THE EFFECT OF WORKING CAPITAL MANAGEMENT ON FINANCIAL PERFORMANCE OF MANUFACTURING COMPANIES LISTED AT THE NAIROBI STOCK EXCHANGE

BY

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DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than the University of Nairobi for academic credit. I further declare that I followed all the applicable ethical guidelines in the conduct of the research project report.

Signature: …… Date: …….....

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This research project report has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

I dedicate this work to the Almighty God and to my family; my dearest mum Norah Symekah and dad Isaac Symekah as well as my siblings, for their encouragement and support throughout my studies. A special mention to my good friends whose input is invaluable.

ABSTRACT

The objective of the study was to assess the effect of working capital on financial performance of manufacturing firms listed in the Nairobi Stock Exchange. Operating profit Margin profoundly depends on the ability of financial managers to effectively manage the components of working capital. Efficient working capital management includes planning and controlling of current liabilities and assets in a way it avoids excessive investments. The study was conducted using descriptive research design to determine the frequency of occurrence or extent to which the variables were related. The study's population consisted of Allied and Manufacturing firms listed on the Nairobi Security Exchange as at 31st Dec 2016. The study employed a census on 10 manufacturing companies and therefore no sampling was carried out. This was because the population for the study was relatively small to carry out sampling. The study used secondary data from audited financial statements to obtain data relating to the research question. The data was analyzed through the use of regression analysis and correlation analysis. The correlation Coefficient and Coefficient of determination were used to test whether the expected values of quantitative variable with several pre-defined groups differed from each other. The study found that there is a significant effect of working capital management on financial performance of manufacturing firms listed in the Nairobi Stock Exchange.The study results indicated a positive relationship between CCC and profitability. It negates traditional view but consistent for manufacturing firms which require to hold higher inventory because of production, hence they need raw materials, work in progress and inventory buffer. Due to this inherent requirement to hold higher inventory, the study recommends manufacturing firms should be more vigilant in managing working capital to avoid overstocking which could negatively affect financial performance. Also, manufacturing firms may need to offer their products on credit to avoid expiry for perishable goods or to balance between holding cost vs sales. The study also recommends appropriate management of Accounts payables days to ensure cash payed out is not more than cash received.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
CCC	Cash Conversion Cycle
LEV	Leverage
CBK	Central Bank of Kenya
NSE	Nairobi securities exchange
AR	Accounts receivable
AP	Accounts Payable
GDP	Gross Domestic Product.
WC	Working Capital
SMESs	Small Medium Enterprises
SPSS	Statistical Package for Social Science

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Working capital comprises the operating liquidity available to an organization. It is considered as part of operating capital along with fixed assets. Working capital comprises of two components, gross and net working capitals (VanHome &Wachowicz, 2004). In this regard, working capital management ensures that there is a balance in all the vital working capital components namely: payables, inventories, cash and receivables. This acts to ensure proper coordination in the finances and maximization of resources (Deloof, 2003).

Efficient working capital management has been established to be a major determinant of how most organizations perform (VanHome &Wachowicz, 2004). Organizations with proper working capital management are able to coordinate their operations and are thus able to meet all their short term financial obligations and minimize risk as well (Eljelly, 2004). This is supported by previous research theories such as Baumol's Cash Management Model, Miller-oor Model and Cash Conversion Theory which explain how best working capital may be managed to ensure improved performance. However, the empirical studies conducted seem to have contradictory findings on the relationship that exists between the variables (Makori D.M Jagongo 2013).

The manufacturing industry in Kenya has grown rapidly in the past two decades to become among the largest sector, preceded by transport, agriculture, and communication (Republic of Kenya 2016). The sector contributes to over 18% of the country's GDP, while employing about 2.3 million people in both rural and urban areas. Though this rapid growth aims at improving the sector even further, it has resulted in intensification in competition

among the companies (Muscettola, 2014). This necessitates the manufacturing industry to closely evaluate their capital structures so as to attain competitive advantage. This study aimed at shedding more light into this as the available literature is not sufficient enough in describing the relationship that exists.

1.1.1 Working Capital Management

Working capital management entails managing of the entity's current liabilities and assets to ensure that the entity has the required liquidity. Working capital management may also be termed as monitoring the working capital and short-term financing decisions (Garrison, 1999). It involves ensuring that the corporate funds are well managed so as to ensure the shareholders capitals are maximized, resources are fully utilized and borrowing is minimized.

Effective cash management ensures the timely provision of cash resources necessary to support the company's operations. This constitutes the organization's payables, the receivables and inventory whereby a balance ought to be attained between the risks and the returns. All the items found in the firms' statement of assets and liabilities are considered as useful tools in accessing the ability of a firm in meeting its financial obligation. This represents not only the short-term liquidity but also the management's ability to utilize the assets well. Hence showing that working capital is a concept of high importance in most organizations. (Deloof, 2003)

The main aim of working capital management is to create and sustain a balance among all the components of working capital. The success is thus being based on how well financial managers are able to coordinate receivables, payables and inventory (Filbeck & Krueger, 2005). This has seen most firms have invested huge amount of capital in working capital

and utilizing the trade payable as a source of finance (Deloof, 2003). However, investing in working capital ought to be well monitored as it may impact negatively on the performance if not well managed (Vishnani, 2007).

This study was aimed at finding out how well the manufacturing companies listed in the Nairobi stock exchange create and sustain balance between the receivables, payables and inventory and what would be their overall implication on the operating profits of this companies.

1.1.2 Financial Performance

Performance can be described by how well the business is doing in wealth creation and acquisition of resources (Golda, 2013). It is used also to measure the financial health of a firm over a certain period. This entails the extent to which the organization is able to accomplish its set targets and objectives. The financial performance may be compared in different firms so as to establish the most performing or the dominant one in aggregation. Codjia (2010), terms financial performance as an analysis of financial statements in organizations so as to establish the profitability.

Over the years different approaches have been suggested in measuring the financial performance in organizations: both financial and non-financial means. The financial means include: Return on Asset, Return on Investment and Return on Equity. Return on Assets refers to how well the available resources are utilized in attaining profits. Whereas Return on Investments constitutes how much of the capital investment is returned back into the business. These measures are derived from the accounts of an organization or can be found in the company's profit and loss statement or the balance sheet.

