CAPITAL MANAGEMENT AND FINANCIAL PERFOMANCE OF

MANUFACTURING AND ALLIED CATEGORY OF FIRMS LISTED AT THE

NAIROBI SECURITIES EXCHANGE, KENYA

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DECLARATION

This research thesis is my own original work that has not been presented or approved by any other institutions for any academic honors.

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DEDICATION

I dedicate this research thesis to the Lord almighty for his grace that he has abetted me to complete it successfully. I also dedicate, this work to all my family members who have offered me both moral , material and academic support that has helped render the study a success.

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ABBREVIATION AND ACRONYMS

AEM   Aman Stock Exchange

ANOVA   Analysis of Variance

CCC   Cash Conversion Cycle

CMA   Capital Markets Association

DSE   Dhaka Stock Exchange

EOQ   Economic Order Quantity

GDP   Gross Domestic Product

JIT   Just in Time

KAM   Kenya Association of Manufacturers

KNBS   Kenya National Bureau of Statistics

NPM   Net profit Margin

NSE   Nairobi Securities Exchange

OECD   Organization for Economic Co-operation and Development

RCP   Receivable Collection Period

ROA   Return on Assets

ROE   Return on Equity

ROI   Return on Investments

UK   United Kingdom

USA   United States of America

VIF   Variance Inflation Factor

OPERATIONAL DEFINITION OF TERMS

Account receivables Management

Account Receivables Management refers to the set of policies, procedures, and practices employed by a company with respect to managing sales offered on credit.

Accounts Payables management

Account Payables Management refers to the laid down policies, procedures, and practices employed by a company with respect to managing its trade credit purchases.

Cash Management

Ordinarily cash management is the process of collecting and managing cash flows and the practices utilized by the firm to ensure that there is adequate cash balances

Financial Performance

Financial performance is generally a measure of how well a firm can use assets from its primary mode of business and generate revenues, specifically it refers to the measurement of the economic gains obtained by the firm in the day to day operations

Inventory Management

Inventory management is the supervision of non-capitalized assets (inventory) and stock items, specifically it involves the activities aimed at maintaining smooth flow of goods in and out of the firm

Working Capital Management

Generally, working capital management is a business strategy designed to ensure that a company operates efficiently by monitoring and using its current assets and liabilities to the best effect, more specifically it involves the practices adopted in the control of the firms current assets and liabilities

ABSTRACT

Manufacturing sector is one of the key pillars to economic development in Kenya. Most of the organizations consider working capital management as an important recipe in financial management due to its effects on a firm's profitability, risk and value. Empirical evidence has shown that well formulated and implemented working capital management policy has a positive effect on the firm performance. In the recent, listed manufacturing firms has been experiencing volatility in their returns as well as poor stock performance in the last five years. This may be due to manufacturing firms investing heavily in the various working capital components. The sector is continually facing crucial challenges being inadequate resource linked to poor working capital management that is poor liquidity levels, firms operating without credit control department and increased cases of bankruptcy making it difficult for the sector to succeed. Despite various studies done, it is not clear how the various components of working capital affect profits, due to their varying effects on profitability hence the need for further research. The current study sought to fill this research gap. The study aimed at investigating how accounts receivables management, inventory management, accounts payables management and cash management influences the financial performance of manufacturing and allied category of firms listed at the NSE. The research utilized explanatory survey research design. The population of interest in this study constituted of all listed firms in the category of manufacturing and allied quoted at the NSE for the period of eleven years (2006 to 2016). There are 9 listed firms at the NSE on the category of manufacturing and allied sector. The study relied on secondary sources of data that was collected using a data extraction form. The collected data was analysed using SPSS.v.23.0. Descriptive statistics was used in the analysis which involved the use of frequencies, means and standard deviation. Quantitative data was presented in tables. The study used inferential statistics which involved tests for multiple regression assumptions of Multicollinearity, Normality, linearity tests, model fit and coefficients. The findings of the research indicated that there was a positive association of working capital management on the financial performance of manufacturing and allied category of firms as indicated by a $R2=.923$. The study further indicated that firm size had a significant and positive moderating effect on the interaction between WCM and financial performance. The research recommended that firms need to strengthen their management of accounts receivables, accounts payables, cash management and inventory management in order to foster financial profitability. Specifically, the study also proposed that, manufacturing and allied firms should stop making investments that cannot be accessed for longer periods than what the company is currently forecasting and to use a formula that best fits the industry to arrive at a reasonable maximum amount of credit to offer customers, over which a senior manager must approve the terms to ensure adherence to best limits.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

With the introduction of the new economic stimulus packages and incentives within the developing economies; there has been an increase in activity within the manufacturing sector (Barr, 2011). Being among the core sectors that stimulate economic growth; the manufacturing sector has elicited increased interest among policy makers and scholars in examining how best the productivity of the sector can be harnessed (Amakom, 2012).

In the United States of America (USA), approximately 75 per cent of the net jobs added to the economy arise from the performance of manufacturing firms. These firms employ around 50 per cent of their entire workforce in the private sector, a value that represents close to 99.7 percent of all employers (Sabato, 2010). The manufacturing sector in Australia generates more than 50 percent of sales in the economy and employs around 40 percent of the total workforce (Barnes, 2010). The number of manufacturing firms has globally picked to around 28,000 by the year 2010 (Meredith, 2011). She further observes that these firms have made a direct contribution towards the growth of the country's GDP whilst led to the creation of jobs. In most countries under the Organization for Economic Co-operation and Development (OECD) there has been a drop in the productivity of the manufacturing enterprises which has resulted to a drop in employment and economic output; however the sector still plays a key role in the economic growth (OECD, 2006).

In the UK, the manufacturing sector contributes to about 11% of the economy hence generating more than one-hundred billion pounds, employing almost 2.5 million people. This represents 8% of the entire employment rate in UK (BIS, 2010). In developed nations, manufacturing industries also play a major role in contributing towards the development of the economy. It contributes to more than 19% of the Pakistani economy (Raheman, Afza, Qayyum & Bodla, 2010). It also accounts to about 10.3% , 8% and 34.8% of GDP, total employment and exports in Namibia. It is responsible for 17.4% , 9% and 40% of South African GDP, employment rate and total exports (Republic of Namibia, 2007).

The local manufacturing sector in Kenya is key in the development of the economy. It has been observed to stimulate the flow of foreign exchange, enhance employment opportunities and contribute substantially to the GDP. This has led to the government designing policies and stimulus packages geared towards improving the sector (Awino *et al.,* 2009). This sector may be a vital contributor to Kenya's economic development causative tenth Gross Domestic Product, 12.5 percent exports and a thirteenth formal employment (KNBS,2015).

One of the key economic pillars within the vision 2030 in gear towards creating the state an inferior financial gain country by the year 2030 is the producing sector. Despite the large contribution of this sector to the national economic development, the expansion of the producing trade has for years' visage such challenges as condensed native demand, exaggerated oil costs and transport prices. Moreover, operational prices have been on the increase because of high electricity value, roads and rail networks degrading therefore, a depressed growth within the sector. The management of working capital would lead to

improved service, growth in market share, improved suppliers and distribution channels therefore giving valuable analytics for continuous improvement (Okwiri, 2015).

Samiloglu and Demirgunes, (2008) carried out a study to examine the relationship between firm profitability and working capital management in Turkey and concluded that account receivables period, inventory turnover period and leverage had a significant negative relationship to the profitability of firms. Gulia (2014) carried out a study examining the relationship between financial performance of pharmaceutical firms and working capital management. From the study, it was clear that cash conversion cycle, account receivables and inventory turnover accounts for over 46% change in the financial performance of firms. Sharma and Kumar, (2011) in their study findings indicated that there is a positive relationship between components of working capital management and firm profitability. Malik and Muhammad, (2014) further notes that the average collection and payment period do not significantly affect the performance of a firm, moreover cash conversion cycle had a significant positive effect on the firms' performance.

1.1.1 Working Capital Management

According to Alshubiri, (2011), Working Capital Management (WCM) is the key to financial management practice due to its positive effects on the financial performance of institutions. Formulating and executing a comprehensive Working Capital Management framework is the key to enhancing the firm value (Padachi, 2006). WCM is developed with the key role of ensuring that the organization going concern is secured and that there is adequate cash within the business to take care of its short-term obligations (Bose, 2012).

This means that the company must maintain the right ratio of its assets, liabilities and working capital otherwise it would become very difficult for them to stay in the market. With most literatures carried out in the business world, WCM has traditionally been concentrating on the study of financial decisions, which is long-term and also on the firm's performance. This has allowed scholars to deeply concentrate on analyzing the firm's capital structure, dividend, investments and company valuations. Of late there has been recent surveys that have been carried out, which have shown indications that managers consume a lot of time in coming up with solutions to decisions involving the working capital management of their firms (Raheman & Nasr, 2007).

According to Atrill, (2006), there is sufficient evidence within the Kenyan manufacturing sector of the poor execution of WCM policies despite enormous investment in the new accounting standards and techniques which has resulted in the failure of the large manufacturing firms. The researcher notes that, a majority of firms operate without a well-structured credit control department hence contributes to poor decision making and finance procedures. This further curtails debt settlement and collection activities. Furthermore, poor management of liquidity levels has also contributed towards the poor performance of firms which culminates to failure in the payment of suppliers (Padachi, 2006). This has prompted high performing firms to effectively manage their working capital levels and maximize on their cash in circulation thus enhanced efficiency and profitability (Raheman & Nasr, 2007). Poor management of working capital has also been associated with the increased cases of bankruptcy (Kargar & Blumenthal, 2009); this has further escalated to poor returns on assets as well as an increased loss within the daily operations.

In Spain, Deloof, (2010) in his research indicated that the highest portion of the working capital component within the majority of the firms was the current assets. The availability of the current assets strengthened the liquidity levels and financial stability of the manufacturing entities. Ali and Ali, (2013) observed that, the firm's financial management policies compose of very important decisions including working capital management. Singh and Asress, (2015) in their research concluded that firms that hold adequate levels of WC relative to their operation size had better performance than other firms. Onwumere, Ibe and Ugbam, (2014) concluded that WCM components positively affected the performance of firms in Saudi Arabian firms. Kulkanya, (2012) indicated that the relationship between performance and inventory conversion is negative. Bhuto, Naiz, Ghulam, Mujeeb and Shah, (2011) concluded in their research that the size of firms affects cash conversion cycle.

Effective working capital management is vital in ensuring sustainable growth and development of the manufacturing sector in Kenya which in turn boost the entity's profitability. In Kenya, working capital management has a direct effect on liquidity, growth and profitability. This is important to the development of the firms since the more the total assets in use the more the investment in working capital (Atrill, 2006). For the Kenyan economy to become an industrialized country, contributions from the manufacturing sector are critical hence managing working capital of these firms is critical. Working capital management is a good source of cash necessary to meet the short-term goals of a firm (Padachi, 2006).

Kwame, (2007) established that, in Ghana, manufacturing companies have to establish efficient working capital management practices since they determine whether the

manufacturing enterprises will succeed or fail. It is important for managers in these firms to do so since they strive for finances and opportunity cost of finances (Kwame, 2007). According to Afza and Nazir, (2007) a firm has a choice of making decisions on the WCM policy that it can adopt with a view of the financial decision making process. Enhancing optimal level of WCM components is essential for organizations to improve their financial productivity (Filbeck & Krueger, 2005); by leveraging on the collectibles, payables and their inventory.

1.1.2 Financial Performance

Performance is the subjective and quantitative measure of the attainment of a set goal measured against the costs, returns, level of completeness and convenience (Ngari, & Muiruri, 2014). Financial performance can be determined through profitability, return on assets and return in equity (Mureithi, 2013). Income statements measure financial performance since they provide the necessary data for calculating different kinds of ratio analysis (Madura, 2008).

Makori and Jagongo, (2013) carried out a study on the firms listed on the Nairobi Securities Exchange and studied the effects of working capital management on their performance. The findings indicated that working capital plays a major role on financial performance of a firm. It is also important in creation of value to shareholders since there is a negative impact on profitability when the cash conversion cycle becomes too long. A number of measures have been developed in assessing the financial performance of a firm. The use of financial ratios has been adopted due to the ease of measurements and their wide applicability across many firms. The main measures of financial performance include Return on Assets (ROA), Return

on Investments (ROI), Net profit Margin (NPM) and Return on Equity (ROE) (Tangen, 2003).

According to Atieno (2009) the financial measures of performance are preferred since they are objective and easy to compute from historical accounting data. However, since they are calculated from historical data; financial measures become relatively limited especially within small firm and non-listed firms that do not have any regulatory requirement to submit their audited financial statements. However, this can be avoided by applying a mix of both financial and non-financial measures. The current study only utilized financial ratio; Return on Asset (ROA).

1.1.3 Working Capital Management and Financial Performance

An effective WCM policy within the firm has a positive effect on the shareholders' value (Dong & Su, 2010) this can only be achieved by determining the optimal level of debt, credit, current assets and appropriate mix (Nwankwo & Osho, 2010). An optimal level of WCM components enhances the capability of a firm to respond effectively to environmental changes and gain a competitive edge over other firms within the same sector (Alshubiri, 2011). That is; an optimal WCM level can help strike a balance between business risks and the level of profitability (Ricci & Di Vito, 2000; Filbeck & Krueger, 2005; Afza & Nazir, 2007).

Hayajneh and Yassine (2011) investigated the relationship between working capital management efficiency and profitability by assessing 53 Jordan manufacturing firms listed at the Aman Stock Exchange (AEM) from 2000 to 2006. The study found out that there exists a positive relationship between profitability, size of sales and growth. Lotfinia,

Mousavi and Jari (2012), Sampled Tehran Stock Exchange (TSE), 80 firms from 2005- 2009 with the available annual data and tested their hypothesis with the use of stepwise regression analysis. Their research results showed that there is positive relationship between working capital management and firm size.

In Nigeria, Ajao and Nkenchinyere, (2013) conducted a study on "working capital management as a financial strategy", by examining WCM at Nestle Nigeria plc from 2005-2009. The regression model was employed to examine the relationship between working capital and profit before tax which showed that there was a negative relationship between working capital and pre-tax profits. Owolabi and Alu, (2012) examined the effect of working management of five selected manufacturing companies in Nigeria's extracts of financial statements over a period of 5 years. The observation was that some of the companies had longer collection period and shorter payment periods.

