Effects of Working Capital Management on Profitability of Manufacturing Firms in Kenya

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DECLARATION

This Thesis is my original work and has not been presented for a doctorate degree in any other University.

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This Thesis is dedicated to my family Monica, Charles and Peter Kenneth.

ACKNOWLEDGEMENT

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS

AKI:	Association of Kenya Insurers
ANOVA:	Analysis of Variance
BIS:	Business Innovation and Skills
EOQ:	Economic Order Quantity
FPEAK:	Fresh Produce Exporters Association of Kenya
GDP:	Gross Domestic Product
ICPAK	Institute of Certified Public Accountants of Kenya
KAM:	Kenya Association of Manufacturers
MSE's:	Micro and Small Enterprises
NSE:	Nairobi Securities Exchange
OECD:	Organization for Economic Co-operation and Development
ROA:	Return on Assets
ROCE:	Return on Capital Employed
ROI:	Return on Investment
ROK:	Republic of Kenya
RON:	Republic of Namibia
SME's:	Small and Medium Enterprises
SPSS:	Statistical Package for Social Sciences
VIF:	Variance Inflation Factor
WCM:	Working Capital Management

DEFINITION OF KEY TERMS

Aggressive Financing Policy: It is defined as a working capital management policy that uses high levels of short term liabilities and low level of long term liabilities (Hussain, Farooz & Khan, 2012).

Aggressive Investment Policy: It is a working capital management policy that deals with the firm's active control and management of current assets with the aim of minimizing them (Hussain et al. 2012).

Average Collection Period: It the days sales outstanding and it is the average amount of time that a company holds its accounts receivables (Ross, Westerfield, Jaffe & Jordan, 2008)

Average Payment Period: It is the time taken to pay firms' suppliers (Mathuva, 2010). It is the figure that measures the average amount of time that a company holds its accounts payable.

Cash Conversion Cycle: It is the net time interval between cash collections from sale of a product and cash payments for the resources acquired by the firm (Pandey, 2008).

Current Ratio: It is ratio that is given by total current assets divided by total current liabilities. It is the ratio that indicates whether short term assets are sufficient to meet short term obligations (Pandey, 2008).

Inventory Turnover in Days: It is the days sales inventory and is the figure that measures the average amount of time that a company holds its inventory (Ross, Westfield, Jaffe & Jordan, 2008).

Large Enterprises: They are enterprises that employ over 100 workers (Kenya, Republic of, 1999; Kenya, Republic of, 2005)

Liquidity Ratios: Liquidity ratios are ratios that measure the relationship between a firm's liquidity or current assets and liabilities (Cornett, Adair, & Nofsinger, 2009). Liquidity ratios are computed by comparing the relationship between the various groups of current assets and current liabilities to measure the liquidity position of a company.

Medium Enterprises: These are enterprises that employ between 51 – 100 workers (Kenya, Republic of, , 1999; Kenya, Republic of, 2005).

Small Enterprises: These are enterprises that employ between 11 and 50 workers (Kenya, Republic of, 1999; Kenya, Republic of, , 2005).

Small and Medium Enterprises: These are enterprises that employ between 11 and 100 workers (Kenya, Republic of, , 1999; Kenya, Republic of, , 2005).

Working Capital: It is a firm's investment in short term assets such as cash, short term securities, bills receivable, inventory of raw materials and finished goods (Radhika & Azhagaiah, 2012)

Working Capital Management: It is the management of current assets and liabilities, and financing of those current assets. It is the financing, investment and control of the net assets within the policy guidelines (Khan, Jawaid, Arif & Khan, 2012).

ABSTRACT

In Kenya, manufacturing sector is the second most important sector after agriculture. It is important in terms of contribution to gross domestic product, employment and foreign exchange earnings. In the last decade, the manufacturing sector has been struggling to thrive and some key firms in the sector have closed operations. This is due to unfavorable working conditions. These problems compel companies to maintain either excessive or inadequate working capital levels. Both levels are undesirable. Therefore, the purpose of this research was to determine the effects of working capital management on profitability of manufacturing firms in Kenya. The study had five objectives, that is, to determine whether credit policy influences profitability of manufacturing firms in Kenya, establish the degree to which accounts payable practices influence profitability of manufacturing firms in Kenya, examine how inventory control practices influence profitability of manufacturing firms in Kenya, establish whether liquidity management practices influence profitability of manufacturing firms in Kenya and investigate whether working capital levels influence profitability of manufacturing firms in Kenya. The study employed a correlational research design. A questionnaire was used to collect primary data for the independent variables and a record survey sheet was used to collect secondary data for the dependent variable (profitability). The target population was 413 manufacturing firms in Nairobi industrial area and its environs. These firms were registered with Kenya association of manufacturers and were in the KAM 2011 directory. A sample of 81 chief finance officers filled in the questionnaire. The sample was determined using stratified random sampling method. Data received from secondary sources and from the chief finance officers was analyzed using Statistical Package for Social Sciences (SPSS) version 20.0. Both descriptive and quantitative analyses were used. In descriptive analysis, percentages of the responses and the mean were computed. Under quantitative analysis, Karl Pearson's correlation, regression and ANOVA analyses were used. The results of the study showed that there was positive linear relationship between