Quantitative and qualitative measures of firm performance include profitability, efficiency and flexibility. These are used to determine how effective the organization is in accomplishing its tasks and operations. Additionally, ratios are incorporated in the assessing financial performance of organizations to establish the extent of control on the financial affairs as a factor of the aforementioned measures. The ratios portray the relationships between two financial balances or calculations in determining how well a certain entity performs. This extends the traditional way of accessing financial performance that relied entirely on the financial statements balances review (Saliha, 2011).

For the purpose of this study, Operating profit was used to measure the financial performance of the manufacturing companies listed in the Nairobi Stock exchange. It measures the ability of management to generate income by utilizing the company assets at its disposal. In other words, it shows how efficiently the currents assets and current liabilities of the manufacturing firms are used to generate the income as measured. It further indicates the efficiency of management of a company in generating net income from all the institutions assets (Khrawish, 2011).

1.1.3 Relationship between Working Capital Management and Financial Performance

The relationship that exists between efficient working capital management and financial performance is one that has received considerable attention from both scholars and academicians. This is due to the high potential which lies on the effective management of capital structures in firms. Particularly, working capital management is hypothesized to play a significant role in the overall corporate strategy in maximizing the shareholder value (Dong & Su, 2010). The organization can more effectively control its finances and meet both its long term and short term financial obligations (Nwankwo and Osho, 2010).

The capital management enables firms to be prepared for any unexpected changes in the environment thus ensuring competitive advantage is attained (Filbeck & Krueger, 2005: Afza & Nazir, 2007). Various theoretical models have also been formulated in establishing a framework through which the capital management may be used in improving the organization performance. However, there exists no simplicity in application of these theories as the studies conducted have obtained mixed results (Alshubiri, 2011). While some scholars believe a positive relationship exists, others hold that working capital management may lead in additional expenses being incurred thus diminishing organization's returns. Hence, this study showed that the subject is inconclusive and thus the study was aimed at addressing this.

1.1.4 Manufacturing Firms Listed at the Nairobi Stock Exchange

As already alluded to, in Kenya, the manufacturing sector is termed as one of the key components in enhancing economic development. The sector contributes significantly to both the GDP and providing jobs to millions of people. This has seen the sector incorporated in the Vision 2030 blueprint as it is considered to be one of the important pillars in the economy. The sector has been growing rapidly in the recent past with more players introduced in the industry. This growth is projected to increase even further to the rate of over of 8% over a duration of two decades (Kenya's Economic Outlook, 2011). Hence, it is paramount that the firms in the manufacturing industry perform well financially. One way to ensure that this is achieved is for the firms to effectively manage their working capital to enable them to meet their short term maturing obligations and generate profits.

There are currently ten companies listed on the manufacturing segment at the Nairobi Security Exchange (NSE). Five of these companies are used in determination of daily NSE index (NSE, 2015). The ten companies listed on the manufacturing segment include: BOC Kenya, British American Tobacco, Carbacid, East African Breweries, Mumias Sugar, Unga group, Eveready East Africa, Kenya Orchards, Athi River Mining and Bamburi Cement

1.2 Research Problem.

Manufacturing companies in Kenyan economy have been recognized for their role in provision of goods and services, enhancing competition, fostering innovation, generating employment to masses and in effect, alleviation of poverty. Despite their importance, manufacturing companies still underperform, and this can be linked largely to inefficiency in managing their working Capital. Working capital management has been deemed as a core role in most organizations; therefore, its insufficiency could impact negatively on the entire firm's operations (Arnold, 2005).

Studies have been conducted both locally and internationally trying to investigate the relationship that exists between working capital and financial performance. Kumar and Sharma (2011) investigated the effects of working capital on Indian firms' profitability and obtained a positive relationship. Muscettola (2014) conducted a study on cash conversion cycle and profits of enterprises in Italy and also established the same. Additionally, studies conducted by Ehiedu (2014), Waweru (2011) and Waithaka (2012) found out that working capital management has a significant and positive influence on the organizations returns. On the contrary, Makori D.M Jagongo (2013) who examined working capital management in firms in Kenya found the relationship to be insignificant. This concurs with Mutungi

(2010), who established no relationship at all between the variables. This therefore shows inconsistency in the findings.

On the other hand, Mathuva (2009), examined the influence of Working Capital Management components on corporate profitability by sampling 30 firms listed in the Nairobi Stock Exchange for the period 1993 -2008. His findings were similar to Raheman and Nasr (2007), who concluded that there existed a highly significant negative relationship between the time it took for firms to collect cash from their customers and profitability. However, he differed with Raheman and Nasr (2007) when he concluded that there exists a significant positive relationship between the period taken to convert the inventories into sales, the time taken to pay creditors and profitability.

It's the conflict between the findings of Mathuva (2009), and Raheman and Nasr (2007) that motivated this study on the effect of working capital on financial Performance. The findings reviewed imply that the impact that working capital management can have on the organizational performance has not been fully conclusive. Although various factors have been established to determine how the SMEs performed, the influence that the working capital management can have has not been well established. Additionally, there is scarcity of studies conducted locally, as most have been conducted in the developed countries. If Kenya is to become competitive through growth of the manufacturing sector, it is inevitable that more attention must be paid to addressing their working capital managements. This study seeks to fill the research gap and aim to answer the research question; what is the influence of managing working capital on performance of manufacturing companies listed on the Nairobi Stock Exchange?

1.3 Research Objective

The objective of the study was to determine the effect that working capital management has on financial performance of manufacturing companies listed on the Nairobi Stock Exchange.

1.4 Value of the Study

The findings of the study can help regulatory bodies which include The Central Bank of Kenya(CBK), the National Treasury and the Kenya Revenue Authority(KRA). CBK can use the findings of the study in the formulation of proper liquidity policies and regulations governing manufacturing companies. The study can help to The National Treasury and KRA as they seek to generate and increase national revenues.

Management of manufacturing companies both in Kenya and outside Kenya can greatly benefit from the research findings and recommendations to be drawn from this study as it provides give insights for management to make informed decisions for growth and sustainability of the companies.