Inventory management is important and one of the necessary practices that maximize a firm's value (Macharia, 2012). Before establishing inventory policy, the firm has to consider cost, returns and risk factors. Hussain, (2010) also states that inventory management not only avoids excessive and inadequate levels of inventories but also maintains sufficient levels of inventory for smooth production and ease of operations.

1.1.4 Manufacturing and Allied Sector in Kenya

The manufacturing sector in Kenya is mainly agro-based and characterized by relatively low-value addition, employment and capacity utilization as well as the export volumes. This is partly due to the weak linkages to other sectors (Kenya Association of Manufacturers, 2016); in addition, 95% of Kenya's manufactured goods are basic products such as

beverages, food, building materials and basic materials. Only 5% of the manufactured goods are in skill-intensive activities like pharmaceuticals.

The manufacturing sector contributes about 18 per cent of the Kenyan GDP, providing products for both local and foreign markets and employing more than 2 million people in various job sectors in the economy. Based on the raw materials imported and end products, the sector can be classified into 12 sub-categories. Individual firms are members of the Kenya Association of Manufacturers (KAM) which provides a negotiating platform to relevant government authorities (Business Intelligence, 2013).

The manufacturing sector in Kenya is one of the Key tenets of the vision 2030 brand (Kenya's Economic Outlook, 2014). Recently the sector has been acknowledged as one of the key pillars in the Big Four Agenda by the government (Kenya School of Government, 2018). The sector has been eyed as the key pillar that enhances economic growth through maintenance of 8% growth rate. However, shortcomings within the industry and volatility in the macroeconomic conditions have greatly limited the performance of the sector. The sector has further been faced by regulatory challenges, ballooning production costs, increase electricity and fuel tariffs as well as regulatory changes. Further Cytonn, (2017) notes that the recent interest rate capping has impacted the borrowing capacity of local manufacturing firms which is expected to result in a dip in financial performance due to financing challenges. Currently there are 9 Listed manufacturing firms in the category of Manufacturing and allied sector within the country that formed the backbone of the current research.

1.2 Statement of the Problem

Data from the Kenya National Bureau of Statistics show that the manufacturing sector grew by 3.6% in the first quarter of 2016, down from 4.1% growth in the first quarter of 2015. In the third quarter of 2014, the sector's growth rate was 1.9% compared with 3.3% in the same quarter in 2015 (Kenya National Bureau of Statistics, 2016). According to KNBS data the manufacturing sector slowed down in 2017 as shown by the marginal drop of GDP to 0.2% from 2.7% in 2016. The sector was further clogged by the collapse in the sugar subsector which dropped its overall production by 40% as Mumias and Muhoroni sugar millers collapsed. The sector however saw a growth in credit by 13.05% to 311.8 Billion in the year 2017 (KNBS, 2018). Despite the overall growth and significance placed on the manufacturing sector, several challenges make it difficult for the sector to succeed. According to KAM (2014), one of the key challenges of the manufacturing firms is lack of adequate resources. KAM further added that, in Kenya the manufacturing sector continues to suffer due to inadequate resources which seems to originate from poor management in the sector that is, poor liquidity levels, firms operating without credit control departments and increased bankruptcy. The accomplishment of a business hugely relies on the financial administrators' capability to efficiently supervise the payables, the list of assets and receivables (Owolabi, Sunday and Chituru, 2012).

Gulia, (2014) added to this debate by asserting that, the problems of inadequate resources within firms can be linked to poor working capital management that some managers make the wrong decisions regarding working capital which in turn results to poor performance within the firms in consideration. Clearly, it is imperative and critical for manufacturing

companies to have sufficient administration of working capital. This is largely due to the reason that insufficient working capital to insure its responsibilities will often lead to financial insolvency, which is the inability to pay their debts, legal issues, liquidation and possible bankruptcy. Grounded on the established and realistic importance of working capital management, it is not clear how the various components of working capital affect such profit. This is because inventory, cash, receivables and payables management may have varying effects on profitability especially in the Kenyan manufacturing sector where almost every company has realized the need to strengthen the capacity and make headway in the global apparel market. The current study endeavors to fill this gap by determining the relationship between working capital management and financial performance of manufacturing and allied category of firms listed at the Nairobi securities exchange in Kenya.

1.3 Objectives of the Study

1.3.1 General Objective

The study seeks to examine the relationship between working capital management and financial performance of manufacturing and allied category of firms listed at the Nairobi securities exchange, Kenya.

1.3.2 Specific Objectives

i. To determine the effect of account receivables management on financial performance of listed manufacturing and allied firms in Kenya.

ii. To establish the effect of inventory management on financial performance of listed manufacturing and allied firms in Kenya.

iii. To establish the effect of account payables management on financial performance of listed manufacturing and allied firms in Kenya.

iv. To examine the effect of cash management on financial performance of listed manufacturing and allied firms in Kenya.

v. To examine the moderating effect of firm size on the relationship between working capital management and financial performance of listed manufacturing and allied firms at Nairobi Securities Exchange in Kenya

1.4 Research Hypothesis

The following hypotheses were tested in the regression model that was adopted for data analysis.

$H_{O1;}$ Account receivables management has no statistically significant influence on financial performance of listed manufacturing and allied firms in Kenya.

$H_{O2;}$ Accounts payables management has no statistically significant effect on financial performance of listed manufacturing and allied firms in Kenya.

$H_{O3;}$ Inventory management has no statistically significant influence on financial performance of listed manufacturing and allied firms in Kenya.

H_{O4}; Cash management has no statistically significant effect on financial performance of listed manufacturing and allied firms in Kenya.

H_{O5}; Firm size has no statistically significant moderating effect on the relationship between working capital management and financial performance of listed manufacturing and allied category of firms at Nairobi securities Exchange in Kenya.

1.5 Significance of Study

It is predictable that the findings of this study will be significant to the following:

1.5.1 To the management of manufacturing firms

The study results are foremost expected to be of significant influence on the financial decision-making process among the management of the listed firms. The results of the study will be of importance in developing policy formulation within listed manufacturing and allied firms geared towards enhancing the working capital management policies. The results of the study will promote working capital management practices within smaller manufacturing firms which can be key to enhancing their financial performance.

1.5.2 To other scholars

The research results will also offer a substantive reference for future scholarly work on WCM components or the financial performance of listed firms in Kenya.

1.6 Scope of the Study

The study focuses on the effects of working capital management on financial performance of manufacturing and allied category of firms listed at Nairobi Securities Exchange. The contextual scope of the study was limited to the working capital management components; accounts receivables, accounts payables, inventory and cash management being the independent variables, while the dependent variable was financial performance measured in terms of Returns of Assets. The study targeted the manufacturing and allied category of firms listed in NSE and was carried out within Nairobi where the majority of firms are based. The study utilized financial reports for 11-year period "between'' 2006-2016.

1.7. Organization of the study

This thesis work comprises of chapter one which provided the introduction, background to the research, the research objectives, hypothesis and the significance of the study. Chapter two presented the literature review in this area of study and derived research gaps together with a conceptual framework. Chapter three encompasses the research methodology with a focus on the research design, research philosophy, target population, study sample, data collection and data analysis techniques. Chapter four shows data analysis, interpretation of findings and discussions. Lastly, chapter five details the summary of findings, conclusions and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the literature on working capital management which enhances the efficiency of corporate financial performance. Working capital management relates to how a company or organization manages its liquid resources which entails cash and cash equivalents, accounts payables, inventories, and accounts receivables with an intent to improve its financial performance.

2.2 Theoretical Review

The study will be guided by theories which previously have been developed and those that have showed relevance on the subject matter over the years. These theories will include: Operating Cycle Theory, Cash Conversion Cycle Theory, Net Trade Cycle Theory and Transaction Cost Economics Theory.

2.2.1 Operating Cycle Theory

Richards and Laughlin, (1980) are widely credited to the advancement of the operating cycle theory and the cash conversion cycle. They posited that use of receivables and the inventory turnover data in the operating cycle are important aspects in understanding the financial flows of a firm. For a firm to develop the concept of liquidity, it has to include the income statement of the firm's operating activities to the static balance sheet analysis of the value in liquidation. The current and acid-test ratio indicators of solvency are not reliable enough

since they do not provide the most appropriate view of liquidity management. As a result, more and more companies incorporate accounts receivable and inventory turnover measures into the operating cycle since its perspective in liquidity management is more in-depth. This is because the additional liquidity measures recognize life expectancies of some working capital components that are not constant but susceptible to the irregularity of production, distribution (sales) and collection (Weston & Eugene, 1979).

Accounts receivable turnover indicates the frequency of conversion of the firm's average receivable investment into cash. Whenever there are any changes in credit and collection policies, then the average outstanding accounts receivable become directly impacted relative to the annual sales of the firm. Companies grant their customers more liberal terms which results to the firm creating a much larger, and potentially less liquid, current investment in receivables leading to a potential deterioration of liquidity. Higher current and acid-test ratios arise from decisions that make the firm to commit to maintaining of larger average receivables investments over long periods of time (Richards & Laughlin, 1980). The frequency of converting cumulative stock of raw materials, work-in-progress, and finished goods into product sales is indicated in the inventory turnovers.

The cumulative days per turnover for accounts receivable and inventory investments provides an approximate length of the operating cycle of a firm. Integrating these asset turnovers into an operational cycle concept of the current asset conversion period thus results in the firm being able to generate a more reliable indicator of its liquidity position. As a shortcoming, the operating cycle concept lacks as a cash flow measure since it does not take into consideration the liquidity provisions enforced on a company by the time

dimension of the commitments of its current liability. Integrating the time pattern of cash outflow requirements that the current liabilities of the firm impose on it as liabilities is important for liquidity analysis as well as evaluating the associated time pattern of cash inflows generated by the transformation of its current asset investments (Richards & Laughlin, 1980).

The operating cycle theory analyzes clearly current asset account as an element of working capital and therefore gives income statement measures of firm's operating activities, that is, about production, distribution and collection especially in the manufacturing sector. According to Richards and Laughlin, (1980) integrating the time pattern of cash outflow requirements imposed by a firm's current liabilities is as important for liquidity analysis as evaluating the associated time pattern of cash inflows generated by the transformation of its current asset investments.

In application, modern organizations strive to reduce the turnover ratio by adopting strategies that emphasize on the firm committing inventories per dollar of the anticipated sales. These strategies are applied in purchasing, production and distribution departments in the organization resulting in a longer period of holds potentially less liquid inventory. However, decisions that create longer or less periods of holding liquid inventories are accompanied by higher current ratio indicators of solvency thus resulting to the firms' failure to modify their access to short-term debt financing or the payment practices (Weston & Eugene, 1979). As a result, more and more companies incorporate accounts receivable and inventory turnover measures into the operating cycle since its perspective in liquidity management is more in-depth.

2.2.2 Cash Conversion Cycle Theory

Gitman, (1974) developed cash conversion cycle as part of the operating cycle. To calculate it, accounts receivables period and inventory period are added and then accounts payables are subtracted. It focuses on the inflows of cash from the sale of finished goods and the length of time between the acquisitions of raw materials. The CCC combines both balance sheet and income statement data to create a measure with a time dimension making it more dynamic as a measure of liquidity management (Jose & Lancaster, 1996). The length of CCC, however, differs from industry to industry and therefore, the more accurate way to access industry benchmarks is to compare a specific firm to the industry in which it operates (Hutchinson, 2007). This is because it shows the time lag between expenditure for the purchase of raw materials and the collections from sales of finished goods (Padachi, 2006). For its success, it is necessary to manage short term assets and liabilities on a day to day basis.

The cash conversion cycle theory informed the current study since it embodies the interaction between the components of working capital and the flow of cash within the company. It can also be used to find out the total cash needed at any level of sales especially in the manufacturing sector where, the level of accounts receivables, payables and inventories affects the liquidity position of the firm significantly (Arnold, 2008). Richards and Laughlin (1980) argued that traditional ratios such as current ratio, quick /acid test and cash ratios are not accurate enough to provide information about the working capital of a firm. They insisted that it is necessary for firms to use ongoing liquidity measures when calculating working capital management. In this instance, ongoing liquidity represents the

inflows and outflows of cash as a result of the acquisition, production, sales, payment and collection processes over a period of time. It is in itself, a function of the cash conversion cycle of the firm, making it more appropriate for evaluation.

According to Arnold, (2008), companies that have shorter CCC require fewer resources and less investment in working capital. However, a longer cycle has the potential to increase sales, resulting in higher profits, or losses if the investment in working capital become too high. Authors such as Shin and Soenen (1998) argue that shortening the CCC by reducing the cycle to a bare minimum enables the manager to create value for their shareholders.

The relevance of cash conversion cycle in modern organizations is grounded on the idea that, a higher CCC has a negative effect on the profitability of the company since it means that the company has cash tied to its accounts that bear no interest. Consequently, shortening the CCC enables the company to have cash flows with higher net present value since the money is received faster. For this reason, the cash conversion cycle is integral in linking how cash management can be of importance in determining the financial performance of listed manufacturing and allied firms in Kenya.

2.2.3 Net Trade Cycle Theory

The Net Trade Cycle theory holds that apart from receivables, inventory and payables that are covered under the CCC Theory; the trade cycle of a firm can be an easier measure to compute by comparing cash conversion cycle and the weighted cash conversion cycle. The theory was first advanced by Soenen (1993) who examined the contribution of the trade cycle on the financial returns of a firm. The results showed that there exists a negative

association between the trade cycle length and the return on assets of a firm. The study also showed that there exists an inverse relationship within diverse industries.

In line with the current study, The Net Trade Cycle theory may help a company to understand how many cycles it goes through in a year and how many total dollars are tied up in each cycle. The Net trade cycle actually indicates the number of day's sales the company has to finance its working capital under ceteris paribus conditions (Soenen, 1993). The rational is that, NTC is basically equal to the CCC whereby all three components are expressed as a percentage of sales. Soenen, (1993) further argued that, the shorter the NTC, the higher the present value of the net cash flow generated by the assets and thus, the higher the value of the firm for its shareholders. Thus, firms try to keep an optimal level of working capital that maximizes their value.

In application, The Net Trade Cycle theory is of relevance to the study in identifying how long cash balances take to go through the normal business trade cycle within firms. It is essential to businesses as a means of managing cash flows. The theory also supports accounts payable by assisting on how to examine its relative importance to the cash flow balance and revenue generation of the firm which is predictors of a firm's better level of financial performance.