all independent variables (credit policy, accounts payable practices, inventory control practices, liquidity management practices and working capital levels) and the dependent variable (profitability) and all the models were significant. The null hypotheses in this study were rejected. The overall model was tested using the F-test at 5% level of significance. The findings of the analysis revealed that all the independent variables had a significant combined effect (R^2 = 0.933) on profitability of manufacturing firms in Kenya and can be used to predict profitability. The study makes the following recommendations; manufacturing firms to regularly review their credit policies, make early payments to their suppliers to enjoy good relationship with their suppliers, install and maintain modern inventory control systems, establish optimal cash targets, lower and upper limits and employ accountants with adequate knowledge in financial matters. On policy implication, the government of Kenya through the ministry of industrialization should create an authority to oversee the development and success of manufacturing sector so as to be in line with vision 2030. Companies should employ qualified accountants who are members of the institute of certified public accountants of Kenya.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Manufacturing sector in an economy remains one of the most powerful engines for economic growth. It acts as a catalyst to transform the economic structure of countries from simple, slow growing and low value activities to more vibrant and productive economies. Its productive economic activities are driven by technology and therefore enjoy great margins (Amakom, 2012). This brings about growth prospects in the economies. Manufacturing sector today has become the main means for developing countries to benefit from globalization and bridge the income gap with the industrialized world (Amakom, 2012). Manufacturing sector may be looked global, regional and local perspective.

1.1.1 Global Perspective

In the west, particularly, countries under organization for economic co-operation and development (OECD) are experiencing a declining trend in the manufacturing sector. There is loss of employment and manufacturing output. However, the sector continues to dominate in technology (OECD, 2006). Despite the decline in manufacturing sector in the west, in UK, the sector was third largest in 2009 after business services and wholesale/retail in terms of share of UK GDP. Manufacturing sector generated one-hundred billion pounds in gross value added. This represents more than 11% of the UK economy. It employed 2.6 million people, representing over 8% of total UK employment (BIS, 2010). In Ireland, the sector accounts for 46% of its GDP, 29% of total employment and 80% of its exports (Namimbia Republic of, 2007). The manufacturing sector in the developed nations is large and contributes a lot to the economic development.

In the east manufacturing sector is vibrant. It is the second largest sector of the economy of Pakistan after agriculture and it accounts for 19.1% of G.D.P (Raheman, Afza,

Qayyum & Bodla, 2010). In Singapore, the sector accounted for 27% of its GDP in 2005, 25% of its total employment and more than 50% of its exports (RON, 2007).

1.1.2 Regional Perspective

In Africa, manufacturing sector is equally important. In Namibia, the sector accounts for an average of 10.3% of the GDP and 8% of the total employment and 34.8% of its exports. In South Africa, the sector accounts for an average of 17.4% of its GDP, 9% employment and 40% of its total exports (Namimbia, Republic of, 2007). As nations achieve higher levels of economic growth, manufacturing sector seems to contribute more to the GDP, employment levels and the exports.

1.1.3 Local Perspective

In Kenya Manufacturing sector leads in foreign exchange earning accounting for 34% of the total earnings (Kenya Association Manufacturing [KAM], 2013). This fact has never been reported and should be seen in light of the need to promote exports. Table 1.1 below shows key contributors to export/foreign exchange earnings in 2012.

Table 1.1: Key Contributors to Export / Foreign Exchange Earnings in 2012

Item	Value in Billion Kshs	% Share
Manufactured Goods	175.3	34
Tourism	100.0	19
Horticulture	97.0	19
Tea	96.0	19
Coffee	17.0	3
Petroleum Products	13.5	3
Others	18.0	3
Total	**516.8**	**100**

Source: KAM (2013)

The manufacturing sector contributes about 10% to GDP. This is quite below what advanced countries in the east and west contribute to their GDP. However, the sector ranks second after agriculture in its contribution to GDP. In the period 2008 to 2012, the five most important sectors of the economy contributed together over 60% to GDP as shown in table 1.2 below:

Table 1.2: Key Contributors to GDP between 2008 and 2012

Sector	2008	2009	2010	2011	2012
Agriculture	21.7	22.3	23.5	21.4	24.0
Manufacturing	10.4	10.8	9.9	9.9	9.4
Construction	3.8	3.8	4.1	4.3	4.1
Trade	9.7	10.2	9.8	10.2	10.6
Transport & Communication	10.6	10.3	9.9	10.0	9.7
Financial Intermediaries	4.8	4.6	5.4	5.6	6.4

Source:Kenya, Republic of. (2013)

Manufacturing sector employs about 20% of the total workers in the economy. This proportion is higher than what other economies employ. This shows that the manufacturing sector is an important sector in the Kenyan economy. Thus, developing this sector further will generate more employment, foreign exchange and increased gross domestic product. In 2012, the total number of workers employed in the formal, private, public and informal sector stood at 2,105,000 against the total workers population of 11,399,800 (Kenya, Republic of. 2013). There was a constant increase in the number of workers employed between 2008 and 2012 in the manufacturing sector. The total increase between 2008 and 2012 was 273,100 workers as shown in table 1.3:

Table 1.3: Total Number of Workers in Manufacturing Sector between 2008 & 2012

Category	2008	2009	2010	2011	2012
Private Sector	237,900	237,200	238,600	242,400	247,600
Public Sector	26,900	26,900	27,800	27,900	28,100
Informal Sector	1,567,100	1,644,200	1,711,200	1,780,800	1,829,300
Total Manufacturing	1,831,900	1,908,300	1,977,600	2,051,100	2,105,000
Total Economy	9,411,400	9,886,400	10,389,000	10,885,300	11,399,800

Source: Kenya, Republic of (2013)

There are about 2071 manufacturing firms in Kenya according to the ministry of industrialization data bank. Majority of manufacturing firms in Kenya, employ up to 100 workers (Kenya, Republic of, 2007). However, there are a few manufacturing firms that are large and others micro in the cottage industry employing less than 10 workers. There were 670 manufacturing firms in the directory of Kenya association of manufacturers (KAM, 2011).