Academicians and researchers can use the study to provide supplementary knowledge to the existing ones and provide a platform for further research.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature and concepts pertaining to previous reaserch on working capital management and financial performance. It presents the theories which the study is anchored on and their implications to the study. There is also the empirical review that presents similar studies done by other scholars on the topic. The chapter concludes with a summary of the literatures and an overview of the conceptual framework.

2.2 Theoretical Literature Review

Theories are concepts, perspectives or principles which people make sense of the experiences they go through in the world (Stoneret al., 2003). This study was guided by three main theories which provided a framework through which the study was conducted. This include; Baumol's Cash Management Model, Miller-oor Cash Management Model, Operating Cycle Theory and Cash Conversion Cycle Theory.

2.2.1 Baumol's Cash Management Model

This theory was formulated by Baumol (1952) so as to reduce the total opportunity cost incurred by holding cash or trading costs brought about by cash conversions. The theory provides an approach of determining the firm's cash balance with certainty and holds that cash management ought to be closely monitored with similar interest as inventory management problem. Hence, it postulates that the organizations should attempt to reduce the cost sustained in holding cash and the cost of conversion of market securities into cash.

Based on this approach, treasury managers are required to ensure that a balance is struck between holding liquid cash and marketable securities (Pandey, 2008). According to Cornett, McNutt and Tehrania, (2009) this trade-off leads to an increase in opportunity cost of holding cash that results

in low cash levels and high trading cost that are brought about by the investment. The opportunity costs constitutes the interests not attained when the funds are held in cash instead of being invested while trading costs are the fixed costs incurred when a firm either sells or buys marketable securities. In this regard, low cash levels can result in low costs as there can be little idle cash and high trading cost as the number of transactions increase. Whereas high cash levels result in high opportunity costs brought about by more un-invested cash and lower trading costs due to few transactions being required (Pandey, 2008).

The limitation that the model, is that it perceives that the firms have a definite and perfectly disbursement rate for cash (Cornett, McNutt and Tehrania, 2009). This theory was relevant to the study because manufacturing firms listed on NSE endeavour to ensure that they have minimal total cost in holding cash and converting marketable securities to cash. The theory's proposition is that through considering cash management as inventory management, they may be able to obtain a balance in their working capital hence leading to improved organizational performance.

2.2.2 Miller-oor Cash Management Model

This model was formulated by Miller and Orr (1966) in an attempt to overcome the limitations of Baumol's model. The theoretical model assumes that the net cash flows are uniformly distributed with no value in standard deviation and averages. The firm sets its requirements in maintaining cash balance as its lower limit and upper limit being both the control limit and the return point. In case the cash balance attains the upper limit, the organization may purchase enough securities so as to rebalance the cash balances. Similarly, when the cash balances approach the lower limit, the organization may sell enough securities to regain the normal cash balance levels (Pandey, 2008).

There is therefore a need to maintain cash at an ideal level which may result in excess idle cash leading to increased cost from mishandling, waste and theft. Too much or inadequate level of cash

balances mean cash (working capital investment) is not properly utilized. Inadequate level of cash balance for example can lead to disruption in business operations (Padachi, 2006) from supplier actions. A company may be profitable but without liquid cash, it can result to operations interruptions and be forced into winding up by its creditors. This theory is relevant for this study because manufacturing companies in Kenya need to have appropriate levels of cash to finance their operations and assure continuous production so as to enhance their financial performance.

2.2.3 Operating Cycle Theory

The Operating Cycle Theory was initially introduced by Weston and Eugene in 1979. The theory holds that liquidity in organizations may be best developed by including the firm's operating activity in the balance sheets. Particularly, incorporating both the account receivables and inventory turnover determinants into an operating cycle can ensure a more detailed review of the liquidity management. These however can be largely dependent on the production process, sales and collection procedure which ought to be well coordinated (Weston & Eugene, 1979).

Account receivables measures the rate at which the organizations investment in credit sales is turned into liquid cash (Richards & Laughlin, 1980). High account receivables level leads to higher current and acid-test ratios, which measures the extent that firms meet their short term obligations. While the inventory turnovers show how often the organization’s stock in raw materials and complete goods are converted into sales. Adopting more stringent inventory strategies requires optimal inventory levels leading to higher turnover ratios (Weston & Eugene, 1979).

The firm's operating cycle is determined by the total number of days taken by both the account receivables and the inventory investments. However, the operating cycle is deficient as a measurement of cash flow as it does not take into considerations the liquidity requirements incurred by the organization during its current liability commitments (Richards & Laughlin, 1980). This

theory is relevant for this study because management of manufacturing companies in Kenya should properly manage their operating cycles so as to enhance their performance.

2.2.4 Cash Conversion Cycle Theory

The theory was developed by Gitman (1974) and has since been further developed to explain various concepts. The theory uses operating cycle by summing up the inventory and the receivable periods, less the accounts payables days. The theory considers the time taken from when the raw materials are acquired up to when inflows from the sales of the final goods are obtained. The theory thus encompasses the relations between all the constituents of the working capital management and the inflow of cash. It may thus be used in determining the amount of money required in a particular sales level (Gitman, 1974).

Based on this theory, it is desirable to have a shorter cash conversion cycle. This may be achieved by reducing the turnover periods for the inventory and collection period for the accounts receivables (Brigham & Houston, 2007) and ensures that the investment is less as opposed to having a longer cash conversion cycle. Having a shorter CCC can result in improved returns of the firm but the other operational constraints must also be taken into consideration. However, other studies have established that having a longer cycle would be profitable as additional investments may anable the corporate organization to take advantange of unforeseen demand and therefore faster returns (Arnold, 2008).

The theory's preposition to the study is that the manufacturing firms listed on the NSE should shorten their Cash Conversion Cycle to ensure the maximization of the shareholders' value at the shortest time possible. While on the contrary, a higher CCC tend to lower the returns due to the lengthened duration as cash is tied up in working capital. Hence performance of the manufacturing firms is increased when there is a shorter cash conversion cycle (Sharma & Kumar, 2011).

2.3 Empirical Literature Review

This section reviews the international and local studies on the concept of working capital management and performance.