2.2.4 Transaction Cost Economics Theory

The transaction cost economics theory which was first developed by Ronald (1973), holds that the optimum level of inventory that a firm shall hold, should be based on the tradeoff between the cost and benefits of the inventory in question. The cost of the inventory is divided into the ordering costs (these are associated with the acquisition of the inventory)

and carrying costs (which refer to the associated cost of maintaining the inventory, the storage and the opportunity cost accruing).

The transaction cost economics theory holds that the sole motive for holding inventory should be based on the cost motive. That is to compete; companies have to reduce costs by minimizing the cost of stocking inventory. Stock market analysts have also spoke highly of this practice (Sack, 2000). The theories main assumption is that costs should be essential in making inventory decisions. This theory helps in linking the inventory turnover effect on the financial performance of manufacturing firms.

In modern organizations, the transaction cost economics theory is relevant since it describes a constructive stakeholder theory where the primary objective is to ensure efficient transactions and avoidance of waste and offers a broader applicability to the examination of complex transactions and contracts.

2.3 Empirical Literature

Manufacturing sector is one of the key pillars in the Vision 2030 and the big four agenda of the current government. It has a great impact in the country's economic development thus linked to its financial performance through proper working capital management components (inventory, accounts payables, accounts receivables and cash management). Walker (2015) examined working capital management among small manufacturing firms in the USA in a survey of working capital policy. The survey took the following aspects into consideration; managing working capital components and working capital policy. Liquid cash, receivables, account payables and the inventory were extensively examined. Most of these companies did not have a formal procedure and lacked a written policy for management of working

capital. They noted that companies that had written policies made more profits than those that did not. Amalendu and Sri (2011) carried out a study on steel industries in India and found a positive relationship between profitability and liquidity. They used current ratio and absolute liquidity ratio as the measures of liquidity.

Teruel and Solano (2013) used about 8872 medium and small-sized companies as samples to investigate the effect of working capital management on the profitability of a firm. The findings indicated that companies that reduced inventory and average collection periods had a positive firm value, meaning that reducing the cash conversion cycle improved its profitability. Radhika and Azhagaiah, (2012) carried out a study and observed that current ratio has a high significant positive co-efficient with profitability and that there exists a negative association between profitability and quick ratio. Eljelly (2010) found a negative relationship between current ratio and profitability. Ross *et al.,* (2018) asserts that a business improves its profitability by reducing the time cash is held up in the operating cycle. These studies support the theory which affirms efficient cash management practices improve the performance of the business.

Ahmed, Mahtab, Islam, Abdullah, M. (2017) focussed their study on textile companies in Bangladesh to examine the impact that working capital management has on profitability. The study used logistic regression to analyze data from 22 textile companies listed in Dhaka Stock Exchange (DSE) over a period of 8 years. The results of the research indicated that current ratio and current liabilities to total asset has most significant impact on profitability of the companies. The current study utilized both descriptive and inferential statistics to analyze the influence of WCM on profitability of manufacturing firms in Kenya.

Yusuf and Sani (2018) undertook a study on working capital management policy and the financial performance of food and beverages companies in Nigeria. The study adopted a descriptive research design and relied on secondary data. The study sampled 10 food and beverages firms listed in the Nigerian Stock Exchange. The data analysis was conducted using linear regression analysis. The results of the study indicated that there is no significant relationship between receivable collection period (RCP) policy and profitability of quoted food and beverage companies in Nigeria. The study focused on food and beverages firm whereas the current study scope was limited to manufacturing firms listed at the NSE in Kenya.

Adekola, Sammy, and Knight (2017) studied efficient working capital management as the tool for driving profitability and liquidity: a correlation analysis of Nigerian companies. The study used financial data obtained from 50 Nigerian-quoted non-financial services companies within 2002-2011.The study utilized ANOVA and chi-square to test the research hypothesis. From the study, it is clear that the relationship between cash conversion cycle, gross and net operating profit is negative.

Mathuva (2010) used a sample of about 30 companies listed on the Nairobi Stock Exchange (NSE) from 1993 to 2008 to examine the influence of working capital management components on corporate profitability. The study showed that there is a negative relationship between profitability and the accounts collection period, and that there exists a positive relationship between profitability and the inventory conversion period. Nyakundi, (2015) also carried out a study and confirmed that, it is necessary for firms to come up with a sound credit policy since it ensures proper debt collection procedures, thus improving the overall

performance of the firm. When goods or services are transferred to a customer, the firm becomes a trade debtor of the supplying firm until the time the debt is settled out by making payment.

Muchina and Kiano (2011) conducted a study on the influence of working capital management on firm's profitability. The study did not confirm nor reject that average payment period affects profitability. Nyabwanga *et al.,* (2012) found out that most enterprises in the country reviewed their inventory levels and prepared inventory budgets. This affirms that there is a positive relationship between good performance and efficiency of inventory management.

2.3.1 Accounts Receivables Management and Financial Performance

The average collection period is the average length of time required by a firm to convert its receivables into cash once a sale is made. The average collection period is calculated by dividing accounts receivable by the average credit sales per day. It measures the average time taken by a firm to convert average sales into cash, hence defining the relationship between accounts receivable and cash flow. Lazaridis and Tryfonidis, (2016) indicate that the longer the collection period, the more the investments required by the firm in accounts receivable resulting in the availability of less cash to cover cash outflows, such as paying bills.

Mekonnen, (2011) shows the existence of a negative relationship between average collection period and financial performance. He suggests that by reducing the number of day's accounts receivable, different firms can improve their profits. This means that when customers pay their bills faster, then the firm receives cash that is used to replenish

inventory resulting in higher sales thus leading to high profits of the firm. This means that managers can increase the profits of their firms by reducing the amounts of credit that they grant their customers (Lazaridis & Tryfonidis, 2016).

Deloof, (2013) pointed out that managers can increase the profitability of their organizations by reducing the average collection period. Firms that fail to manage their debtors progressively lose control of their budgets due to a reduction in cash flow since they have a higher chance of incurring an increased rate of bad debts. Profits can only be called real profit after the expected receivables are turned into cash. The collection procedure and credit policy of the firm influence the management of account receivables. A credit policy stipulates the conditions that validate the credit worthiness of customers while the collection procedure offers strategies that can be employed when collecting unpaid invoices and reducing delays in outstanding receivables (Brigham & Houston, 2013).

Moyer, McGuigan, and Kretlow (2015) expound on how accounts receivables impact SMEs execution. They analyzed the non-monetary Belgian micro enterprises amid the timeframe 2006-2009. They inferred that SMEs which expanded accounts receivables within the 2008 budgetary crisis and contrasted with pre-crisis times have a generally greater productivity within the crisis years. Baños-Caballero, García-Teruel and Martinez-Solano (2014) studied the correlation among profitability and accounts receivables with over 71,000 SMEs in Spain within the timeframe of 2000-2007. They discovered a positive direct correlation between investment in accounts receivables and SME productivity. Similarly, because of the intense market rivalry, SMEs are compelled to offer accounts receivables. Accounts receivable is instrumental to help traders and their vital objective is to enter markets for

those SMEs in the development process. Therefore, it is more probable that accounts receivables have a direct positive association with profitability in the SMEs. The above studies however focused on the general SME sector and failed to take into consideration the manufacturing entities explicitly hence the findings may not be reflective of the current research scope.

Adediran, Bosun-Fakunle and Imuzeze (2012) investigated the impact of Working Capital Management on Profitability of SMEs in Nigeria''. The study obtained data from 30 SMEs in the year 2009. It relied heavily on data from secondary sources such as financial statements. This data was then analyzed using the multiple regression analysis. Results demonstrate reducing the CCC and the firm's number of accounts receivable can create value to the firm and improves the returns. The above study however relied on primary and secondary data whereas the current research utilized secondary data from listed manufacturing firms.

Hassan, Maturi, and Mberia, (2017) examined the effect of working capital management on firm's financial performance: a survey of water processing firms in Puntland. The study employed a descriptive survey design of water processing firms. The study utilized regression analysis and correlation to estimate the effect of working capital management on the financial performance of firms. The result shows that there is a positive influence on the collection period and the financial performance of firms. The study however did not incorporate cash conversion cycle as WCM policy; the current research filled this empirical gap.

2.3.2 Inventory Management and Financial Performance

Inventory turnover in days refers to the average time companies require to convert raw materials into finished goods. It is calculated as [inventory/ (cost of goods) × 365). Firms with greater inventory turnover ratio are expected to have greater profitability because they have a more efficient inventory management. A low inventory turnover ratio shows that a firm is going through a period of poor sales or has an excess amount of inventory (Ruichao, 2013). Mansoor and Muhammad (2012) carried out a study that showed that managers can increase profitability by reducing the inventory collection period.

Dong (2010) carried out a study which focused on the relationship between variables such as profitability, cash conversion cycle and other related elements and found a negative relationship among these variables, indicating that an increase in the cash conversion cycle results in a decrease in profitability. It is also established that profitability increases after the reduction of the number of days of account receivables and inventories. Ruichao, 2013, notes that most research findings indicate that the relationship between inventory turnover in days and profitability is negative. However, (Dong, 2010), has conflicting conclusions on the relationship between profitability and inventory turnover in days (Gill & Biger, 2012).

Mathuva, (2010) suggest that there is a positive relationship between inventory turnover in days and profitability. Maintaining high inventory levels increases availability of materials necessary for the production process, reducing instances of interruption due to lack of materials. However, it is worth noting that investing too much in inventories could hold back the funds which could have been invested in revenue generating activities. Strategic management of inventory contributes to greater profitability since the inventory levels

determine level of activities in an organization (Brigham & Houston, 2013). The manager has to know how the stock is moving and how long the items stay on the shelves before they are finally purchased. Excessive stocks hurt the cash resources while insufficient stocks result in customer delays and loss of sales. Businesses, therefore, have to identify the fast and slow stock movers in time in order for them to be able to establish optimum stock levels for each category. This enables them to free up excess cash reserves and improve their profitability.

Sitienei and Memba, (2015) found out that the expansion of stock holding prompts a reduction in the gross profit of the enterprise. This infers with a shorter time stock is being held and prompts a significant increment in the arrival on venture which would mean an increase in profitability (Sitienei & Memba, 2015). Firms with littler gross overall revenues need to make progress toward higher stock turnover for them to stay in the business sector without making a lot of losses. The study additionally reasoned that the span of the firms in the SME sector is imperative as with an expansion. Muturi and Wachira, (2015) additionally upheld that with less holding of stock, the shorter the stock transformation period and the higher the profitability of the company and the other way around. The above studies are in congruence however, they failed to take into consideration WCM aspects such as cash conversion cycle hence the findings may not be entirely representative of current research focus.

2.3.3 Accounts Payables Management and Financial Performance

The average payment period is the average length of time between the purchase of materials, labor and their payment of cash. It is calculated as; payables/ (purchase) $\times$ 365). Delaying

the payment of bills by managers has become one of the main sources of finances for many companies. This can become risky for the business if the organization offers an early payment discount (Ruichao, 2013). This period is longer for countries with small and insufficient capital markets.

Working capital management requires firms to delay their payments to creditors. By doing so, managers have another source of cash for use in other projects. Mathuva (2010) suggests that the relationship between profitability and average payment period is positive, suggesting that profits are more likely to be realized if the accounts payable are delayed by 1 day. Delaying payment of accounts payable to suppliers is a cheap source of financing and also affords the manager the time to access the quality of branch products. However, if discounts are offered to the company for early payment, then reducing the payment period could mean that the company incurs extra costs. Therefore, the relationship between the average payment period and profitability is positive (Naimulbari, 2012).

A firm will always wish to tie up little cash as possible in its disbursement tills. The idea in these systems is to have no more than the minimum amount necessary to pay operating bills for the company. Account payables are suppliers whose invoices for good and services have been processed but have not yet been paid. Firms usually regard the amount owing to a creditor as a source of free credit. Creditors are essential part of WCM and should be managed carefully. Purchasing initiates cash outflows and over-zealous purchasing functions can create liquidity problems (Falope, 2016). As pointed out by Ross, Westfield and Jaffe (2008) accounts payable can be slowed to a certain degree without affecting creditors' relations.

Azam and Haider (2011) investigated the ''Impact of Working Capital Management on firms' performance'' for non- financial institutes listed in Karachi Stock Exchange (KSE-30) Index. Panel data was being analyzed by applying Canonical correlation for the time period of 2001 to 2010. The average payment period was found to have a significant positive association with ROA and ROE. This indicates that increasing the payment period increases the performance of the firm.

Falope and Ajilore (2016) found a significant negative relationship between the average collection period, net operating profitability, and average payment period, inventory turnover in days and cash conversion cycle for a sample of 50 Nigerian firms listed on the Nigerian Stock Exchange. Kiptoo, Kariuki, Kimani, (2017) conducted a research on working capital management practices and financial performance of tea processing firms in Kenya. From the study, it was clear that accounts payables had a positive influence on the financial performance of tea firms.

2.3.4 Cash Management and Financial Performance

Cash conversion cycle is the average length of time a shilling is tied up in current assets and is calculated as; (Average Collection Period + Inventory turnover in days - Average Payment Period) (Brigham & Houston, 2013). It can be summarized by: lengthening payables or deferral period through slowing down firm's own payments, reducing receivables period by speeding up collections from sales, reducing inventory conversion period by processing and selling goods more quickly.

According to Costa (2014), cash management is geared towards optimization of the available cash to maximize the level of earnings and amount of cash held by the firm. It

incurs an opportunity cost since such funds could have been invested in more productive projects. Operating with very little cash balances increases the firm's financial risk for being unable to meet their obligation as they fall due. Efficient cash management practices involve not only the determined optimal cash to hold but also planning and monitoring of available cash flows.

Amarjit, Nahum and Neil (2010) pointed out that CCC is one of the most common means of measuring the Working Capital Management (WCM). Longer collection period means that the investment in working capital is larger. A longer cash conversion cycle leads to higher sales which may lead to increase profitability. However, if the investment in working capital becomes too expensive, then the level of profitability is expected to reduce significantly. Rahman and Mohamed, (2017) suggest that as the cash conversion cycle increases, and then the profits reduce, meaning that managers should strive to reduce the cash conversion cycle to the bare minimum level to increase their profits.

Naimulbari (2012) studied the impact that WCM has on profitability of pharmaceuticals sector in Bangladesh and found out that the relationship between cash conversion cycle and profitability is negative. Reducing the cycle to the shortest possible time is likely to increase the profits thus managers should try to reduce this time as much as possible without hurting the operations of the organization. Dong (2010), reports that WCM has a direct effect on the profitability and liquidity of a firm. The research indicates that there is a strong negative relationship between CCC and profitability and that if the profits reduce then one of the reasons would be due to an increase in the cash conversion cycle.