The KAM is a membership organization whose role is to provide leadership and services aimed at enhancing the development of a competitive manufacturing sector in Kenya. The manufacturing firms registered under KAM are more formal than other unregistered firms. This made this sector a appropriate area of study especially in a study requiring sensitive financial information. Four hundred and thirteen (413) manufacturing firms operating in Nairobi industrial area and its environs and were in the 2011 directory of KAM formed the target population of this study.

The decision to study the manufacturing sector was due to several factors; first, the manufacturing sector was expected to remain a vibrant and strong contributor to sustained recovery and growth of the Kenyan economy. The manufacturing sector was expected to pick up and grow at a better rate after the post election violence (PEV), global financial crisis of 2008 and 2009 and the shrinking of the Kenyan shilling against

the major world hard currencies in 2011. Secondly, the manufacturing sector remains the largest source of employment opportunities, accounting for about 20% of the total employment or 2,105,000 persons in 2012 (Kenya, Republic of, 2013). Based on the forecasted favorable economic outlook, employment was expected to grow in the foreseeable future. As an important sector in the overall economic growth, manufacturing sector requires an in-depth analysis at industry as well as firm level.

1.1.4 Aspect of Profitability and Manufacturing Firms in Kenya

Companies must earn a good return from their investments that will enable the board of directors make a good dividend payout. Profitability refers to a company's ability to generate an adequate return on invested capital (Wild, Larson & Chiapetta, 2007). Therefore, companies are interested in the ability to use their assets efficiently to produce profits (and positive cash flows). A return is judged by assessing earnings relative to the level and sources of financing. Profitability is also relevant to solvency. The key measures of profitability are return on capital employed, return on assets and return on investment.

The most important goal in operating a company is to earn an income for its owners. A business that is not profitable cannot survive. Conversely, a business that is highly profitable has the ability to reward its owners with a large return on their investment. Increasingly, profitability is one of the most important tasks of the business managers. Managers constantly look for ways to change the business to improve profitability (Refuse, 1996).

A study carried out by Makori and Jagongo (2013) on working capital management and firm's profitability on manufacturing companies listed on Nairobi Securities Exchange found that working capital has a a significant impact on profitability of the firms and play a key role in the value creation for shareholders as longer cash conversion cycle has a negative impact on profitability of a manufacturing firm.

1.1.5 Overview of Working Capital Management and Manufacturing Firms

One aspect that needs investigation is the management of working capital in manufacturing firms. Working capital is the difference between current assets and current liabilities. Working capital meets the short term financial requirements of a business enterprise. It is a trading capital, not retained in the business in a particular form for longer than a year (Padachi, 2006). The money invested in it changes form and substance during the normal course of business operations. Working Capital Management (WCM) is a tool used to immunize corporations from financial upheavals and when managed strategically can improve a company's competitive position and profitability (Gill, 2011). The wider perspective of WCM contributes to the greater opportunities to create wealth. Increasing the speed of a cash conversion cycle through receivable and payable management helps improve on profitability and liquidity (Johnson & Soenen, 2003). Further, effective inventory management is also critical to the management of liquidity and profitability in many companies.

Working capital management efficiency is vital for manufacturing firms, where a major part of the assets is composed of current assets (Horne & Wachowitz, 2004). One of the major components of working capital is inventory. The inventory of a manufacturing concern comprise of finished goods, work in progress and raw materials. The sum of the three components of the inventory constitutes a heavy investment in a manufacturing firm. Current assets for a typical manufacturing company account for over half of its total assets (Raheman & Nasr, 2007).

In the present day of rising capital cost and scarce funds, the importance of working capital needs special emphasis. It has been widely accepted that the profitability of a business concern likely depends upon the manner in which working capital is managed (Kaur, 2010). Both excessive and inadequate working capital positions are dangerous from the firm's point of view (Islam & Mili, 2012). Excessive working capital leads to unproductive use of scarce funds. Excessive working capital means holding costs and

6

idle funds which earn no profits for the firm (Islam & Mili, 2012). This leads to reduced profits although it guarantees a low liquidity risk.

The inefficient management of working capital impairs profitability and interrupts normal operations of a business as well (Kaur, 2010). This may ultimately lead to a financial crisis and bankruptcy. On the other hand, proper management of working capital leads to material savings and ensures financial return at the optimum level even on the minimum level of capital employed (Kaur, 2010). Both excessive and inadequate working capital is harmful for a business. Working capital and its importance is unquestionable (Filbeck & Krueger, 2005). It directly influences the liquidity and profitability of firms (Raheman & Nasr, 2007). Just as circulation of blood is very necessary in the human body to maintain life, the flow of funds is very necessary to maintain business (Padachi, 2006). If it becomes weak, the business can hardly survive. Therefore, ignore proper management of working capital at your own peril.