2.3.1 International Evidence

Gill, Bigem and Mathur (2010) investigated the impact that working capital management has on profitability in the United States of America. The population was obtained by sampling 88 American firms listed on NYSE. Regression analysis and correlation method was used. The finding shows that slow collection of credit accounts results in lower profits while reducing the credit period given to the customers can boost returns.

Mamta (2011) analyzed the working capital management of Nahar Spinning Mills over five years for the periods 2003-04 to 2007-08. The aim of the study was to examine the working capital position, analyze the cash position, and examine the inventory position. The study found out that the cash to working capital ratio was not satisfactory because the company held very little cash to perform routine activities. The study indicated that the company should aim to improve its short term financial soundness, as the large debtor balances were affecting current liabilities adversely.

Kumar and Sharma (2011) explored the effects of working capital on Indian firms' profitability. The researchers collected data for non-financial firms listed at (BSE). The study revealed that inventory and payable have a negative correlation with firm's profitability, however, cash conversion period and accounts receivables number of days positively affected corporate profitability. the study concluded that managing working capital results in to a positive relationship to firm profitability.

Muscettola (2014) examined the cash conversion cycle on manufacturing small and medium enterprises in Italy. The study used three independent variables namely sales outstanding, inventory, payable outstanding and cash conversion cycle. The findings concluded that the average receivables period had a positive effect on profitability. The effect of cash conversion cycle on performance was not conclusive.

2.3.1 Local Evidence

Mutungi (2010) conducted a research on the relationship between working capital management and financial performance of oil marketing companies in Kenya. The study was inspired by the fact that working capital in any firm is extremely critical and requires conscious balance between the components on the working capital namely cash, receivables, payables and inventory. From the correlation analysis, the study found an existence of aggressive working capital policy in the oil sector.

Waithaka (2012) as well did her study on the working capital management practices in Agricultural companies listed at the Nairobi Securities Exchange. The research adopted a descriptive design to collect data on the variables. The findings concluded that financial performance was positively related to cash management, receivables management and inventory management.

Makori and Jagongo (2013) examined working capital management in construction firms in Kenya. Study results showed a positive impact of days payable on firm profits. The key findings showed that firm management undertake to create higher shareholders value by; reducing accounts receivable days but adding the inventories days to a reasonable level and lastly using longer time to settle their debts. The adoption of these tactics can lead to competitive advantage that can in turn lead to higher shareholder wealth value.

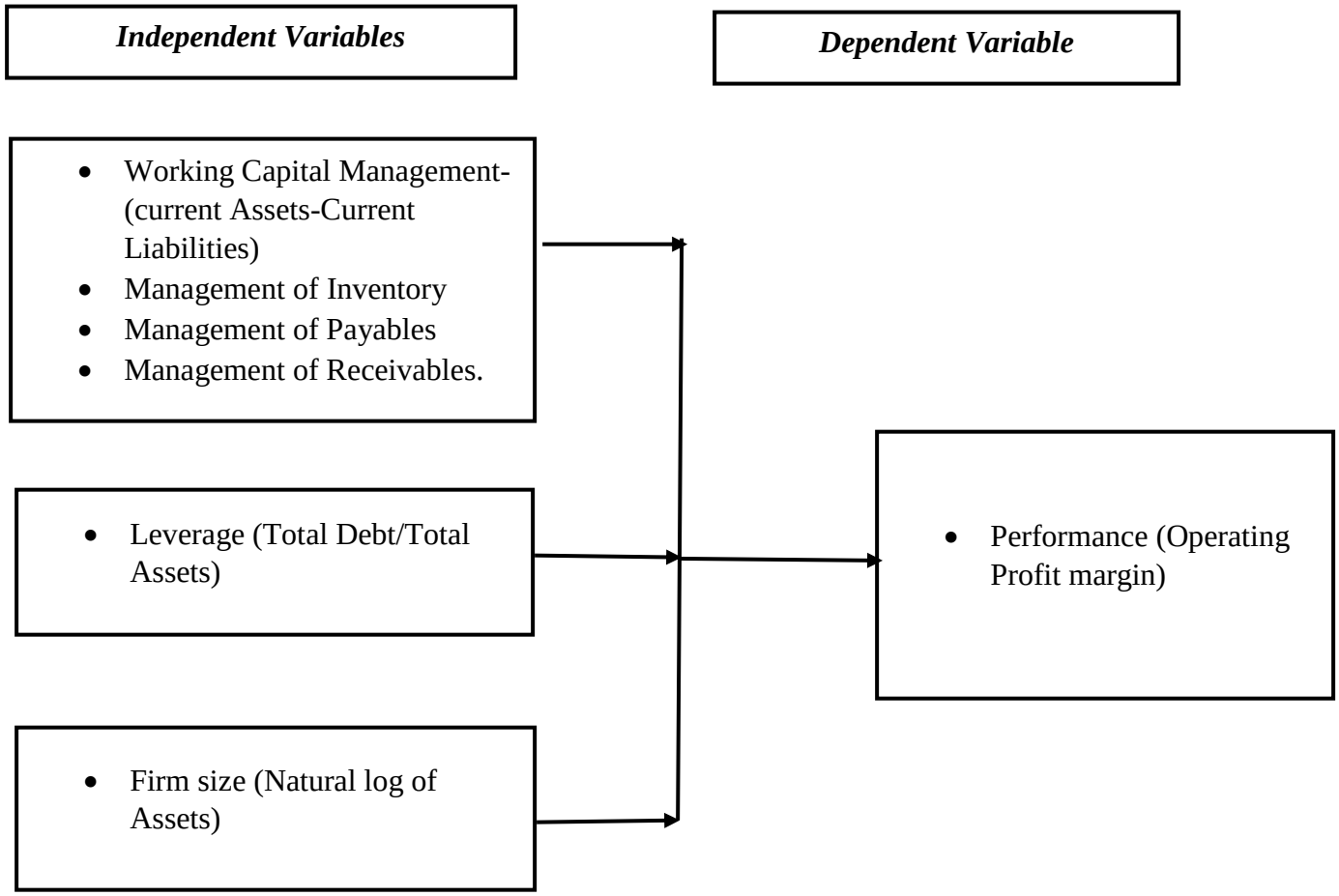
Lumbasi (2014) examined the working capital management in the electricity power sector in Kenya. The findings showed that firm managers endeavor to create firm value by reducing collecting receivables days. On the contrary, the research findings showed that, cash conversion cycle and average inventory period have a positive relationship with firm profitability which implies that firms' management endeavors to increase firm inventory so as to avoid instances of stock-outs by reducing on procurement materials difficulties in order to meet customer demands.