Hutchison *et al.* (2017) carried out a study on 22 thousand public limited firms and the results of the study showed that there is a positive relationship between shorter CCC and higher profitability. The study also linked Cash Conversion positively with the Return on Assets ratio. Khan, Hijazi, and Kamal (2016) conducted a study on Pakistani listed companies and concluded that a firm's profitability is negatively related to the day's payable outstanding, CCC and the day's inventory outstanding. Shah and Sana (2016) found that the relation between CCC and gross is also negative. This finding implies that if cash conversion cycle is reduced profit will also increase (Owolabi & Alayemi 2012).

Karaduman Halil, Arzu and Salih (2011) studied the relationship between profitability and WCM for companies listed on the Istanbul Stock Exchange for a period of 2005-2009. They used cash conversion cycle for evaluation of working capital management and the return of assets as criterion for evaluating profitability. Results show that there is a positive return of assets with the decrease in cash cycle. The study focused on companies listed in the Istanbul Stock exchange whereas the current study focused on manufacturing firms listed within the NSE.

According to Nick (2017) findings, it was revealed that enterprises which regularly budget for the future once a month increase their chance of survival by up to 80%. He also points out that small businesses assume that cash flow problems are automatically solved by increased growth in the future. Mong (2011) established that few small businesses create a cash budget despite the importance of cash forecasting as a tool for efficient cash management. According to Uyar, (2014) research in Taiwanese firms, he examined how profitability and size of companies impacted on working capital, the results suggested an

existence of a negative relationship between a firms' size and profitability and cash conversion cycle. Similarly, Kwasi (2010), in a research in 11 Ghanaian Oil market firm analyzed the trends in working capital management and impact on their performance in a seven-year period from 2001, he established the existence of a high variability of working capital and a negative relation between profitability and other factors of the CCC.

2.3.5 Firms Size

Firm size plays an important role in strategy in the manufacturing sector for example; large firms tend to improve their bargaining ability using size as a chip and enjoy various preferential supply policies to achieve economies of scale (Frese *et al.,* 2015). According to Atif Abbasi, Qaisar Ali Malik. (2015) research study on Firms' Size Moderating Financial Performance in Growing Firms, it was established that the study results from alternative hypothesis shows that firm size has a moderating inspiration between independent variable (Firm growth) and dependent variable (Firm performance) which is acceptable. The study is helpful for management to keep an eye on firm size along with firm growth while enhancing the firm performance.

Rauch *et al.,* (2016) in his analysis, deeply observed a number of researches which were conducted considering the size of firm as a moderator and inferred a result that severity of impact of all the environmental factors changes with a change in the size of organizations. Jose *et al.,* (2016) noted that size differences should be considered, while dealing with CCC-profitability relationship in order to see whether the observed relationship is affected by size. This means that, the impact of CCC on profitability is expected to be influenced by firm size. The reason that some research shows conflicting results on the relationship between

CCC and profitability may be due to the impact of the firm size. Based on these considerations, we expect that the CCC-profitability relationship may be moderated by firm size.

Jaggi & Gul, (2014) studied moderating effects of size to the relationship between investment opportunities, free cash flow and debt borrowing. Their results revealed that there is a positive relation between debt and free cash flows for low investment opportunity set firms when firm size is high. They found that size is a significant moderator to the relation between investment opportunities, free cash flow and performance.

2.4 Summary of Literature Review and Research Gap

Table 2.1 Research Gaps

Theme	Authors	Title of study	Methodology	Findings	Research gap
Working capital management policy	Yusuf, and Sani (2018)	working capital management policy and the financial performance of food and beverages companies in Nigeria	The study adopted a descriptive research design and relied on secondary data.	The results of the study indicated that there is no significant relationship between receivable collection period (RCP) policy and profitability of quoted food and beverage companies in Nigeria.	The study focused on food and beverages firm whereas the current study scope was limited to manufacturing firms listed at the NSE in Kenya.
Working capital	Hassan, Maturi, and Mberia,	Effect of working capital management	The study employed a descriptive survey	The study results showed that there was a positive	The study however did not

management	(2017)	on firm's financial performance: a survey of water processing firms in Puntland.	design of water processing firms.	influence on the collection period and the financial performance of firms.	incorporate cash conversion cycle as WCM policy; the current research sought to fill this empirical gap.
Working Capital Management Components	Mathuva, D.M. (2010)	The Influence of Working Capital Management Components on Corporate Profitability	The study employed descriptive research design. The study targeted listed firms on the NSE for the period 1993-2008. Secondary data was obtained from the	The study found that average payment period has a positive relationship with profitability. The positive relationship suggests that an increase in the number of day's accounts payable by 1	Since the study indicated that there exists a highly significant negative relationship. The current

			NSE handbooks and the Kenya Capital Markets Authority.	day is associated with an increase in profitability.	study aims to fill the gap by investigating how WCM influence financial performance in manufacturing firms
Working Capital Management and Profitability	Dong, H. P., & Su, J. T. (2010).	Relationship between Working Capital Management and Profitability	The study adopted purposive sampling method where companies with highest market capitalization were chosen. The data	The study found that an efficient working capital management plays a significant role in overall corporate strategy in order to increase shareholder value. The	This study did not provide an accurate concept of corporate liquidity while components of

			were mainly collected from the published annual reports of the selected manufacturing companies.	relationship between the short-term liabilities and current assets determines the liquidity position of firms	WCM have different levels of liquidity while some of components have financial essence with a high liquidity
Working capital management and Profitability.	Amarjit, G. (2010).	The relationship between working capital management and Profitability: Evidence from the United States.	The study adopted descriptive research design. A sample of 88 American firms listed on New York Stock Exchange for a period of 3 years from 2005 to 2007	The study found that ash conversion cycle is a popular measure of WCM such as the time lag between the expenditure for the purchases of raw materials and the	The importance of WCM its different components and its effects on profitability lead to problem statement which

			was selected.	collection of sales of finished goods.	the study aims to investigate.
working capital management and organization profitability	Waweru (2011)	The relationship between working capital management and the value of the companies listed at the NSE	This study used the diagnostic research design. This study targeted all the agricultural companies listed at the NSE. Secondary was employed.	The study found that there is a statistical relationship between efficient working capital management and the value of firms quoted at the NSE	The study focused more on organization profitability, without focuses on other financial aspects which the current study aims to investigate
Working capital management on the financial	Wambugu, (2014)	effect of working capital management on the financial	The study adopted correlation design	The study found that firms should adopt correct working capital	The study only focused on SMEs thus the

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performance		performance of SME's	shall for this study	management practices and identify critical areas that may improve the economic performance such as the management getting better training on money management skills	need to study the influence of WCM on manufacturing firms
working capital management and financial performance	Mutungi (2010)	The relationship between working capital management and financial performance of oil marketing firms in Kenya	The existence of aggressive working capital approach in the Kenyan oil sector	The study concluded an existence of aggressive working capital policy in the oil sector	

Source: Author, (2019)

2.5 Conceptual Framework

Independent Variables   **Dependent Variable**

Working Capital Management Components

Accounts Receivables Management
- Accounts receivables turnover ratio

HO_1

Inventory Management
- Inventory conversion ratio

HO_2

Financial Performance
- ROA

Accounts Payables Management
- Accounts payables ratio

HO_3

HO_5

Firm size
- Capital adequacy ratio

Cash Management
- Cash conversion cycle

HO_4

Moderating Variable
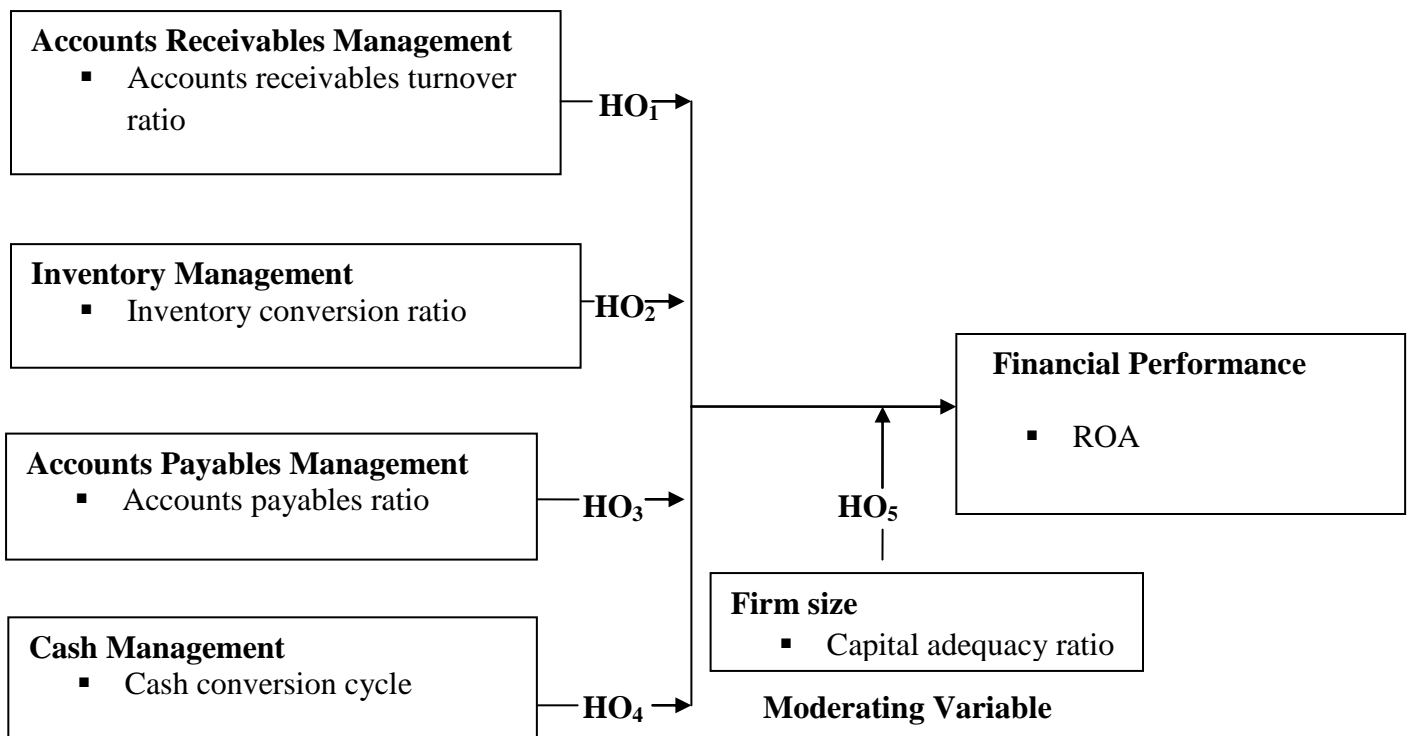
Source: Author, (2019)

Figure 2.1 Conceptual framework

The above conceptual framework conceptualized diagrammatically the interaction between the research variables. The study measured the working capital management based on four main components; the accounts receivables management, the inventory management, the accounts payables management and the cash management. The dependent variable for the study; financial performance of manufacturing firms was assessed using the return on assets. The moderating variable was the firm size.

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CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section presented the analysis methods that the researcher employed to make possible execution of the study to accomplish the study objectives. These steps include; analysis design, sample size, population of interest and sampling techniques, data collection instruments, procedures and data analysis.

3.2 Research Philosophy

Research philosophy is the foundation of knowledge on which underlying predispositions of a study are based (Saunders, Lewis & Thornhill, 2015). The current study adopted a positivism research philosophy. According to Ndede, (2015) Positivism philosophy is appropriate when a study is based on observable social reality and assumes that reality is fixed and directly measurable. Furthermore, the positivism approach calls for the research to be conducted in a way that is value free, objective, independent and should neither be affected by the subject of research (Ndede, 2015). The purpose of paradigm is to generate hypotheses that can be tested; and to provide material for the development of laws (Bryman & Bell, 2007). The product of research aims to be law, like generalizations similar to those that are produced by natural scientists, and positivism emphasizes quantifiable observations used for statistical analysis, which was applied in the study (Saunders *et al.,* 2015).

3.3 Research Design

Kothari (2004) is the blueprint of framework that guides the solving of the research problem through collecting relevant data and employing relevant statistical analysis techniques. Mugenda & Mugenda, (2003) however referred to a research design as an outline plan which is used to generate answers to the research problem.

The study aims at collecting information from manufacturing and allied firms quoted at the NSE for the period of 11 years. The study employed explanatory survey research design. The design is suitable for doing causal studies (cause-effect relationships), which are normally conducted in order to explain any behavior or reactions of people to a given phenomenon in the society (Bryman & Bell, 2007). He further argued that, explanatory survey design can be done to explain hypothesized relationships, allow the use of inferential statistics to find out the relationship between dependent and independent variables. The design was therefore used to determine the relationship between the variables in the model.

3.4 Model specification

Data from the fieldwork was revised, coded then input into a computer for processing using the Statistical Package for Social Sciences (SPSS v.23.0). The responses data were edited to eliminate and identify errors made by the researcher or respondents. Accordingly, data was reworked for consistency and completeness before analysis. The information generated from respondents was analyzed using descriptive and inferential statistics (Mugenda and Mugenda (2003),

Descriptive statistics refers to the analysis of data that facilitates description, show or summarize data in a meaningful way for instance; patterns might emerge from the data. Therefore, descriptive statistics allowed the researcher to organize data adequately. Inferential statistics were used to determine the association between the sample and the larger population. This helps in making appropriate generalizations whereby a Pearson correlation co-efficient was calculated to establish and test the correlation between the dependent variable and each independent variable, using the following function y fn (X1, X2, X3, X4, M5 and ε). From this function, the following multiple regression models was developed to illustrate the association between working capital management elements (account receivables management, inventory management, account payables management and cash management). Firm size is considered as a moderating factor and financial performance as the dependent variable for listed manufacturing and allied firms at Nairobi Securities Exchange, Kenya.

The proposed model will be as shown below;

    i. $\mathbf{Y}it = \beta_0 + \beta_1 \mathbf{X}_1 \ it + \beta_2 \mathbf{X}_2 \ it + \beta_3 \mathbf{X}_3 \ it + \beta_4 \mathbf{M}_4 + \varepsilon$

    ii. $\mathbf{Y} = \beta_0 + \beta_4 \mathbf{M}_4 + \varepsilon$

Whereby: Y **MS** = Financial Performance

$\mathbf{X_1}$ = Accounts Receivables Management (ARM);

$\mathbf{X_2}$= Inventory Management (IM);

$\mathbf{X_3}$= Accounts Payable Management (APM);

X$_4$= Cash Management (CM); and

M$_5$ = Firm Size (FS) ⎤–Moderating variable

B$_0$, β$_1$, β$_2$, β$_3$, β4, M$_4$ =Regression model coefficients.