Working capital management is important to manufacturing firms because it comprises over half of the total assets of a firm. Many manufacturing firms are said to be struggling to thrive and that some key players have been forced to move their operations to other countries. Others have shut down their operations as evidenced by recent closure of pan paper mills in Webuye town. All these firms cite high operation costs as the main cause of the precarious financial situation (Kenya, Republic of 2007). Firms are closing doors and others are operating at breakeven point (KAM, 2006). Closure of a business can only be brought about by profitability and liquidity problems. Therefore, there was a need to investigate the problem of profitability and management of working capital in the manufacturing firms in Kenya.

1.2 Statement of the Problem

This study arises from the need to manage working capital of manufacturing firms more effectively and efficiently – keeping viability and continuity in view. In Kenya, many manufacturing firms are struggling to thrive and some key players have been forced to move their operations to the countries. Others have shut done their operations as

evidenced by recent closure of Pan Paper Mills in Webuye and Cadbury East Africa. Other firms like Eveready East Africa have contemplated closure of their operations. All these companies cite high operation costs as the main cause of the precarious financial situation (Kenya, Republic of, 2007). Companies are closing doors and others are operating at breakeven point (KAM, 2006). If this trend continues unabated, Kenya's hope of rising to a middle level economy as envisioned by vision 2030 is in doubt.

The foregoing notwithstanding, vast majority of companies either maintain excessive or inadequate working capital levels – both levels are inappropriate. Too much working capital means that a firm ties up capital on unproductive assets thus reducing profit maximization. This further means that the market share of the company is not maximized. However, too little working capital is a threat to the liquidity of a company. With little working capital a company can easily collapse despite optimal profit levels. Therefore, all types of businesses must maintain an ideal level of working capital.

Nkwankwo and Osho (2010) assert that a firm that manages its working capital inefficiently has every possibility that a lot of mayhem will fall on the organization. Such mishap may range from setting, inability to expand, reduction in value of the company as well as its shares; inability of the management to cope up with organizational technical improvement; and financial losses, liquidity, susceptibility to liquidation and insolvency.

Two most recent studies carried out in Kenya show that manufacturing firms in Kenya in general are currently facing working capital management problems. Muchina and Kiano (2011) and Nyabwanga, Ojera, Lumumba, Odondo and Otieno (2012) found that manufacturing firms in Kenya are facing problems with their collection and payment policies as well as not paying attention to inventory levels. These have affected profitability of the manufacturing firms and in turn have affected the value of companies. If these problems are not addressed manufacturing firms can go under and this can have a significant ripple effect on the whole economy (Ali, 2009). This

represents a serious impediment to Kenya's effort to achieve middle level economy by the year 2030 and will have a difficult time rising economically to the level of Asian tigers such as Malaysia and Singapore.

To better understand these assertions, the study sought to carry out a working capital management diagnosis in Kenya with the objective of determining the effects of working capital management on profitability of manufacturing firms in Kenya. Such a diagnosis has not been carried out in Kenya and the outcome of the study forms a basis of future study on working capital management in manufacturing firms in Kenya.

1.3 Objective of the Study

1.3.1 General Objective of the Study

The purpose of this study was to determine the effects of working capital management on profitability of manufacturing firms in Kenya.

1.3.2 Specific Objectives of the Study

(i) To determine whether credit policy influences profitability of manufacturing firms in Kenya

(ii) To establish the degree to which accounts payable practices influence profitability of manufacturing firms in Kenya

(iii) To examine how inventory control practices influence profitability of manufacturing firms in Kenya

(iv) To establish whether liquidity management practices influence profitability of manufacturing firms in Kenya

(v) To investigate whether working capital levels influence profitability of manufacturing firms in Kenya

1.4 Hypo Kenya, Republic of theses of the Study

H_{01}: Credit policy does not influence profitability of manufacturing firms in Kenya

H_{02}:   Accounts payable practices do not influence profitability of manufacturing firms in Kenya

H_{03}:   Inventory control practices do not influence profitability of manufacturing firms in Kenya

H_{04}:   Liquidity management Practices do not influence profitability of manufacturing firms in Kenya

H_{05}:   Working capital levels do not influence profitability of manufacturing firms in Kenya

1.5 Significance of the Study

The aim of this study was to determine the effects of working capital management on profitability of manufacturing firms in Kenya. The following are the benefits of this study.

A). Kenya Association of Manufacturers

The findings of this study will enable firms under Kenya Association of Manufacturers (KAM) realize the importance of working capital management and the influence of WCM on profitability because KAM office will get a copy the findings of this study.

B). Chief Finance Officers

The findings of the study will help the chief finance officers of manufacturing firms in designing intervention strategies aimed at maximizing profit for their firms. A copy of the findings will be availed to the 71 chief finance officers who were respondents in this study.

C). Researchers, Policy Makers, Professionals and Managers

Finally, the findings of the study will contribute to the body of knowledge by identifying how Kenyan manufacturing firms manage their working capital in the local setting. A

general WCM framework for research, policy makers, professionals and managers has been formulated that will guide further research, reappraise current business practices and provide basic guidelines for new policies in dynamic business environment.