Gatumu (2015) investigated the effect of working capital management on share returns of companies in the Nairobi Stock Exchange. The study used the market price per share to measure firm value. A positive relationship was also found to exist between average payment period and firm value. The study recommended that managers should undertake to keep all the components of working capital management at optimal levels.

2.4 Conceptual Framework

The conceptual framework shows the interaction between independent variables and the dependent variable in the study (Mugenda and Mugenda, 2003). The conceptual framework for the study is presented in the Figure 2.1.

2. 1 Conceptual Framework



2.4.1 Independent Variables:

2.4.1.1 Working capital management

Working capital management refers to investment in current assets and current liabilities which are liquidated within one year or less and is therefore crucial for firm's day-to-day operations. It entails proper management of the entity's Inventory, Payables and Receivables to ensure that the entity has enough working capital to cover its obligations. There should be a balance between the three variables; for example a company should ensure that too much cash is not held in Inventory yet the

revenue collection from receivables is low and at the same time cash is flowing out from Payables department. Therefore, working capital management means an entity is managing its inventory, payables, Cash and receivables well. This helps to uphold a solid balance between growth, profitability and liquidity. This also shows the overall financial health of an entity, it is also a reflection of various company operations i.e. how effective is the revenue collection, inventory management, and payment of suppliers.

Poor management of inventory (ordering too much for production and yet sales are low), receivables (revenue collection is low, debtors are not paying), Payables (payment terms to suppliers are not favourable) leads to financial insolvency, liquidation of assets, legal troubles which is a cost to the company and potential bankruptcy which can eventually have a negative impact on the operating profit margin.

2.4..1.2 Leverage

Financial leverage (LEV) is used as a measure of capital structure. It has been captured by the ratio of total liabilities over total assets. Total liabilities include long-term debts, short-term debts and outstanding interest expenses on those debts. Long-term debts refer to the firm's outstanding debt that is repayable over the period of one year; and short-term debts are outstanding debt repayable within one year.

Financial leverage may have a negative impact on firm performance due to an increase in the level of indebtedness which raises the risk of bankruptcy and its associated costs of liquidation and potential legal fees.

2.4.1.3 Firm Size

Firm size is a primary factor in determining the profitability of a firm due to the concept of economies of scale in the neo classical view of the firm (Niresh and Velnampy 2014). The size of a firm has the potential to influence the firm's financial performance in terms of the choice of capital structure mix. As larger firms have an advantageous position in capital markets to raise external funds, they are less dependent on internal funds.

Firms size is seen by manufacturing companies as a resource in obtaining sustainable competitive advantage in terms of profit and market share. However, while some studies affirm the casual relationship between firm size and profit, others hold middle ground confirming partial results, while still, others have equally discounted it. This study aimed to establish whether there is indeed a relationship between firm size and profitability resulting from its choice of capital structure.

2.4.2 Dependent Variable

2.4.2.1 Financial Performance

Financial Performance for this research was measured using net operating profit margin in respect to the various components of working capital. The operating profit margin provides a lot of important information about a firm's profitability, particularly with regard to cost control as it shows how effectively cash is used after most of the expenses are met.

A high operating profit margin means that the company has good cost control and/or that sales are in an increasing trend.

2.5 Summary of the Literature Review and Research Gap

This chapter has reviewed the relevant literature for the study. Theories on which the study was firmly based on were reviewed as Baumol's Model of cash management, Miller-oor cash management model, cash conversion cycle theory and operating cycle theory. Besides the theoretical review, the chapter also reviewed the empirical studies done both at international and local environments.

Though these theories try to provide a framework for understanding how working capital may be best formulated and implemented so as to improve firm performance, the studies have not been fully conclusive on the relationship that exists. While some researchers obtained a positive relationship, others obtained a minimal to no relationship at all. Additionally, most of the studies have been conducted in the developed country and thus the findings may not be replicable in the developing countries. Locally, although some studies having been conducted, these have focused on different contexts and the results were contradictory. It is against this backdrop that this study was conducted, and aimed at filling these gaps by examining the effects of working capital management on financial performance of companies in the manufacturing sector.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter represents the method that was adopted by the study in addressing the objectives of the study. Particularly, the chapter is structured into the research design, population of the study, data collection method and how data was analysed.

3.2 Research Design

The research design represents the approach or scheme through which the entire study was conducted. The study employed the descriptive research design. This entailed obtaining information about a phenomenon using a systematic and detailed manner. It enabled close association between the variables to be made, and where possible draw valid conclusion.

Additionally, the descriptive research design ensured minimal interferences by the researcher hence the most appropriate for the study (Mugenda and Mugenda, 2003).

3.3 Population

This study's population consisted of allied and manufacturing firms listed on the Nairobi Security Exchange as at 31st Dec 2016. There are 10 manufacturing companies in the manufacturing segment of the Nairobi Security Exchange (NSE) studied over an 11 year period. The study employed a census on all the 10 manufacturing companies and therefore no sampling was carried out.. This was because the population for the study was relatively small to carry out sampling. A census design also enabled the collection of adequate information on all the manufacturing listed companies on the NSE. This resulted in 110 observations for all each of the variables tested.

3.4 Data Collection

The data collected was from secondary data. This data was collected from financial statements that are audited and published by the firms and the NSE. The study collected data for a ten-year period (2005 to 2015).

3.5 Data Analysis

The collected data was sorted, cleaned and then coded into the scientific analysis instrument, SPSS version 22. The data coded was analysed by both inferential and descriptive statistics and findings were presented using means, standard deviations and Tables.

3.5.1 Conceptual Model

The conceptual model for the study in line with its objectives is summarized diagrammatically in the model below;

$y = f(x_1, x_2, x_3)$.....(i)

Whereby; y represents the organization financial performance, while X1, X2, X3 the financial performance determinants namely; working capital management, leverage and the firm size. As such the working capital management is conceptualized to have a direct impact on the returns, which is moderated by the firm-specific factors. Hence a change in the working capital management would results in a positive or negative impact on the organization financial performance.