ε = Error Term.

3.5 Operationalization and measurement of variables

Table 3.1 Operationalization and measurement of study variables

Category		Variable	Operationalization	Measurement
Independent Variables		**Working Capital Elements**	**Parameters**	
	X1	Accounts Receivables Management	▪ Credit sales/Average accounts receivables * Days in period	Ratio
	X2	Inventory Management	▪ Cost of Goods Sold / Average Inventory * Days in period)	Ratio
	X3	Accounts Payables Management	▪ Average accounts payable / (Total Credit purchases * Days in period)	Ratio
	X4	Cash Management	▪ Days inventory outstanding + day sales outstanding – day's payable outstanding	Ratio
Moderating Variable	M5	Firm size	▪ Tier 1 capital + Tier 2 capital/Risk weighted assets	Ratio
Dependent variable		Financial Performance	▪ Net income/ Average Total Assets	Ratio

Source: Author, (2019)

3.6 Target Population

The target population denotes all the items, subjects of relevance to the research study (Mugenda & Mugenda, 2003). The target population of this study was the 9 manufacturing and allied firms quoted at the NSE for the period of 11 years from 2006 to 2016 (NSE, 2016). This enhanced the data that was sourced from audited financial statements and industry reports towards solving the research hypothesis.

3.7 Sampling Technique

Cluster random sample is a sampling technique where by the population is first split into groups and the overall sample consists of every member from some of the groups (Mugenda & Mugenda, 2003). Among the listed companies at NSE the category of manufacturing and allied companies was selected where all the nine companies in this cluster was engaged in the study. The justification for this technique is; a cluster sample gets every member from some of the group. The unit of observation for the research was the 9 listed firms within the manufacturing and allied sector of the securities market.

3.8 Diagnostic Tests

The study undertook diagnostic tests to examine the significance of the research model. The study utilized both multicollinearity and normality tests.

3.8.1 Multicollinearity

They are conducted to establish if two or more explanatory variables within a regression model are linearly related. According to Robert (1967) multi collinearity is not a problem

within a research however extreme levels of collinearity represent a challenge in research modelling. The current research employed the Variance Inflation Factor (VIF) and the Tolerance values to test for multi-collinearity effects.

3.8.2 Normality Tests

Normality tests are used to establish if data (set) is well modeled by normal distribution and calculate how probable it is for a random variable governing the data set to be normally distributed (Saunders *et al.,* 2015). Normality test was conducted to deduce the shape of the sample distribution and mirror the shape of the normal curve. If the sample is normally distributed, the population was normally shaped and one would assume normality in the research data. The research used the Shapiro-Wilk tests. According to Razali, Wah & Bee (2011) Shapiro–Wilk has the best power (Power analysis) for a given significance and that this test may detect even trivial departures from the null hypothesis. The null-hypothesis of this test is that the population is normally distributed.

3.8.3 Data Collection Procedures

Saunders *et al.,* (2015) described data as facts, opinion, and statistics that have been collected together and recorded for reference or for analysis. The data can be either primary or secondary. The current study relied on secondary data that was sourced from the audited financial statements and the industry reports for the period 2006-2016.

3.8.4 Data Collection Instrument

The research utilized a data extraction form to collect data on the metrics of working capital management components and the financial performance of the listed manufacturing and

allied firms in Kenya. The data collection instrument also captured the moderating variable of the study. See Appendix 1

3.8.5 Data Presentation

Data presentation refers to the organization of data into tables, graphs or charts, so that logical and statistical conclusions can be derived from the collected measurements (Mugenda & Mugenda, 2003). In this study, frequency distribution tables were largely used to present feedback and analysis. According to Kothari (2004) a frequency distribution table refers to a chart that recapitulates all the values and their frequencies. The justification for the use of frequency distribution tables were because they are considered to be useful to explain the number of happenings of a specific type of unit within the information (Saunders *et al.,* 2015).

Additionally, Mugenda & Mugenda, (2003) highlighted that frequency distribution tables are one of the basic essentials to showcase descriptive figures as adopted by the study in tabular form. Tabular form was used generally to differentiate, categories, relate different datasets.

3.8.6 Ethical Considerations

While conducting the study, the researcher ensured that research ethics are observed. Before engaging in data collection, the researcher sought a permit from National Commission for Science, Technology and Innovation (NACOSTI) in order to collect data. Privacy and confidentiality were observed. The collected data was utilized solely for academic purposes.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION OF FINDINGS AND DISCUSSIONS

4.1 Introduction

Grounded on the analysis model, reliability and diagnostics tests proposed in the previous chapter (Three), this chapter (Four) presents the data analysis, results, interpretation and discussion of findings. The study results are presentations based on descriptive, correlation and regression in line with the objectives and study hypotheses. Finally, the chapter presents the results for an analysis of the relationship between working capital management and financial performance of manufacturing and allied category of firms listed at the Nairobi securities exchange, Kenya

4.2 Descriptive Statistics

Descriptive statistics were generally used to describe the basic features of the data in a study and provide simple summaries about the sample and the measures (Mugenda & Mugenda, 2003). The study results were based on mean, standard deviation, maximum and minimum of the values obtained from analysis of the study data. Purposely, the mean was used to show the central value of the study variable while the standard deviation provided the variability or spread of the study data from the centre value. The maximum and minimum were used to give the highest and lowest values respectively.

The variables for the research work were: Account Receivables Management (ARM) measured by Accounts Receivable Turnover ratio (X_1), Inventory management (IM) measured by Inventory Conversion ratio (X_2), Account Payables Management (APM)

measured by Accounts payable ratio (X_3), Cash Management (CM) measured by cash conversion cycle (X_4), firm size (FS) measured by capital adequacy ratio (M_1), and finally financial performance (FP) measured by Return on Assets (Y).

4.2.1 Descriptive Statistics for Account Receivables Management (ARM) (X_1)

First, the summary of descriptive statistics for Account Receivables Management (ARM) measured by Accounts Receivable Turnover ratio, averaged quarterly for the eleven-year period 2006 to 2016 is shown in table 4.1.

Table 4.1: Descriptive Statistics for Account Receivables Management

	N	Minimum	Maximum	Mean	Std. Deviation
A/C receivable turnover ratio	44	.1206	.9300	.6067	.2961
Valid N (list wise)	44				

Source: (Researcher, 2019)

The key parameter adopted for account receivables management was the weighted quarterly manufacturing sector accounts receivable turnover ratio and averaged for the eleven-year period 2006 to 2016. In this study, the accounts receivable turnover ratio was an accounting measure used to quantify a company's effectiveness in collecting its receivables or money owed by clients. The study findings were showed by table 4.1 which showed that, the mean was 0.6067 with a standard deviation of 0.2961. The minimum figure over that entire period was 0.1206 while the maximum was 0.9300 as depicted by the 9 manufacturing companies under study.

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Based on Table 4.1: results for descriptive statistics on the weighted quarterly manufacturing sector Accounts Receivable Turnover ratio and averaged for the eleven-year period 2006 to 2016, mean was a modest 0.6067 with relatively small standard deviation of 0.2961, given that, the basic understanding of low turnover ratio implies that the company should reassess its credit policies to ensure timely collection of its receivables. A mean of 0.6067 depicts a modest Accounts Receivable Turnover ratio indicating that a majority of the manufacturing company's collection of accounts receivable are modestly efficient and have a high proportion of quality customers that pay their debts on a timely basis. The findings mirror those of Mekonnen (2011) study which revealed that managers can increase their firms' profits by reducing the levels of credits that they grant their customers.

4.2.2 Descriptive Statistics for Inventory Management (IM) (X_2)

Additionally, the summary of descriptive statistics for Inventory management (IM) analyzed by the weighted quarterly manufacturing sector Inventory Conversion ratio and averaged for the eleven year period 2006 to 2016 is shown in table 4.2.

Table 4.2: Descriptive Statistics for Inventory Management

	N	Minimum	Maximum	Mean	Std. Deviation
Inventory turnover period	44	1.9345	6.1007	3.2928	.9692
Valid N (list wise)	44				

Source: (Researcher, 2019)

The key measurement for Inventory Management in this study was weighted inventory conversion ratio and averaged for the eleven-year period 2006 to 2016. The result indicated by the table 4.2 show an average mean of 3.2928 with a standard deviation of 0.9692. The minimum and maximum figures recorded were 1.9345 and 6.1007 respectively. In this

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study, the weighted inventory conversion ratio is an efficiency ratio that shows how effectively inventory is managed by comparing cost of goods sold with the average inventory for the period. The average means for weighted Inventory conversion ratio and averaged for the eleven-year period 2006 to 2016 indicates a relatively low inventory turnover rate which is in this case attributed to the fact that manufacturing companies in Kenya are characterized by cash on order basis supplies and hoarding, such as when prices are expected to rise (inventory pre-positioned to meet fast-rising demand) or when shortages are anticipated. This finding reflects those of Mathuva, (2010) study which established that, investing too much in inventories could hold back the funds which would have been invested in revenue generating activities.

4.2.3 Descriptive Statistics for Account Payables Management (APM) (X_3)

Next, the summary of descriptive statistics for Account Payables Management (APM) measured by weighted quarterly manufacturing sector account payable ratio and averaged for the eleven-year period 2006 to 2016 is shown in table 4.3.

Table 4.3: Descriptive Statistics for Account Payables Management (APM)

	N	Minimum	Maximum	Mean	Std. Deviation
A/C payable turnover period	44	.9917	3.8831	2.3031	.8087
Valid N (list wise)	44				

Source: (Researcher, 2019)

Account Payables Management (APM) was analyzed using weighted quarterly manufacturing sector account payable ratio and averaged for the eleven-year period 2006 to

2016. The study findings showed in table 4.3, that the weighted quarterly manufacturing sector account payable ratio and averaged for the eleven-year period 2006 to 2016 mean was 2.3031 with a standard deviation of 0.8087. The maximum and minimum figures were; 3.8831 and 0.9917 respectively.

Accounts payable turnover in this study shows how many times a company pays off its accounts payable during the period. Consequently, a relatively low mean of 2.3031 revealed by the current study implies majority of the manufacturing companies engaged in the study take longer to pay off their suppliers. These findings are complimented by the study of Naimulbari, (2012) which found out that, a firm will always wish to tie up the little cash it has as possible, in its disbursement tills. The idea in these systems is to have no more than the minimum amount necessary to pay operating bills for the company which could aid operations efficiency.

4.2.4 Descriptive Statistics for Cash Management (CM) (X_4)

Next is the summary of descriptive statistics for Cash Management (CM) measured by weighted quarterly manufacturing sector cash conversion cycle ratio and averaged for the eleven-year period 2006 to 2016 as shown in table 4.4.

Table 4.4: Descriptive Statistics for Cash Management (CM)

	N	Minimum	Maximum	Mean	Std. Deviation
Cash conversion cycle	44	.0453	.9345	.446907	.2136152
Valid N (list wise)	44				

Source: (Researcher, 2019)

The parameter used to analyze Cash Management (CM) was weighted quarterly manufacturing sector cash conversion cycle ratio and averaged for the eleven-year period 2006 to 2016. The study findings showed that the mean and standard deviation was 0.446907 and 0.2136152 respectively. The study results showed in table 4.4 also showed that, the minimum and maximum figures were 0.0453 and 0.9345 respectively. Generally, and as per the study, cash conversion cycle ratio (CCC) measured how long each net input Kenya shillings is tied up in the production and sales process before it gets converted into cash received. Consequently, the weighted quarterly manufacturing sector cash conversion cycle ratio and averaged for the eleven-year period 2006 to 2016 relatively low mean of 0.446907 implied that, majority of the companies in the manufacturing sector had a relatively shorter cash conversion cycle, that implies majority of them were good at selling inventories and recovering cash from those sales while paying suppliers. These findings are in harmony with those of Naimulbari (2012) study on the impact that WCM had on profitability of pharmaceuticals sector in Bangladesh which established that there is a strong negative relationship between CCC and profitability and that if the profits reduce, then one of the reasons would be due to an increase in the cash conversion cycle.

4.2.5 Descriptive Statistics for Firm Size (FS) (M1)

Next, is the summary of descriptive statistics for Firm Size (FS) measured by weighted quarterly manufacturing sector capital adequacy ratio and averaged for the eleven-year period 2006 to 2016 as shown in table 4.5;

Table 4.5: Descriptive Statistics for Firm Size (FS) (M1)

	N	Minimum	Maximum	Mean	Std. Deviation
Capital adequacy	44	3.2393	8.8417	5.754158	1.6263723
Valid N (list wise)	44				

Source: (Researcher, 2019)

The parameter used to analyze Firm Size (FS) was weighted quarterly manufacturing sector capital adequacy ratio and averaged for the eleven-year period 2006 to 2016. The study results showed in table 4.5 that, the weighted quarterly manufacturing sector capital adequacy ratio and averaged for the eleven-year period 2006 to 2016 mean was 5.754158 with a standard deviation of 1.6263723. The maximum and minimum figures were; 8.8417 and 3.2393 respectively. Bearing in mind that, the general understanding of capital adequacy ratio is used to protect investors and promote the stability and efficiency of financial systems for the company. Consequently, a relatively high mean of 5.754158 revealed by the current study implies that majority of the manufacturing companies engaged in the study have high capital adequacy ratio. This implies that they are considered safe and likely to meet its financial obligations, a position shared by Prasetyantoko and Parmono, (2010) study which established that firm size influences profitability in some, but not all industries.

4.2.6 Descriptive Statistics for Financial Performance (FP) (Y)

Lastly, is the summary of descriptive statistics for Financial Performance (FP) of manufacturing firms (Y) measured by Return on Assets (ROA) as shown in table 4.5;

Table 4.6: Descriptive Statistics for Financial Performance (FP) (Y)

	N	Minimum	Maximum	Mean	Std. Deviation
Return on assets	44	211.38	242.33	228.8278	7.71392
Valid N (list wise)	44				

Source: (Researcher, 2019)

The parameter used to analyze financial performance of manufacturing firms (Y) was weighted quarterly manufacturing sector Return on Assets Ratio and averaged for the eleven-year period 2006 to 2016. The study results showed in table 4.6 that, the weighted quarterly manufacturing sector return on assets ratio and averaged for the eleven-year period 2006 to 2016 mean was 228.8278 and 7.71392 as standard deviation. The minimum figure was 211.38 and a maximum of 242.33. Basically, ROA gives management, an idea as to how efficient a company is in using its assets to generate earnings. Consequently, a relatively high Return on Assets Ratio mean of 228.83 implies that, majority of the companies in the manufacturing sector were effective in converting the money they invest into net income.