1.6 Scope of the Study

The study focused on manufacturing firms in Kenya only. It narrowed down to firms registered with the Kenya Association of Manufacturers (KAM). There were 670 manufacturing firms registered with the KAM in 2011 (KAM, 2011). Some of the registered organizations deal with consultancy and services. These firms were eliminated from the study. The target population was 413 manufacturing firms registered with KAM and operating in Nairobi industrial area and its environs. Over 80% of all manufacturing firms in Kenya are located in Nairobi industrial area and its environs (KAM, 2011). Therefore, this study was carried out in manufacturing firms in Nairobi industrial area and its environs.

1.7 Limitations of the Study

There were two challenges in this study. First, the population was highly heterogeneous. As such the study adopted stratified random sampling method to give chances to all members of the targeted population. Secondly, the study experienced an initial slow response from the respondents who complained about the length of the questionnaire. This was mitigated by having constant follow up on phone and physical visits to the respondents' offices.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter focused on the theories, models and empirical literature relevant to effects of working capital management on profitability of manufacturing firms in Kenya. The section was divided into the following sections; the concept of working capital management, conceptual framework, review of related literature, critique of the related literature and research gaps.

2.1 The Concept of Working Capital Management

Working capital is the amount of funds that a business has made available to meet the day to day cash requirements of its operations (Pandey, 2008). It is the difference between current assets and current liabilities. Current assets are the resources in cash or readily convertible into cash. Current assets include all those assets that in the normal course of business return to the form of cash within a short period of time, ordinarily within a year and such temporary investment as may readily be converted into cash upon need (Raheman & Nasr, 2007). They include bank balance, cash, marketable securities, inventories and accounts receivables. A business must maintain an appropriate level of current assets. Over investment in current assets is not desirable. Excessive level of current assets can easily result in a company realizing a sub-standard return on investment (Raheman & Nasr, 2007; Horne & Wachowitz, 2004). However, companies with too little amount of current assets may incur shortages and difficulties in maintaining smooth operations (Horne & Wachowicz, 2004).

Current liabilities are organization's commitments for which cash will soon be required. They include bank overdraft, accounts payables and unpaid bills (Pandey, 2008). A company is responsible for paying these obligations on a time basis. Liquidity for the on going company is not reliant on the liquidation value of its assets, but rather on operating cash flows generated by those assets (Soenen, 1993).

Working capital is regarded as life giving force for any economic unit and its management is considered among the most important functions of corporate management (Pandey, 2008). Every organization, profit oriented or not, irrespective of size and nature of business requires necessary amount of working capital. Working capital is the most crucial factor for maintaining liquidity, survival, solvency and profitability of business (Mukhopadhy, 2004).

The management of working capital is important to the financial health of businesses of all types and sizes. The amounts invested in working capital are often high in proportion to the total assets employed and so it is very vital that these amounts are used in an efficient and effective way (Pandey, 2008). A firm can be very profitable, but if this is not translated into cash from operations within the same operating cycle, the firm would need to borrow to support its continued working capital needs (Padachi, 2006). Thus, the twin objectives of profitability and liquidity must be synchronized and one should not impinge on the other for long.

Working capital management is important due to many reasons. For one thing, the current assets of a typical manufacturing company, account for over one half of its total assets (Reheman & Nasr, 2007). Eiteman, Stonehill, Moffett and Pandey (2008) assert that "credit terms extended by manufacturers to retailers are of such magnitude as to constitute purchase of the retailer, such purchase being necessary to build an operational distribution system between the manufacturer and the ultimate customer".   In a Manufacturing company, working capital cycle is the average time that raw materials remain in stock less the period of credit taken from suppliers and the sum of time taken to produce the goods, the time the goods remain in the finished goods store, and the time taken by credit customers to pay for the goods (Reheman & Nasr, 2007). For a manufacturing concern the working capital cycle is longer than that of merchandised business. Thus, a manufacturing concern requires more funds to finance working capital.

13

Companies may have an optimal level of working capital that maximizes their value. Large inventory and a generous trade credit policy may lead to high sales. Trade credit may stimulate sales because it allows customers to assess product quality before paying (Long, Maltiz & Ravid, 1993; and Deloof & Jegers, 1996). A popular measure of working capital management (WCM) is the cash conversion cycle; the time lag between the expenditure for purchases of raw materials and the collection of sales of finished goods. The longer this time lag, the larger the investment in working capital (Deloof, 2003). A longer cash conversion cycle might increase profitability because it leads to higher sales. However, corporate profitability might also decrease with the cash conversion cycle, if the cost of higher investment in working capital rises faster than the benefits of holding more inventories and/or granting more trade credit to customers.

Many surveys have indicated that many managers spend considerable time on the day to day problems that involve working capital decisions. One reason for this is that current assets are short lived investments that are continually being converted into other assets types (Rao, 1989). Taken together, decisions on the level of different working capital components become frequent, repetitive and time consuming. Working capital management is a very sensitive area in the field of financial management (Joshi, 1994). It involves the decision of the amount and composition of current assets and the financing of these assets. The working capital management of a company in part affects its profitability.