3.5.2 Analytical Model

To determine the influence of working capital management on performance of manufacturing firms, a multiple regression analysis was employed. The regression model that was adopted was in the form:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + €$.....(ii)

Where; Y = Financial Performance *(operating profit margin)*

X_1 = Working Capital Management *(Current Assets-Current Liabilities)*

X_2 = Size of companies *(Natural log of Total firm assets)*

X_3 = Leverage *(Total Debts/Total Assets)*

B_0 = Constant and β_1, β_2, and β_3 are regression coefficients.

3.5.3 Measure and Parametrization

The study variables definition and measurement are presented in Table 3. 1

Table 3. 1 : Description of Study Variables

Variable	Type	Description	Measurement	Expected Relationship
Financial Performance	Dependent	This is a measure of the extent to which an organization accomplishes its set targets and objectives.	This was measured by operating profit margin in the organizations.	Financial Performance is hypothesized as being positively related to working capital management.
Working capital management	Independent Variables	This is a component of the capital structure in organizations. It is required by the business to manage day-to-day operations	This was being measured by Current Assets-Current Liabilities.	Working Capital Management has positive effect on financial performance. Correlation analysis was used to show the relationship with dependent variable.

Variable	Type	Description	Measurement	Expected Relationship
Size of companies	Independent Variables	This is a proxy for the size of the Company listed at NSE.	This was measured by taking the logarithm of Total assets of each company.	Size of companies has positive effect on financial performance. Correlation analysis was used to show the relationship with dependent variable.
Leverage	Independent Variable	This is a component of capital structure.	This was measured by Total Debts/Total Assets	Leverage has positive effect on financial performance. Correlation analysis was used to show the relationship with dependent variable.

Source: Researcher, 2017

3.5.4 Diagnostic Tests

Diagnostic tests conducted included normality, auto-correlation, multi-collinearity and heteroscedasticity. Auto-correlation was tested using Durbin Watson test. Auto-correlation is an

assumption of regression analysis where the residuals are expected to be purely random and that they would not correlate with anything else, including with each other at different time points.

Heteroscedasticity is a situation in which the variance of the dependent variable varies across the data, as opposed to a situation where Ordinary Least Squares make the assumption that variance of the error term is constant. To test heteroscedasticity, Breach-Pagan/ Cook-Weisberg test of detecting heteroscedasticity in linear models was used.

Multicollinearity tests was conducted on the regression model so that incorrect conclusions about the relationship between dependent variable and predictor variables were avoided. Variance Inflation Factor (VIF) and tolerance degree was used to indicate presence of multicollinearity test. Multicollinearity was corrected by removing highly correlated variables. While normality was tested using degree of skewness and kurtosis. Quality of data obtained was ensured by obtaining accurate data from manufacturing firms' financial statements.

3.5.5 Test of Significance

The significance of the study was tested through conducting an Analysis of Variance (ANOVA). ANOVA was used as it compared group means by analysing comparisons of variance estimates; that is, whether the means of several groups were all equal. This enabled determining whether the model is sufficient in measuring the relationship that exists between the working capital management and financial performance of manufacturing firms listed at the Nairobi Stock Exchange. The of significance value obtained was tested at both the 5% significant level and 95% confidence level.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSIONS.

4.1 Introduction

This chapter entails the data analysis and the interpretation of the results. It comprises of the descriptive statistics, cross tabulations and Analysis of Variance (ANOVA)

4.2 Descriptive Statistics

The descriptive statistics tested included minimum values, maximum values, variance, standard deviation, skewness and Kurtosis statistics for all the respective variables.

To start with, the working capital was derived by netting the current liabilities from the current assets as per the data collection sheet. Current assets was obtained by summation of accounts receivables and inventories. On the other hand, the current liabilities was obtained by summing of all the account payables. The operating profit margin was obtained by taking the ratio of operating profit to the total sales. Size of the firm was obtained by taking the natural logarithm of total assets of the firm. Lastly, the leverage levels were obtained by taking the ratio of total debts to total assets of the firm.

Table 4.1 Descriptive statistics

	Working Capital	Leverage	Firm size	Operating Profit
Minimum	-2.60e+07	0.0136	13.0241	- 0.6156
Maximum	1.76e+07	1.1209	18.1816	1.18109
Mean	2075771	0.2418	15.9317	0.1843
Variance	3.37e+13	0.0563	2.0598	0.0553
Std. Dev.	5807089	0.2373	1.4352	0.23521
Skewness	-2.0642	1.9261	-0.24340	0.4647

Kurtosis	12.6648	6.2515	1.9161	6.9403
Observation	110	110	110	110

Source: Research Findings,2017

From the analysis, the study covered a period of 11 years from 2005 to 2015 for 10 companies listed under the manufacturing section of the Nairobi securities exchange. This amounted to 110 observations in total. This implies that the study dealt with the panel data since the data had both the cross-sectional dimension and the time series dimension. From the descriptive statistics the company with the minimum value of working capital was Ksh 2.60e+07 with the maximum working capital value being Ksh 1.76e+07.

The minimum leverage level was 1.36 percent with the maximum leverage level being 112.09 percent. The minimum firm size as measured by natural log of the total assets being 13.0241 while the maximum is 18.1816 while the minimum operating profit was a loss of 61.56 percent with the maximum being 118.11 percent.

The average value of the working capital for the 10 firms is Ksh 2,075,771 with the mean leverage level being 24.18 percent. The operating profit for the 10 manufacturing firms averaged at 18.43 percent with the average firm size being 15.9317.

Looking at the measures of dispersion, the results reveals that working capital has a measure of dispersion of 5,807,089 away from its mean value with the leverage level, firm size and operating profit having a dispersion away from the mean value of 0.2373, 1.4352 and 0.2352 respectively. The analysis reveals that working capital and firm size are skewed to the left with the leverage

levels and operating profit being skewed to the right. Based on the kurtosis values, the results conclude that all the variables are non – normally distributed given that none of the variables have has a kurtosis equal to 3.0. As such all the variables are leptokurtotic. However, this is statistically recognised to be a salient feature for the financial data given that they follow a random walk process.