4.2.7 Summary of Descriptive Results

Table 4.7; summarizes all the descriptive results for the six variables namely; Account Receivables Management (ARM) measured by Accounts Receivable Turnover ratio (X_1), Inventory management (IM) measured by Inventory Conversion ratio (X_2), Account Payables Management (APM) measured by Accounts payable ratio (X_3), Cash Management (CM) measured by cash conversion cycle (X_4), Firm Size (FS) measured by

capital adequacy ratio (M_1), and finally financial performance (FP) measured by Return on Assets (Y).

Table 4.7: Summary of Descriptive results

Variable	N	Min	Max	Mean	Std. Dev.
Accounts receivable management (X1) A/C Receivable Turnover Ratio	44	.1206	.9300	.6067	0.2961
Inventory Management (X2) Inventory Turnover ratio	44	1.9345	6.1007	3.2928	0.9692
Accounts Payable Management (X3) A/C Payable Turnover ratio	44	.9917	3.8831	2.3031	0.8087
Cash Management (X4) Cash Conversion Cycle	44	.0453	.9345	.446907	.2136152
Firm size (M1) (Capital Adequacy Ratio)	44	3.2393	8.8417	5.754158	1.6263723
Financial performance (Y) Return On Assets	44	211.38	242.33	228.8278	7.71392

Source: (Researcher, 2019)

The parameter of firm size analyzed was capital adequacy ratio, the study results showed a relatively high mean of 5.75 implied that majority of the manufacturing companies engaged in the study have high capital adequacy ratio. On cash management the study used Cash Conversion Cycle as parameter. The study results showed that the weighted quarterly manufacturing sector cash conversion cycle ratio and averaged for the eleven-year period 2006 to 2016 relatively low mean of 0.446907 implied that, majority of the companies in the manufacturing sector had a relatively shorter cash conversion cycle, that implies majority of

them were good at selling inventories and recovering cash from those sales while paying suppliers.

On accounts payable management the study used accounts payable turnover ratio as parameter. The study results showed a relatively low mean of 2.3031 revealed by the current study implies majority of the manufacturing companies engaged in the study take longer to pay off their suppliers. About inventory management, the study used Inventory Turnover ratio as parameter, the study results as summarized in Table 4.7 showed that, the average means for weighted Inventory conversion ratio and averaged for the eleven year period 2006 to 2016 indicates a relatively low inventory turnover rate which is in this case attributed to the fact that manufacturing companies in Kenya are characterized by cash on order basis supplies and hoarding, such as when prices are expected to rise (inventory pre-positioned to meet fast-rising demand) or when shortages are anticipated. And finally, accounts receivable management was measured using accounts receivable turnover ratio, the study results showed a mean of 0.6067 which implied a modest accounts receivable turnover ratio indicating that a majority of the manufacturing company's collection of accounts receivable are modestly efficient and have a high proportion of quality customers that pay their debts on a timely basis.

4.3. Diagnostic Tests

To make inferences on the relationships of the variables under study, diagnostic tests were carried out. The tests were carried out purposely to establish accurately the need to empirically analyze the data using the multiple regression analysis. According to Mugenda and Mugenda, (2003) regression model is accurately estimated when the basic assumptions

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are met. Consequently, the study found necessary to determine whether multicollinearity, Normality, Homoscedasticity and linearity tests for multiple regression analysis assumptions were met.

4.3.1; Collinearity Diagnostics

The study tested for multi collinearity status by examining the tolerance and the Variance Inflation Factor (VIF) and the results were as shown in Table 4.8.

Table 4.8: Collinearity Statistics

Model		Collinearity Statistics	
		Tolerance	VIF
1	Accounts receivable management (X1) (A/C Receivable Turnover Ratio)	.485	2.060
	Inventory Management (X2) (Inventory Turnover Period)	.498	2.007
	Accounts Payable Management (X3) (A/C Payable Turnover Period)	.517	1.934
	Cash Management (X4) (Cash Conversion Cycle Ratio)	.838	1.193
	Firm size (M1) (Capital Adequacy Ratio)	.316	2.164

 a.   **Dependent Variable: Financial Performance (Y) Return on assets**
Source: Research data, (2019)

The study also analyzed the multi collinearity status by examining the tolerance and the Variance Inflation Factor (VIF). According to Cooper and Schindler (2014), Tolerance is a measure of collinearity reported by most statistical programs such as SPSS. A small tolerance value indicates that the variable under consideration is almost a perfect linear combination of the independent variables already in the equation, and that it should not be added to the regression equation. All variables involved in the linear relationship should

have a small tolerance. Cooper and Schindler (2014) also suggested that a tolerance value more than 3.0 should be investigated further.

The Variance Inflation Factor (VIF) measures the impact of collinearity among the variables in a regression model. The Variance Inflation Factor (VIF) is 1/Tolerance, it is always greater than or equal to 1. Values of VIF that exceed 10 are often regarded as indicating definite multicollinearity issues, but in weaker models values above 5.0 may be a cause for concern (Cooper and Schindler, 2014), According to Cooper and Schindler, (2014) when VIF values are high for any of the variables in a model, multicollinearity is probably an issue. The study results showed Variance Inflation Factor (VIF) of less than 3.0, accordingly there were no issues of concern with regards to multicollinearity for the variables under study.

4.3.2: Normality Tests

In this study, Normality diagnostics was assessed using the Shapiro-Wilk tests to show whether Account Receivables Management (ARM), Inventory management (IM) Account Payables Management (APM), Cash Management (CM), Firm Size (FS) and finally financial performance (FP) values recorded are statistically significantly different from a normal distribution. According to Razali,Wah & Bee (2011) Shapiro–Wilk has the best power (Power analysis) for a given significance and that this test may detect even trivial departures from the null hypothesis. The null-hypothesis of this test is that the population is normally distributed. Accordingly, if the p value is less than 0.05, then the null hypothesis is rejected and there is evidence that the data tested are not normally distributed. On the other hand, if the p value is greater than 0.05, then the null hypothesis that the data came from a

normally distributed population cannot be rejected. The study results established that; Account Receivables Management (ARM), Inventory management (IM) Account Payables Management (APM), Cash Management (CM), Firm Size (FS) and finally financial performance (FP) data had p-values are greater than 0.05 implying to a normally distributed data (Normality). For that reason, the study failed to reject the null that data values are normally distributed (at 95%significance level) and concluded that the residuals behaved normally as shown in table 4.9.

Table 4.9: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Return on assets	.103	44	.200[*]	.963	44	.171
A/C receivable turnover period	.345	44	.400	.713	44	.210
Inventory turnover period	.163	44	.300	.907	44	.312
A/C payable turnover period	.218	44	.300	.889	44	.101
Cash conversion cycle	.165	44	.400	.939	44	.071
Capital adequacy	.110	44	.200[*]	.945	44	.073

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

a. Lilliefors Significance Correction

Source: Research data, (2019)

4.3.3: Homoscedasticity Diagnostics

On Homoscedasticity Diagnostics, Levene's Test of Equality of Error Variances was used to test for heteroscedasticity in the regression models with Financial Performance of

manufacturing companies (Y) measured by Return On Assets (ROA) as dependent variable. Specifically, this test was used to determine whether there was no significant difference from inequality of variance across the various conditions of the experiment. The results are presented in the table 4.10.

Table 4.10: Test for Homoscedasticity (Levene's Test of Equality of Error Variances)

Dependent Variable: Return On Assets

F	df1	df2	Sig.
. 51	43	0	.864

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a. Design: Intercept + Accounts Receivable (ARM) + Inventory Management (IM) + Accounts Payable (APM) + Cash Management (CM) + Firm Size (FS)

Source: Research data, (2019)

The results for the Levene's Test of Equality of Error Variances p Value of 0.864 implies that, there is no significant difference from inequality of variance across the various conditions of the experiment, consequently the homoscedasticity condition is satisfied.

4.3.4: Strength of Relationships/Linearity Diagnostics

Linearity diagnostics was tested in order to check the actual strength of all relationships. This was imperative so as to identify any departures from linearity which were bound to affect correlation and the model in general. Linear models predict values which fall in straight line by having a constant unit of change (slope) of the dependent variable over a constant unit change of the independent variable. Linearity of the variables was tested using Pearson's product moment correlation coefficient.

Table 4.11; Bivariate Correlations Analysis

		ARM	IM	APM	CM	FS	FP
ARM	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	44					
IM	Pearson Correlation	$.476^{**}$	1				
	Sig. (2-tailed)	.001					
	N	44	44				
APM	Pearson Correlation	$.632^{**}$	$.494^{**}$	1			
	Sig. (2-tailed)	.000	.001				
	N	44	44	44			
CM	Pearson Correlation	.260	.229	.219	1		
	Sig. (2-tailed)	.088	.134	.153			
	N	44	44	44	44		
FS	Pearson Correlation	$.660^{**}$	$.703^{**}$	$.627^{**}$	$.395^{**}$	1	
	Sig. (2-tailed)	.000	.000	.000	.008		
	N	44	44	44	44	44	
FP	Pearson Correlation	$.749^{**}$	$.772^{**}$	$.651^{**}$	$.463^{**}$	$.814^{**}$	1
	Sig. (2-tailed)	.000	.000	.000	.002	.000	
	N	44	44	44	44	44	44

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

Source: Research data, (2019)

Where;

FP   - Financial Performance (Y)

ARM   - Accounts Receivable Management(X1)

IM   - Inventory Management (X2)

APM   - Accounts Payable Management (X3)

CM   - Cash Management and;

FS   - Firm Size

The study findings in Table 4.11, shows that the Sig (2-Tailed) and the Pearson's r values for all the relationships between the independent variables revealed that indeed there was a linear relationship between the independent variables and the dependent variable. According to Mugenda & Mugenda, (2003) correlation is a term that refers to the relationship between two variables. A strong or high correlation means that two or more variables have a strong relationship with each other while a weak or low, correlation means that the variables are hardly related. The value of -1.00 represents a perfect negative correlation while a value of +1.00 represents a perfect positive correlation and a value of 0.00 means that there is no relationship between variables being tested (Mugenda & Mugenda, 2003).

The coefficient was calculated by taking the covariance of the two variables and dividing it by the product of their standard deviations. In this study, Pearson correlation is carried out to determine how the research variables related to each other. Pearson's correlation reflects the degree of linear relationships between two variables. It ranges from +1 to -1. A correlation of +1 means there is a perfect positive linear relationship between variables (Mugenda & Mugenda, 2003).

4.4 Testing The Hypotheses

In an endeavor to testing the hypotheses, multiple regression analysis was employed to empirically test the study hypotheses with regards to the rejection or acceptance of the null

hypotheses. Multiple Regression analysis was applied to establish the strength and the magnitude of the relationship between the variables and to test the hypothesized relationships. The hypothesis was tested at 95% level of confidence in order to draw conclusion.

4.4.1 Multiple Regression Results

Having computed and ascertained that all the OLS assumptions of normality, strength of relationships, linearity, and homoscedasticity and collinearity diagnostics were fulfilled, multiple regression analysis was then computed. Table 4.12; showed the model summary results estimated to show the explained variations through R square change between working capital management elements and financial performance of listed manufacturing firms in Kenya. Table 4.12 gives the regression results on model summary.

Table 4.12: Multiple Regression Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					F Change	df 1	df 2	Sig. F Change
1	.917[a]	.842	.825	3.2226	51.845	4	39	.000

a. Predictors: (Constant), Cash conversion cycle, A/C payable turnover ratio, Inventory turnover ratio, and A/C receivable turnover ratio

Source: Research data, (2019)

It was established from the findings that; Cash conversion cycle, A/C payable turnover ratio, Inventory turnover ratio, and Accounts receivable turnover ratio were indeed elements of working capital management with an explained change of 84.2% financial performance of

listed manufacturing firms in Kenya, as represented by the R Square of multiple determinant = 0.842.

Table 4.13: Analysis of Variance (ANOVA)

	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2153.673	4	538.418	51.845	.000[b]
	Residual	405.024	39	10.385		
	Total	2558.697	43			

a. Dependent Variable: Return on assets

b. Predictors: (Constant), Cash conversion cycle, A/C payable turnover period , Inventory turnover period, A/C receivable turnover period

Source: Research data, (2019)

In an endeavor to test the significant of the model, ANOVA was used. From Table 4.13, the P-value is 0.000[b] which is less than 0.05 thus the model is statistically significance in predicting the relationship between working capital elements tested and the financial performance of manufacturing firms in Kenya. The F critical at 5% level of significance is 2.61. Since F calculated (Value = 51.845) is greater than the F critical, this shows that the proposed model fitted well. The coefficients of the multiple regression models are presented in the Table 4.14.

Table 4.14: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	203.903	1.960		104.018	.000
Accounts Receivable Management (ARM)	10.073	2.227	.387	4.523	.000
Inventory Management (IM)	3.796	.605	.477	6.278	.000
Accounts payable Management (APM)	1.154	.818	.121	1.410	.017
Cash Management (CM)	8.185	2.403	.227	3.406	.002
a. Dependent Variable: Return on assets					

Source: Research data, (2019)

4.5 Results of Hypothesis Testing

Considering the multiple regression results, study hypotheses (H_{01}- H_{04}) can now be deliberated. The regression model has ascertained that factoring in; Accounts Receivable Management (ARM), Inventory Management (IM), Accounts payable Management (APM) and Cash Management (CM) as elements of working capital management at constant zero, the financial performance of manufacturing firms in Kenya is at 203.903.

Hypothesis One (**H_{01}**) stated that there is no statistically significant effect between account receivables management and financial performance of listed manufacturing and allied firms in Kenya.

The study results further revealed that, Accounts Receivable Management had the greatest influence on financial Performance of the manufacturing firms at $\beta = 10.073$ with P-value = 0.000. This implied that Accounts Receivable Management as measured by weighted Accounts Receivable Turnover ratio, averaged quarterly for the eleven-year period 2006 to

2016 is positively related to financial Performance of the manufacturing firms. It also complimented Mberia *et al.,* (2017) study which examined the effect of working capital management on firm's financial performance; the results revealed that there is a positive influence on the collection period and the financial performance of firms.