Improving Working Capital Management (WCM) is reasonably important for companies to withstand the impacts of economic turbulence (Reason, 2008). Alternatively, efficient WCM is also essential for companies during the booming economic periods (Lo, 2005) for the reason that WCM is related to all aspects of managing current assets and current liabilities (Emery, Finerty & Stowe, 2004; Hampton & Wagner, 1989; Hill & Sartoris, 1992; Scherr, 1989; Vander, Weider & Maiser, 1985). Efficient working capital management involves planning and controlling current assets and liabilities in a manner

that eliminates the risks of inability to meet due short term obligations on one hand and avoid excessive investment in these assets on the other hand (Eljelly, 2004).

2.2 Conceptual Framework

In order to hold existing and new knowledge, theory should provide a conceptual framework, so that knowledge can be interpreted for empirical application in a comprehensive manner. In this study the conceptual framework comprise of five independent variables and one dependent variable.

Independent Variables   **Dependent Variable**
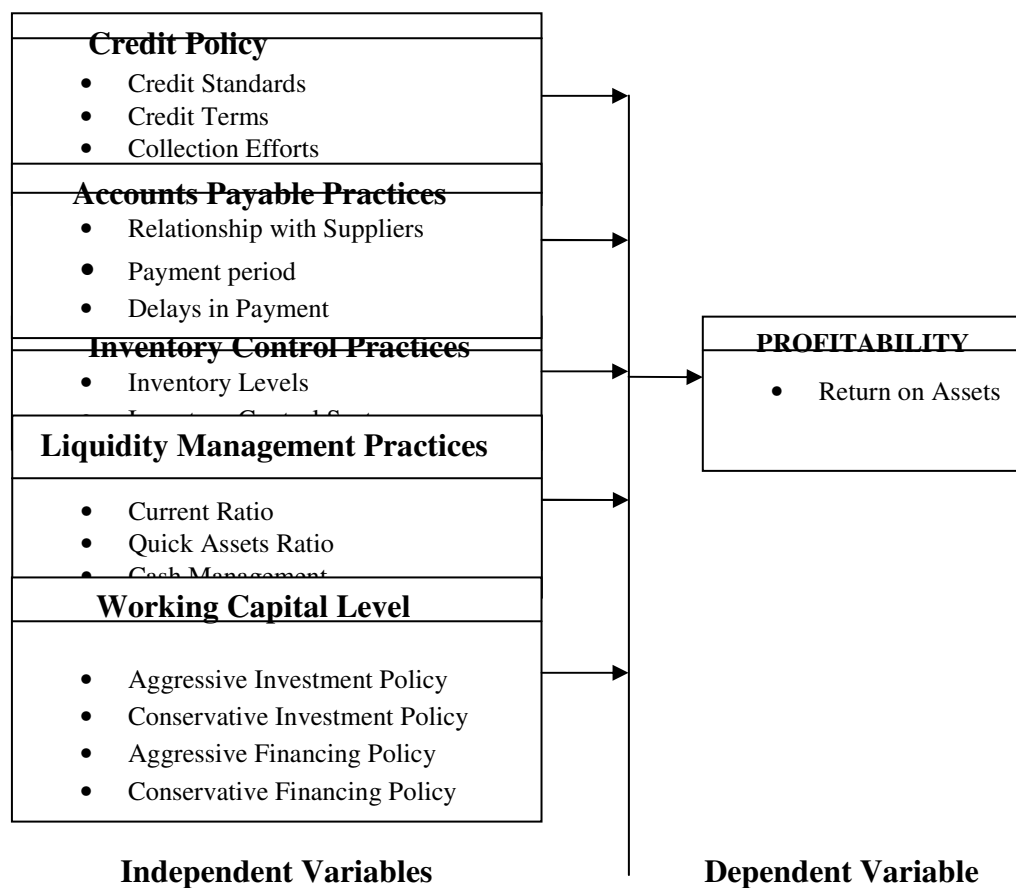
Figure 2.1: Conceptual Framework

Figure 2.1 shows the conceptualization of the dependent and independent variables of the related study. The independent variables of this study indicate the statistics that were used to measure effects of Working Capital Management. They include credit policy which was measured by credit standards, credit terms, collection efforts and

creditworthiness of customers. Accounts payable practices were measured by relationship with suppliers, delays in payments and payment period allowed by suppliers. Inventory control practices were measured by inventory control system and inventory levels. Liquidity management practices were measured using current ratio, quick ratio, and cash management. Working capital levels were measured using aggressive investment policy, conservative investment policy, aggressive financing policy and conservative financing policy. The dependent variable was the profitability which was measured by return on assets (ROA).

2.3 Review of Related Literature

2.3.1 Credit Policy

Business enterprises today use trade credit as a prominent strategy in the area of marketing and financial management. Thus, credit is necessary in the growth of businesses. When a firm sells its products or services and does not receive cash for it, the firm is said to have granted trade credit to its customers. Trade credit, thus, creates accounts receivables which the firm is expected to collect in future. Kalunda, Nduku and Kabiru (2012) state that trade credit is created where a supplier offers terms that allow a buyer to delay payments. Accounts receivables are executed by generating an invoice which is delivered to the customer, who in turn must pay within the agreed terms. The accounts receivables are one of the largest assets of a business enterprise comprising approximately 15% to 20% of the total assets of a typical manufacturing firm (Dunn, 2009). Investment in receivables takes a big chunk of organization's assets. These assets are highly vulnerable to bad debts and losses. It is therefore necessary to manage accounts receivables appropriately.