4.3 Correlation Analysis

Table 4.2 Correlation Bivariate Coefficient among the variables

		OPM	CCC	Leverage	Firm size
Operating Profit Margin (OPM)	Pearson Correlation	1	0.596**	-0.227*	-0.249**
	Sig. (2-tailed)		0.000	0.017	0.009
	N	**110**	**110**	**110**	**110**
Working Capital (CCC)	Pearson Correlation	0.596**	1	-0.152	-0.250**
	Sig. (2-tailed)	0.000		0.113	0.008
	N	**110**	**110**	**110**	**110**
Leverage	Pearson Correlation	-0.227*	-0.152	1	0.424**
	Sig. (2-tailed)	0.017	0.113		0.000
	N	**110**	**110**	**110**	**110**
Firm size	Pearson Correlation	-0.249**	-0.250**	0.424**	1
	Sig. (2-tailed)	0.009	0.008	0.000	
	N	**110**	**110**	**110**	**110**

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

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

Source: Research Findings,2017

On the correlation analysis, a Pearson correlation coefficient was calculated for all the independent variables and the dependent variable as well. From the results, it is clear that the independent variables are not strongly correlated to each other. As such running a regression model would not suffer from the multicollinearity problem. From the analysis, operating profit margin has a significant positive relationship to the working capital but negatively related with leverage levels

and size of the firm. On the other hand, the working capital is negatively related to leverage levels and the size of the firm. However, the size of the firm is positively related to the leverage levels of the firm. The results from the correlation analysis therefore indicate that the problem of multicollinearity in the multivariate regression model is fairly muted given that no two independent variables are strongly related to each other.

4.4 Heteroscedasticity and Autocorrelation

Heteroscedasticity is a problem in which the variance of the error term across the variables is not constant. As such this problem tends to affect the testing of the hypothesis. On the other hand, autocorrelation arises when the error terms between the observations of variables are serially correlated. Presence of serial correlation leads to biased estimates of the model. As such given the problems arising from heteroscedasticity and autocorrelation, it calls for the two tests to be conducted prior to running the regression model.

Table 4.3: Test for heteroscedasticity and autocorrelation

Estimated covariance = 1				Number of observations = 110	
Estimated autocorrelations = 0				Number of groups = 10	
Estimated coefficients = 4				Time periods = 11	
				Wald chi2(3) = 12.24	
Log likelihood = 9.425832				Prob > chi2 = 0.0066	
	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]
Working Capital (CCC)	0.1772	0.1131	1.57	0.117	-.044555 .398964
Leverage	-0.1185	0.1007	-1.18	0.239	-.3158898 .0788007
Firm size	-0.0218	0.0173	-1.26	0.206	-.0557013 .0120205
Constant	0.5284	0.2767	1.91	0.056	-.0137881 1.070682

Breach-Pagan/ Cook-Weisberg test	
LR chi2(9) = 133.43	Prob > chi2 = 0.0000
Panels: homoscedastic	
Correlation: no autocorrelation	

Source: Research Findings,2017

From the tests results we conclude that there is no heteroscedasticity problem in the data. This is because the Breach-Pagan gives a chi square value of 133.43 whose respective probability is 0.0000. Since the probability is less than 5 percent we conclude that the panels in our data are homoscedastic and as such no problem of heteroscedasticity at 5% significance level. Similarly, for the autocorrelation, the results indicate that the estimated autocorrelations are zero. In a nutshell, given that we are dealing with panel data, we expect the heteroscedasticity and autocorrelation problem to be muted.

4.4 Regression Analysis and Analysis of Variance (ANOVA)

The results of the multiple regression and ANOVA as follows:

Table 4.4 Regression Analysis and Analysis of Variance (ANOVA)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.277	3	0.759	21.431	0.000[b]
	Residual	3.753	106	0.035		
	Total	6.030	109			

a. Dependent Variable: OPM

b. Predictors: (Constant), Firm size, CCC, Leverage

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.305	0.221		1.379	0.171

	CCC	0.001	0.000	0.564	7.117	0.000
	Leverage	-.116	0.084	-0.117	-1.382	0.170
	Firm size	-.010	0.014	-0.058	-.671	0.504

a. Dependent Variable: OPM

Source: Research Findings,2017

From the analysis, we find that working capital are all significant at 5 percent significance level in influencing the operating profit margin for the 10 manufacturing firms listed at the NSE. Leverage levels and firm size are found to be insignificant in influencing profitability at 5 percent significance level. From the results we find that a one-unit increase in the working capital increase the operating profit margin by 0.564 holding other factors constant. Regarding the leverage level the results indicate that a one-unit increase in the leverage ratio reduces the operating profit margin by 0.117 holding other factors constant while a one-unit increase in the firm size reduces the operating profit margin by 0.058 holding other factors constant.

From the ANOVA we find that all the variables jointly significantly determine operating profit margin at 5 percent significance level with the joint statistic test (F – statistic) of 21.431 and a respective probability of 0.00 which is less than 5 percent significance level.

4.6 Discussion of Results.

From the preceding results, firstly, the finding that the working capital positively impacts on the operating profit speaks to the need for the companies to properly manage their working capital so as to avoid falling short of the cash flows. This finding concurs with the finding by Kumar and Sharma (2011) who reports a positive relationship between working capital profitability of firms in India. In addition, the findings on the effect of working capital on profitability agree with the findings by Waithaka (2012) who reports a positively relationship between cash management,

receivables management inventory management and profitability of agricultural listed firms at the NSE. Further, the results of this study resonate with the findings of Makori and Jagongo (2013) who conclude a positive impact between payables and profitability of construction firms in Kenya. Therefore, the findings of this study negate the traditional belief about working capital and profitability that reducing working capital investment would positively affect the profitability of a firm. The findings also disprove the "aggressive policy" which calls for reduction of the proportion of current assets in total assets. The results conclude that a longer cash conversion cycle is likely to positively impact of the net profit margin for manufacturing firms in Kenya.