Hypothesis Two (**H$_{02}$**) stated that there is no statistically significant effect of accounts payables management on financial performance of listed manufacturing and allied firms in Kenya.

The study results showed that, Accounts payable (AP) was the least influential with a β = 1.154 and a P-value = 0.017. The study findings imply that, Accounts payable (AP) as measured by weighted quarterly manufacturing sector account payable ratio and averaged for the eleven year period 2006 to 2016 is statistically significant and positively related to the financial Performance of the manufacturing firms a position which was in harmony with that of Mathuva (2010) study which suggested that the relationship between profitability and average payment period is positive, implying that profits are more likely to be realized if the accounts payable are delayed by 1 day. However, if discounts are offered to the company for early payment, then reducing the payment period could mean that the company incurs extra costs. Therefore, the relationship between the average payment period and profitability is positive.

Hypothesis Three (**H$_{03}$**) stated that there is no statistically significant effect of inventory management on financial performance of listed manufacturing and allied firms in Kenya.

Thirdly the study results revealed that the third most influential variable was Inventory Management (IM) with a β = 3.796 with P-value = 0.000. This implied that Inventory

Management (IM) as measured by weighted inventory turnover ratio, averaged quarterly for the eleven-year period 2006 to 2016 is positively related to financial Performance of the manufacturing firms and also significant consideration, a position also echoed by Wachira, (2015) study which upheld that with less holding of stock, the shorter the stock transformation period and the higher the profitability of the company and the other way around.

Hypothesis Four (**H$_{04}$**) stated that there is no statistically significant effect between cash management and financial performance of listed manufacturing and allied firms in Kenya.

Finally, the study findings established that, the second most influential variable on the financial Performance of the manufacturing firms was Cash Management (CM) with a β = 8.185 and a P-value = 0.002. This implies that, Cash Management (CM) as measured by weighted quarterly manufacturing sector cash conversion cycle ratio and averaged for the eleven-year period 2006 to 2016 is statistically significant and positively related to the financial performance of manufacturing firms. These findings mirrored those of Salih *et al.,* (2011) study on the relationship between profitability and WCM for companies listed on the Istanbul Stock Exchange for a period of 2005-2009. The study found out that, there is a positive return of assets with the decrease in cash cycle.

Table 4.15 Summary for Hypothesis Testing

Hypothesis	Beta (β)	P-value	Sig.	Decision
H_{01} :There is no statistically significant effect between account receivables management and financial performance	10.073	0.000	H_{01} Significant	H_{01} Rejected
H_{02} :There is no statistically significant effect of accounts payables management on financial performance	1.154	0.017	H_{02} Significant	H_{02} Rejected
H_{03} : There is no statistically significant effect of inventory management on financial performance	3.796	0.000	H_{03} Significant	H_{03} Rejected
H_{04} :There is no statistically significant effect of cash management on financial performance	8.185	0.002	H_{04} Significant	H_{04} Rejected

Source: Research data, (2019)

Table 4.16: Multiple Regression summary with firm size as additional variable

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df2	Sig. F Change
1	.923[a]	.852	.833	3.15392	.852	43.845	5	38	.000

a. Predictors: (Constant), Capital adequacy, Cash conversion cycle, A/C payable turnover ratio , Inventory turnover ratio, A/C receivable turnover ratio

Source: Research data, (2019)

It can be deduced from the findings that Cash conversion cycle(CM), Accounts Payable Turnover Ratio (APM) , Inventory Turnover Ratio (IM), Accounts Receivable Turnover Ratio (ARM) and Capital adequacy (FS) as a moderator, explain about 85.2% of the Performance of Nairobi Securities Exchange, as represented by the adjusted coefficient of multiple determinant = 0.852.

Table 4.17: Analysis of Variance (ANOVA) with Firm size as additional variable

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2180.702	5	436.140	43.845	.000[b]
	Residual	377.995	38	9.947		
	Total	2558.697	43			

a. Dependent Variable: Return On Assets (ROA)

b. Predictors: (Constant), Capital Adequacy, Cash Conversion Cycle, Accounts Payable Turnover Ratio, Inventory Turnover Ratio and Accounts Receivable Turnover Ratio

Source: Research data, (2019)

In an attempt to test the significant of the model, the study used ANOVA. From Table 4.17, the P-value is 0.000^{b} which is less than 0.05 thus the model is statistically significance in predicting the Independent variables (Capital Adequacy, Cash Conversion Cycle, Accounts Payable Turnover Ratio, Inventory Turnover Ratio and Accounts Receivable Turnover Ratio) influence on financial Performance of manufacturing companies in Kenya. The F critical at 5% level of significance is 2.61. Since F calculated (Value = 43.845) is greater than the F critical, this shows that the proposed model fitted well. The coefficients of the multiple regression models are presented in the Table 4.18.

Table 4.18: Regression Coefficients with Firm size as additional variable

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	203.111	1.978		102.69	.000
	Accounts Receivable (AR)	8.710	2.331	.334	3.73	.001
	Inventory Management (IM)	3.170	.703	.398	4.51	.000
	Accounts payable (AP)	.814	.827	.085	.99	.331
	Cash Management (CM)	7.003	2.459	.194	2.85	.007
	Firm Size (FS)	.867	.526	.183	1.65	.108
a. Dependent Variable: Return On Assets (ROA)						

Source: Research data, (2019)

The model has determined that factoring in Firm Size (FS), Accounts Receivable Management (ARM), Inventory Management (IM), Accounts payable Management (APM), Cash Management (CM) and Firm Size (FS), included as an independent variable at constant zero, the Financial Performance of manufacturing firms is at 203.111. From the study findings, the researcher established that, Accounts Receivable (AR) had the greatest influence on the Financial Performance of manufacturing firms at β = 8.710 with P-value = 0.000 implying a positive and significant relationship.

The second most influential variable on the Financial Performance of manufacturing firms according to the study findings was Cash Management (CM) with a β = 7.003 and a P-value = 0.007. This implies that, Cash Management (CM) is significant and positively related to the Financial Performance of manufacturing firms.

The third most influential variable was Inventory Management (IM). The study findings showed that, Inventory Management (IM) had a β = 3.170 with a P-value = 0.000 implying a

positive and significant relationship with Financial Performance of manufacturing firms in Kenya

Lastly, Accounts payable (AP) was found to be the least influential on the Financial Performance of manufacturing firms as showed by $\beta = 0.814$ and a P-value $= 0.331$ implying a positive however insignificant relationship with the Financial Performance of manufacturing firms in Kenya.

Table 4.19: Summary of moderation with firm as additional independent variable

	Regression Before	Moderator	During	Change on moderation
	Moderation	alone	Moderation	Model
R^2	0.842	0.062	0.852	-0.01
F	51.845	82.343	43.845	-7.64
P-Value	0.000	0.000	0.000	0.000
B_0 Constant	203.903	206.618	203.111	-0.792
β_1 Accounts Receivable Management (ARM)	10.073	-	8.710	-1.363
B_2 Inventory Management (IM)	3.796	-	3.170	-0.626
B_3 Accounts Payable Management (APM)	1.154	-	0.814	-0.34
B_4 Cash Management (CM)	8.185	-	7.003	-1.182
M_1 Firm size (CA)	-	3.860	0.867	-

Source: Research data, (2019)

The regression model estimated before moderation on objective one to four, showed that variations in the working capital components tested that is; Accounts receivable Management, Inventory management, Accounts payable management and Cash management explain up to 84.2% variations in Financial Performance of Manufacturing firms.

Variations of working capital components tested that is; Accounts receivable Management, Inventory management, Accounts payable management and Cash management with firm size in moderation explain up to 85.2% variations in Financial Performance of Manufacturing firms. The negative change in F statistic from 51.845 before moderation to 43.845 on moderation suggests that Firm size moderate the relationship between the working capital components tested that is; Accounts Receivable, Inventory management, Accounts payable, Cash management and the Financial Performance of Manufacturing firms listed in NSE in Kenya. The study results are in harmony with that of Atif Abbasi, Qaisar Ali Malik, (2015) study on Firms' Size Moderating Financial Performance in Growing Firms, which established that firm size has a moderating inspiration between independent variable (Firm growth) and dependent variable (Firm performance) which is acceptable.

4.6 Description of Responsiveness of variables to moderation

In attempt to demonstrate individual independent variable responsiveness towards moderation of firm size as measured by Capital adequacy ratio, all the independent variables were centralized then standardized for moderation analysis. The results were weighed against the revelation of bivariate correlation analysis to determine a true position of non-multi-collinearity effects and presented as follows;

Table 4.20: Summary of standardization analysis for individual responsiveness

	Regression Before Moderation	With Standardized Value	Individual Variables with Standardized Values(P-Value)
R^2	0.842	0.845	-
F	51.845	41.495	-
P-Value	0.000	0.000	-
B_0 Constant	203.903	203.699	-
β_1 Accounts Receivable Management (ARM)	10.073(0.000)	(9.637) 0.000	(19.659) 0.000
B_2 Inventory Management (IM)	3.796(0.00)	(3.934) 0.000	(6.360) 0.000
B_3 Accounts Payable Management (APM)	1.154(0.167)	(1.210) 0.149	(6.210) 0.000
B_4 Cash Management (CM)	8.185(0.002)	(8.286) 0.001	(16.695) 0.002

Source: Research data, (2019)

From the study findings, the researcher established that, individual responsiveness to moderation was as follows; Accounts Receivable Management (ARM) had the greatest responsiveness to moderation of firm size as measured by capital adequacy is shown by the variation between regression analysis with standardized and individual variables with standardized beta and significant values (9.637) 0.000 and (19.659) 0.000 respectively. The second most individual variable responsiveness to moderation of firm size as measured by capital adequacy was Accounts Payable Management (APM) as shown by the variation between regression analysis with standardized and individual variables with standardized beta and significant values (1.210) 0.149 and (6.210) 0.000 respectively.

The third most responsive variable to moderation of firm size as measured by capital adequacy was Inventory Management (IM) as measured by A/C Payable Turnover Period as shown by the variation between regression analysis with standardized and individual

variables with standardized beta and significant values (3.934) 0.000 and (6.360) 0.000 respectively. Lastly, Cash Management (CM) was found to be the least with regards to responsiveness to the moderation effect of firm size as measured by capital adequacy as shown with the variation between regression analysis with standardized and individual variables with standardized beta and significant values (8.286) 0.001 and (16.695) 0.002 respectively.

4.7 The Moderating Role of Firm size

On this objective, the study endeavored to examine the moderating effect of firm size on the relationship between working capital management and financial performance of listed manufacturing and allied firms at Nairobi Securities Exchange in Kenya. The results of this study confirm a strong moderating role of firm size in working capital management and financial performance. Specifically, the Interaction term (Firm Size) has significantly its inspiration on the financial performance; additionally, by adding this interaction term, the explanatory power of the model (R2) is also showing the significant change, account receivable turnover ratio with standardized beta and significant values (9.637) 0.000 and (19.659) 0.000 respectively, followed by Inventory conversion ratio as shown by the variation between regression analysis with standardized beta and significant values (1.210) 0.149 and (6.210) 0.000 respectively and lastly, Accounts Payable ratio as shown by the variation between regression analysis with standardized beta and significant values (3.934) 0.000 and (6.360) 0.000 respectively. The results clearly support the hypothesis of the research. Consequently, the hypothesis of the research that firm size has moderating effect between the relationship of working capital and financial performance is accepted on the basis of the statistical results. This finding is in harmony with that of Soon and Razak

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(2012) research work which demonstrated the moderating effect of product diversity and leverage (Debt to equity ratio) as an independent variable.

CHAPTER FIVE

SUMMARY CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the study, conclusion and recommendations on the research results of the study. The general objective of the study was to examine the influence of working capital management on financial performance of listed category of manufacturing and allied category of firms at Nairobi Securities Exchange in Kenya. The summary, conclusion and recommendations are based on the objectives of the study and the findings drawn from the analysis and interpretations.

5.2 Summary of the study findings

The main objective of the study was to examine the influence of working capital management on financial performance of listed category of manufacturing and allied category of firms at Nairobi Securities Exchange in Kenya. The multiple regression analysis results explicitly showed that variations in working capital elements tested that is; Accounts receivable Management, Inventory management, Accounts payable management and Cash management explain about 84.2% of the variations on financial performance of listed category of manufacturing and allied category of firms at Nairobi Securities Exchange in Kenya.

The first objective sought to determine the effect of account receivables management on financial performance of listed manufacturing and allied firms in Kenya. The multiple regression analysis results showed that account receivables management as measured by the

weighted quarterly manufacturing sector account receivable turnover ratio and averaged for the eleven-year period 2006 to 2016 is significant and positively related to the financial performance of listed manufacturing and allied firms in Kenya as evidenced by a $\beta = 10.073$ with a P-value = 0.000 at 5% level of significance.

The second objective was to establish the effect of inventory management on financial performance of listed manufacturing and allied firms in Kenya. The multiple regression results showed that there was a statistically significant and positive effect of inventory management as measured by weighted quarterly manufacturing sector inventory conversion ratio and averaged for the eleven-year period 2006 to 2016 evidenced with a $\beta = 3.796$ and a P-value = 0.000 at 5% level of significance.

On the third objective, the specific objective was to establish the effect of account payables management on financial performance of listed manufacturing and allied firms in Kenya. The multiple regression results showed that there was a statistically significant and positive effect of account payables management as measured by weighted quarterly manufacturing sector accounts payable ratio and averaged for the eleven-year period 2006 to 2016 on to the financial performance of listed manufacturing and allied firms in Kenya. Additionally, the study also established that, account payables management had the least influence on financial performance of listed manufacturing and allied firms in Kenya at $\beta = 1.154$ with P-value = 0.003 at 5% level of significance.

On the fourth objective, the study aimed to examine the effect of cash management on financial performance of listed manufacturing and allied firms in Kenya. The multiple regression analysis results showed that cash management as measured by the weighted

quarterly manufacturing sector cash conversion cycle ratio and averaged for the eleven-year period 2006 to 2016 is significant and positively related to the financial performance of listed manufacturing and allied firms in Kenya as evidenced by a $\beta = 8.185$ with a P-value = 0.000 at 5% level of significance.