Trade credit is very important to a firm because it helps to protect its sales from being eroded by competitors and also attract potential customers to buy at favorable terms (Kakuru, 2001). As long as there is competition in the industry, selling on credit becomes inevitable. A business will loose its customers to competitors if it does not extend credit to them. Thus, investment in accounts receivables may not be a matter of

choice but a matter of survival (Kakuru, 2001). Given that investment in receivables has both benefits and costs; it becomes important to have such a level of investment in receivables at the same time observing the twin objectives of liquidity and profitability (Dunn, 2009).

To remain profitable, businesses must ensure proper management of their receivables (Foulks, 2005). The management of receivables is a practical problem. Businesses can find their liquidity under considerable strain if the levels of their accounts receivables are not properly regulated (Filbeck & Krueger, 2005). Thus, management of accounts receivables is important, for without it; receivables will build up to excessive levels leading to declining cash flows. Poor management of receivables definitely results into bad debts which lowers the business' profitability (Filbeck & Krueger, 2005).

Credit policy is the most popular medium of managing and regulating receivables. To ensure optimal investment in receivables, a business is required to have an appropriate credit policy. Credit policy is designed to minimize costs associated with credit while maximizing the benefits from it. Credit policy refers to guidelines that spell out how to decide which customers are sold on open account, the exact payment terms, the limits set on outstanding balances and how to deal with delinquent accounts (Filbeck & Krueger, 2005). According to (Pandey, 2008; Atkinson, Kaplan & Young, 2007; Brigham, 1985) credit policy is defined in the manner as the combination of such terms as credit period, credit standards, collection period, cash discounts and cash terms. Therefore, despite the fact that organizations have different credit policies, the content of these policies must touch on credit period, credit standards, collection period and credit terms (Filbeck & Krueger, 2005).

Credit policy is either lenient or stringent. Kalunda et al. (2012) argue that a lenient credit policy tends to give credit to customers on very liberal terms and standards such that credit is granted for longer periods even to those customers whose credit worthiness is not well known. A stringent credit policy on the other hand is restrictive and allows

17

credit only to those customers whose credit worthiness have been ascertained and are financially strong. There are no two organizations with a similar credit policy. Whether lenient or stringent credit policy is adopted by an organization, it must ensure that it attracts and retains good customers, without having a negative impact on the cash flow (Kalunda … et al., 2012).

Miller (2008) argues that there are four reasons why organizations have written credit policies. First, the undertaking of managing receivables is a serious responsibility. It involves limiting bad debts and improving cash flow. Outstanding receivables become a major asset of a firm and therefore require a reasoned and structured approach and therefore credit management is necessary. Second, a credit policy assures a degree of consistency among departments. By writing down what is expected, the aims of the company (whether marketing, production or finance) will realize that they have a common set of goals. Also, a written policy can delineate each department functions so that duplication of effort and needless friction are avoided. Third, it provides for a consistent approach among customers. Decision making becomes a logical function based on pre-determined parameters. This simplifies the decision process and yields a sense of fairness that will only improve customer relations. Finally, it can provide some recognition of the credit department as a separate entity, one which is worthy of providing input into the overall strategy of the firm. This allows the department to be an important resource to top management (Kalunda et al., 2012).

Due to the speed in which technology is changing and the dynamics in business caused by changes in their internal and external environment, the ways in which businesses are conducted today differ significantly from yester years. Therefore, for a credit policy to be effective it should not be static (Szabo, 2005). Credit policy requires to be reviewed periodically to ensure that the organizations operate in line with the competition. This will ensure further that sales and credit departments are benefiting.

Organizations differ so do their credit policies. While most companies have their own policies, procedures and guidelines, it is unlikely that any two firms will define them in a similar manner. However, no matter how large or small an organization is and regardless of the differences in their operations or product, the effects of credit policies usually bring about similar consequences. Effects of a credit policy are either good enough to bring growth and profits or bad enough to bring declination and losses. This similarity is as a result of the aim of every manager which is to collect their receivables efficiently and effectively, thus maximizing their cash inflows (Ojeka, 2012).

Clarke and Survirvarma (1999) argue that granting credit is a journey, the success of which depends on the methodology applied to evaluate and award the credit. This journal starts from the application for credit through acquisition of credit sales and ends at the time the debt is fully paid. Granting credit exists to facilitate sales. However, sales are pointless without due payment, therefore the sales and credit functions must work together to achieve the well known objective of maximum sales within minimum length of time (Miller, 2008). Atkinson et al(2007) and Brigham (1985) assert that a credit policy touches on credit period, credit standards, collection efforts and credit terms. This study looks at credit standards, credit terms, collection efforts and credit worthiness of customers and loss given default theory.

2.3.1.1 Credit Standards

Pandey (2008) states that credit standards are the criteria used by a firm to decide on the type of customers to whom goods could be sold on credit. If the firm's credit standards are too strict, the volume of credit sales will be too low but the firm will have little collectable debts. Before extending credit, the firm probably wishes to investigate the credit worthiness of the customer. This investigation may simply focus on the firm's customer's credit history with the firm or may include contacting various credit reporting agencies, checking the customer's bank and other suppliers of credit and examining the customer's financial statements and operations. The financial statements

analysis requires the use of financial ratios, particularly those reflecting the firm's liquidity position (Pandey, 2008).