From this research findings, we can deduce that the effective and efficient management of the working capital is crucial to the listed manufacturing firms in Kenya. This is especially so because the industry calls for higher investment in working capital to improve on firm profitabilbity. The organizations trades - off the opportunity costs associated with investing in inventories and accounts receivable to ensure it hold sufficient working capital investment to support demand and production needs.

While it can be said that a firm having higher levels of receivable days may be an indication that the firm is having distress in collection of the receivables from its clienteles, it could also mean that firms have a less stringent policy to spur sales. Additionally, low levels of accounts payable days may signal that a firm it is not taking full advantage of opportunities to delay payment to creditors, but it could also mean that the firm is taking advantage of early payment discounts, which is a benefit to organizations. As such the balancing of the receivables' collection days and the payables' payment days directly influence the cash cycles that would in the long run impact on the firm's financial performance. Finally, we conclude that an optimal inventory level enables the firm to take

advantage of unforecasted demand while avoiding production downtime, but not too much as to incur expensive holding costs and increase distressed inventory costs. Firms needs to keep an eye on each of the components because they all contain valuable information about how efficiently the firm is managing its working capital.

4.7 Summary of the Chapter.

This study sought to determine the effect of working capital on the financial performance of the manufacturing firms listed at the NSE. From the study findings, the result concludes that higher investment in working capital positively impact on the operating profit margin of the listed manufacturing firm in Kenya. The results negate the traditional argument of aggressive policy that a reduction in the working capital investment would directly positively affect the profitability of a firm in the manufacturing industry. The findings of the study tend to agree with the previous studies in the area.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the study as reported in chapter 4 upon the data analysis. More specifically, the chapter covers a summary of the findings, conclusion, policy recommendations and lastly suggestion of the areas for further studies.

5.2 Summary of Findings

This study sought to determine the effect of working capital management on financial performance of manufacturing companies listed at the Nairobi Securities Exchange. The study coverer a period of 11 years from 2005 to 2015 for the 10 manufacturing firms that are listed at the Nairobi Securities Exchange. Working capital was measured by the total current assets net of total current liabilities. Firms' financial performance was measured by the operating profit margin. The size of the firm and the leverage levels were sued as the control variables for the model.

From the findings of the study, working capital for the 10 manufacturing firms for the period under review was found to positively affect the operating profit margin. More specifically, a one-unit increase in the working capital was found to cause a 0.564 change in the operating profit margin holding other factors constant. This implied that with proper management of the working capital the firms stand a good chance of posting good performance as measured by operating profit margin.

Regarding the leverage level the results indicate that a one-unit increase in the leverage ratio reduces the operating profit margin by 0.117 holding other factors constant though insignificant at 5 percent error of margin. This points out to the fact that high leverage levels do not necessarily translates into the increased financial performance as measured by the operating profit margin. From the capital structure theory, use of debt for financing firm's operations has an advantage in increasing the profitability of firm via tax shield. However, this seems not to be the case. We point out that use of more debt over equity could adversely affect the performance of the manufacturing firms.

From firm size perspective, the results assert that the firm size reduces the operating profit for the 10 listed firms from the 2005 – 2015 period under analysis. From the results, a one percent change in the firm size causes a reduction of 0.058 in the operating profit margin holding other factors constant. This implies that large firm are not necessarily profitable as this does not necessarily result in economies of scale, but could imply increase in fixed costs.

5.3 Conclusion

In conclusion, the findings of study reveal that working capital has a positive effect on the financial performance of the 10 listed firms going by the period of analysis of 2005 – 2015. This therefore calls for proper management of the working capital to avoid cash flow challenges in meeting the short-term liabilities of the firms. Any adverse effect on the working capital therefore definitely has an adverse effect on the operating profit margin. This calls for the firms to take into account proper management of the account receivables and the inventories at all times while at the same time taking a check on the account payables. On the leverage levels, the findings of the study concludes that the manufacturing firms need to observe the optimal mix in

the capital structure by balancing debt financing and equity financing. This is because it is not always guaranteed that by being more levered the firm benefits from the tax shield. Lastly, as the firms expand their operations, caution is called for since expansion comes with more risks and not necessarily guarantee increased profitability by mere size of being large.

5.4 Recommendations for Policy

Based on the findings of the study, a number of policy recommendations can be fronted. First, manufacturing firms in Kenya need to properly check on their working capital as this has a significant effect on their profitability. Caution should be exercised on the levels of the working capital since high levels of the working capital could result in liquidity constraints. Therefore, active management of working capital to balance between inherent costs of a longer CCC should and profitability growth is paramount for manufacturing organizations. High investment in inventory is detrimental to firms as high inventories come with additional cost such as storage costs.

Secondly the choice of the optima capital structure is key for the manufacturing firms. Usage of more debt in financing firm's operations exposes the firm to financial distress and it does not necessarily imply profitability arising from tax shield. The gains in the tax shield would be offset by high financial costs such as interest and debt covenants. Firm size could increase fixed costs which offsets economies of scales benefits, hence it is not necessarily beneficial in improving firm profitability.

5.5 Recommendations for Further Research

This study sought to determine the effect of working capital management on financial performance of manufacturing companies listed at the Nairobi Securities Exchange. Similar analysis can be extended for the other segments of the Nairobi Securities Exchange to find out whether similar results can be arrived at.

Further research can also be conducted for manufacturing organizations in the East African region.

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APPENDICES

Appendix One: Listed Manufacturing Companies

1. Unga Group Ltd
2. East African Breweries Ltd
3. B.O.C Kenya Ltd
4. Mumias Sugar Co. Ltd
5. Athi River Mining
6. Eveready East Africa Ltd
7. British American Tobacco Kenya Ltd
8. Bamburi Cement
9. Carbacid Investments Ltd
10. Kenya Orchards Ltd

SOURCE, NSE; (2017).

Appendix II: Data Collection Form

FIRM	AR	Inventory	AP	Cash		Total Asset	Total Debt	Operating Profit
1. Unga Group Ltd								
2. British American Tobacco Kenya Ltd								
3. East African Breweries Ltd								
4. Mumias Sugar Co. Ltd								
5. Bamburi Cement								
6. B.O.C Kenya Ltd								
7. Carbacid Investments Ltd								
8. Eveready East Africa Ltd								
9. Athi River Mining								
10. Kenya Orchards Ltd								