Finally, the fifth objective aimed to examine the moderating effect of firm size on the working capital management on financial performance of listed manufacturing and allied firms at Nairobi Securities Exchange in Kenya The null hypothesis proposed in the study that, firm size has no moderating effect between working capital management elements discussed and financial performance of listed manufacturing and allied firms in Kenya. The study used the stepwise approach; the moderation was captured by estimating a multiple regression model incorporating working capital elements discussed that is; Accounts Receivable, Inventory management, Accounts payable and Cash management. The estimated regression model was statistically significant and showed that 85.2% of variations in financial performance of listed manufacturing and allied firms in Kenya are explained by variations in working capital management elements that is; Accounts Receivable, Inventory management, Accounts payable and Cash management. The study therefore rejected the null hypothesis that firm size has no moderating effect between working capital management elements discussed in the study and financial performance of listed manufacturing and allied firms in Kenya.

5.3 Conclusion

From the findings of the study several conclusions were drawn, considering the fact that, the aim of working capital management is to ascertain that a firm is able to continue with its

operations and that it has sufficient ability to satisfy both maturing short-term debt and upcoming operational expenses. In spite of these good intentions, poor working capital management may jeopardize the company ability to finance its day to day operations.

Accordingly, in the first objective, account receivables management was found to be positively and significantly related to the financial performance of listed manufacturing and allied firms in Kenya. A conclusion can therefore be drawn that, manufacturing firms should seriously factor in account receivables management as a managerial policy for better operations efficiency and financial performance.

On the second objective, inventory management was found to have a statistically significant and positive effect on the financial performance of listed manufacturing and allied firms in Kenya. Consequently, the study concluded that, effective inventory management may lead to better financial performance of listed manufacturing and allied firms in Kenya.

On the third objective, the study established that, there was a statistically significant and positive effect of account payables management on to the financial performance of listed manufacturing and allied firms in Kenya. This shows that when the payables of these companies increase, their financial performance also increase consequently, accounts payable is a significant consideration for management with regards to financial performance.

On the fourth objective, cash management was found to have a statistically significant and positive effect on the financial performance of listed manufacturing and allied firms in Kenya. Accordingly, the study concluded that, cash management may lead to better financial performance of listed manufacturing and allied firms in Kenya.

Lastly, given the study results on the fifth objective, the null hypothesis is that, firm size has no moderating effect between working capital elements discussed and financial performance of listed manufacturing and allied firms in Kenya was rejected. This led to a conclusion that firm size plays a significant role in moderating working capital management and financial performance of listed manufacturing and allied firms in Kenya.

5.4 Recommendations

Factoring in the study findings, the researcher made the following recommendations;

5.4.1: Recommendation for Policy

The study findings showed that, accounts payable management had a statistically significant and positive effect on financial performance of listed manufacturing and allied firms in Kenya. Consequently, the manufacturing firms should adopt a monitoring system that highlights any payment made earlier than the due date required by the supplier.

Secondly, the study established that, inventory management had a statistically significant positive effect on the financial performance of listed manufacturing and allied firms in Kenya. Accordingly, the study proposed that, the manufacturing firms should adopt just-in-time purchasing on qualified raw materials and merchandise. This policy should be designed to minimize on-hand inventories by making purchases as late as possible and having items delivered in small quantities.

Lastly, the study proposes that, managerial policies regarding receivables and inventories should be directed primarily at efficient and profitable asset utilization considering the level of sensitivity they share with firm size and secondarily at liquidity for better working capital

management, while the enforcement of regulated levels of this ratio should focus to protect depositors and promote stability and efficiency of financial systems in the company.

5.4.2: Recommendation for Practice

It was determined that, there was a statistically significant and positive effect of cash management on to financial performance of listed manufacturing and allied firms in Kenya. Based on this revelation, the study proposes, no investment duration shall exceed the forecasting period and that, if a firm is willing to tie up cash in somewhat illiquid investments, then at least they should keep from making investments that cannot be accessed for periods longer than what the company is currently forecasting.

Secondly, Listed manufacturing and allied firms in Kenya should not allow the sales staff to offer terms to customers that exceed a specific number of days as determined by the credit department without prior approval by a senior manager and even then, use a formula that best fits the industry to arrive at a reasonable maximum amount of credit to offer customers, over which a senior manager must approve the terms.

5.5 Limitations of the Study

First, availability of data to include analysis of desired rations for the study was restricted with regards to the data available using secondary sources. The researcher however managed to acquire variables key parameters data and was satisfied with the validity of the data used.

Secondly, the study adopted explanatory survey research design, though explanatory survey research design is usually preferred to help us find out the problem that was not studied in-

depth before. More often than not the research design supplies qualitative information and interpretation of the findings which is usually judgmental.

Lastly, the choices of each question in this case ratios adopted for variables analysis were from previous studies, possible alternatives may not have been considered. The findings of a survey based on other sources of information and the use of absolute data could provide additional insights.

5.6 Suggestions for Further Research

The study suggests that, a similar study can be replicated in other manufacturing firms not allied to NSE and other organizations in Kenya given that this study was for listed manufacturing and allied firms only, so as to compare results. Finally, this study established that 84% of variations in financial performance of listed manufacturing and allied firms in Kenya are explained by variations in working capital management practices that is; Accounts receivable Management, Inventory management, Accounts payable management and Cash management. Consequently, it is imperative to explain the remaining variance and studies that can explain these other determinants can further be investigated.

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Appendix I: Secondary Data from Published Accounts used in SPSS

	MONTH	A/C Receivable Turnover Period	Inventory Turnover Period	A/C Payable Turnover Period	Cash Conversion Cycle	Capital Adequacy	Return On Assets
		AR	IM	AP	CM	FS	FP
2006	1st Qtr.	0.136720567	2.197280558	1.024074987	211.3823	3.325063894	0.334453751
	2nd Qtr.	0.176091259	2.195346058	1.062205809	214.9812	3.532398059	0.330413773
	3rd Qtr.	0.23299611	1.934498451	1.164650216	218.41	3.239252634	0.326335861
	4th Qtr.	0.225309282	2.851258349	1.335457901	218.66	3.839769344	0.29666519
2007	1st Qtr.	0.120573931	2.73239376	1.09131516	220.44	3.432904024	0.271841607
	2nd Qtr.	0.193124598	2.681241237	0.991669007	222.36	3.547056665	0.255272505
	3rd Qtr.	0.193124598	2.672097858	1.055378331	222.33	3.46998068	0.235528447
	4th Qtr.	0.146128036	3.253095586	1.026533265	222.25	4.34684177	0.206825876
2008	1st Qtr.	0.130333768	2.252124553	1.940516485	223.06	3.484216979	0.204119983
	2nd Qtr.	0.173186268	4.256236533	1.950364854	223.77	4.349801862	0.155336037
	3rd Qtr.	0.201397124	2.260548373	2.911157609	224.31	5.350848635	0.045322979
	4th Qtr.	0.204119983	2.259593879	1.860338007	224.53	5.512743764	0.934498451
2009	1st Qtr.	0.222716471	2.257678575	2.789580712	225.85	6.353820095	0.851258349
	2nd Qtr.	0.225309282	3.246990699	1.928395852	226.06	5.542237233	0.73239376

	MONTH	A/C Receivable Turnover Period	Inventory Turnover Period	A/C Payable Turnover Period	Cash Conversion Cycle	Capital Adequacy	Return On Assets
		AR	IM	AP	CM	FS	FP
	3rd Qtr.	0.5774918	3.14176323	1.906335042	228.39	6.586770845	0.681241237
	4th Qtr.	0.783903579	4.137670537	1.889861721	228.22	5.58353701	0.672097858
2010	1st Qtr.	0.814247596	2.135768515	1.916980047	230.03	3.617844794	0.662757832
	2nd Qtr.	0.804139432	2.135450699	1.926342447	231.47	5.644947116	0.633468456
	3rd Qtr.	0.784617293	2.135450699	2.935507266	227.67	3.573058075	0.62324929
	4th Qtr.	0.833147112	2.136403448	2.936513742	226.56	4.55183236	0.579783597
2011	1st Qtr.	0.770115295	3.133858125	2.938519725	226.32	6.354722934	0.51851394
	2nd Qtr.	0.753583059	3.133858125	2.942999593	225.24	4.526455187	0.342422681
	3rd Qtr.	0.767155866	3.137037455	2.941014244	225.05	7.522790173	0.278753601
	4th Qtr.	0.750508395	3.135450699	2.925312091	224.91	6.352008766	0.176091259
2012	1st Qtr.	0.806179974	2.136720567	2.914871818	225.22	5.526069541	0.146128036
	2nd Qtr.	0.773786445	3.135132651	2.912753304	225.93	5.397390232	0.204119983
	3rd Qtr.	0.808210973	3.136403448	1.910090546	228.16	6.582395082	0.230448921
	4th Qtr.	0.840106094	3.137037455	1.907948522	228.59	6.905722763	0.301029996
2013	1st Qtr.	0.840733235	3.136086097	1.903632516	231.93	7.365356928	0.431363764
	2nd Qtr.	0.839478047	4.13481437	1.903632516	233.03	6.674118352	0.380211242

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	MONTH	A/C Receivable Turnover Period	Inventory Turnover Period	A/C Payable Turnover Period	Cash Conversion Cycle	Capital Adequacy	Return On Assets
		AR	IM	AP	CM	FS	FP
2014	3rd Qtr.	0.843232778	4.135132651	2.905256049	235.23	5.714927086	0.278753601
	4th Qtr.	0.845718018	4.136086097	2.904715545	234.65	5.704205585	0.342422681
	1st Qtr.	0.835690571	3.13001195	2.904174368	234.38	6.697722886	0.322219295
	2nd Qtr.	0.827369273	4.121887985	2.903089987	234.97	5.710124169	0.462397998
	3rd Qtr.	0.822168079	4.122215878	2.900913068	237.13	6.749865013	0.591064607
	4th Qtr.	0.819543936	4.121231455	1.895974732	238.04	7.766499416	0.633468456
2015	1st Qtr.	0.814913181	4.117271296	2.88592634	238.31	6.771422667	0.633468456
	2nd Qtr.	0.822168079	4.122215878	1.900913068	237.13	6.783797293	0.591064607
	3rd Qtr.	0.819543936	4.121231455	1.895974732	238.04	7.380934463	0.633468456
	4th Qtr.	0.814913181	4.117271296	2.88592634	238.31	7.842458578	0.633468456
2016	1st Qtr.	0.814247596	4.106530854	2.883093359	238.99	8.440718231	0.633468456
	2nd Qtr.	0.80140371	5.102433706	3.883093359	240.45	8.841741388	0.579783597
	3rd Qtr.	0.755874856	6.100715087	3.878521796	242.24	8.24585782	0.643452676
	4th Qtr.	12.53	5.097951071	3.866877814	242.33	8.440718231	0.643452676

Source: Author, (2019)

Appendix II: Manufacturing And Allied Co. Listed at NSE 2016-2017

1. B.O.C Kenya Ltd

2. British American Tobacco Kenya Ltd

3. Carbacid Investments Ltd

4. East African Breweries Ltd

5. Eveready East Africa Ltd

6. Flame Tree Group Holdings Ltd

7. Kenya Orchards Ltd

8. Mumias Sugar Co. Ltd

9. Unga Group Ltd

Source: (NSE) Report, (2019)

Appendix III : Research Permit

THIS IS TO CERTIFY THAT:
MS. RUTH MARENYA OCHIENG
of KENYATTA UNIVERSITY, 58607-200
NAIROBI, has been permitted to conduct
research in *Nairobi County*

Permit No : NACOSTI/P/19/55266/28132
Date Of Issue : 15th February, 2019
Fee Recieved : Ksh 1000

on the topic: *WORKING CAPITAL*
MANAGEMENT AND FINANCIAL
PERFORMANCE OF MANUFACTURING
AND ALLIED CATEGORY OF FIRMS
LISTED AT THE NAIROBI SECURITIES
EXCHANGE, KENYA,

for the period ending:
14th February, 2020

....
Applicant's
Signature

....
Director General
National Commission for Science,
Technology & Innovation

Appendix IV : Ministry of Education Letter

MINISTRY OF EDUCATION
STATE DEPARTMENT OF EARLY LEARNING & BASIC EDUCATION

Telegrams: "SCHOOLING", Nairobi
Telephone: Nairobi 020 2453699
Email: rcenairobi@gmail.com
cdmnairobi@gmail.com

When replying please quote

REGIONAL COORDINATOR OF EDUCATION
NAIROBI REGION
NYAYO HOUSE
P.O. Box 74629 – 00200
NAIROBI

Ref: **RCE/NRB/GEN/1/VOL. 1**   DATE: **2ⁿᵈ May, 2019**

Ruth Marenya ochieng
Kenyatta University
P O Box 43844-00100
NAIROBI

RE: **RESEARCH AUTHORIZATION**

We are in receipt of a letter from the National Commission for Science, Technology and Innovation regarding research authorization in Nairobi County on **"Working capital management and financial performance of manufacturing and allied category of firms listed at the Nairobi Securities Exchange, Kenya".**

This office has no objection and authority is hereby granted for a period ending **14th February, 2020** as indicated in the request letter.

Kindly inform the Sub County Director of Education of the Sub County you intend to visit.

2 MAY 2019

JAMES KIMOTHO
FOR: REGIONAL COORDINATOR OF EDUCATION
NAIROBI

C.C

Director General/CEO
Nation Commission for Science, Technology and Innovation
NAIROBI

Appendix V : Kenyatta University Approval Letter

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke   P.O. Box 43844, 00100
                                                            NAIROBI, KENYA
Website: www.ku.ac.ke   Tel. 020-8704150

Internal Memo

FROM: Dean, Graduate School   DATE: 21st January, 2019

TO: Ms. Ochieng Ruth Marenya   REF: D58/CTY/PT/23586/2013
         C/o Department of Accounting & Finance

SUBJECT: APPROVAL OF RESEARCH PROPOSAL
==

This is to inform you that Graduate School Board, at its meeting on 9th January, 2019, approved your Research Proposal for the M.Sc. Degree entitled, **"Working Capital Management and Financial Performance of Manufacturing and Allied Category of Firms Listed at the Nairobi Securities Exchange, Kenya."**

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

Thank you.

JACKSON LUVUSI
FOR: DEAN, GRADUATE SCHOOL

· CC.   Chairman, Department of Accounting & Finance

         Supervisors:
                 1.   Dr. Ambrose Jagongo
                       C/o Department of Accounting & Finance Dept.
                       Kenyatta University

                 2.   Dr. Fredrick W. S. Ndede
                       C/o Department of Accounting & Finance
                       Kenyatta University

JL/cww