Credit standards involve application of well defined procedures to ensure a standard way of granting credit. Credit procedures are specific ways in which top management requires credit department to achieve the best results for the organization (Dunn, 2009). Credit procedures include instructions on what data to be used for credit investigation and analysis process, provide information for data approval process, accounts supervision and instances requiring management notification.

According to (Weston & Copeland, 1995; Kalunda et al., 2012) there are six C's of credit which should be considered by credit managers in any industry. They are character, capacity, capital, collateral, condition and contribution. The six C's can help manufacturing firms to decrease the default rate, as they get to know their customers. The six C's of credit represent the factors by which credit risk is judged (Kalunda et al., 2012). Information on these is obtained from a number of sources, including the firm's prior experience with the customer, audited financial statements for previous years, credit reporting agencies or customers commercial banks

2.3.1.2 Credit Terms

This refers to the period allowed to the customers. It also includes cash discount offered to encourage prompt payment. Many firms establish a credit period for their customers and offer discounts to encourage them to pay early. Chee and Smith (1999) assert that there are two basic forms of trade credit: the simpler form, net terms, specifies that full payment is due within a certain period after delivery. For example, 'net 30' means full payment is due 30 days after invoice; after that the buyer is in default. Invoicing normally occurs either around the delivery or at the end of a billing cycle. The more complex form of credit, two part terms, has three basic elements; the discount percentage, the discount period and the effective interest rate. The most common two part terms are '2/10 net 30'. This means a 2% discount for payment within 10 days and a

net period ending on day 30. As with net terms; the buyer is in default if payment is not made by the end of the net period.

Chee and Smith (1999) assert that unless transactions occur instantaneously, payment arrangement is in effect credit terms. Longer credit periods or more liberal credit terms are likely to stimulate sales, but at the same time, the firm forgoes the use of its money for a greater length of time and increases the potential for bad debts losses. According to Pandey (2008) a firm can shorten its credit period if customers are defaulting too frequently and bad debts are building up. However, the firm will lengthen credit period to increase its operating profit through expanded sales.

2.3.1.3 Collection Efforts

This refers to the procedure followed by a firm in an attempt to pursue the customers who do not pay on the due dates. It may involve reminding the debtor through a politely worded letter, a strongly worded letter, sending a representative and eventually contemplating a legal action or writing off the debt altogether (Dunn, 2009). Collection efforts may involve reminding the debtor by sending a demand note to inform him of the amount due. If no response is received, progressive steps using tighter measures are taken (Pandey, 2008). These other measures include sending a polite letter to the customer and if no response, the customer is contacted through telephone or through visiting him or her and as last resort taking legal measures (Kakuru, 2001).

Use of litigation against a customer who fails to meet his obligation is a collection effort geared to collect a debt that is already bad. A creditor takes this direction when there is a major break down in the repayment agreement resulting in undue delays in collection in which it appears that legal action may be required to effect collection (Kakuru, 2001). This collection effort arises when the creditor's relationship with the debtor has become soar.

Finally, the debt may be written off. The debt is written off when the creditor feels that the debt is uncollectable. If a debt is deemed to be bad and the company has lost it, it is better to write it off from the books of accounts to give a true and fair view of the company's financial position (Kakuru, 2001). A collection effort is a control process. It ensures that trade debts are recovered early enough before they become un-collectable and therefore a loss to the organization (Saleemi, 1993).

2.3.1.4 Creditworthiness of Customers

Average collection period determines the speed of payment by customers (Pandey, 2008). Delayed payment by customers is a potential ground for bad debts and subsequent low profitability. Pandey (2008) argues that a firm can shorten its credit period if customers are defaulting too frequently and bad debts are building up. There should be strict control on customers who carry goods on credit. The purpose of credit control is to ensure that trade debts are recovered early enough before they become un-collectable and therefore a loss to the organization (Saleemi, 1993).

Customers should only be allowed credit on the basis of their creditworthiness in order to minimize the level of default and bad debts. Dunn (2009) asserts that creditors must apply the techniques of credit selection and standard for determining which customers should receive credit. In the process of determining the creditworthiness of a customer, the creditor has to apply the six C's of credit; character, capacity, capital, collateral, condition and contribution (Weston & Copeland, 1995).

Managers can create profit for their companies if they maintain accounts receivables at optimal level (Gill, Biger & Mathur, 2010). Systems can be installed to decrease investment in inventories and can enable companies increase profitability. Managers can create value for shareholders by means of decreasing receivable accounts (Deloof, 2003; Mohammad, 2011). There is a significant negative relationship between profitability and the average collection period (Deloof, 2003; Raheman & Nasr, 2007; Mathuva, 2010; Muchina & Kiano, 2011). According to Padachi (2006) high investment in accounts receivable is associated with low profitability. Therefore, the objective of the study was

22

to determine whether credit policy influences profitability of manufacturing firms in Kenya. The null hypothesis was stated as follows;

H$_{01}$: Credit policy does not influence profitability of manufacturing firms in Kenya

2.3.1.1.1 Loss Given Default Model of Credit Policy

This model is more often applied by financial institutions when lending money. The model is used to estimate the amount of risk and therefore loss that may be incurred by an institution on the amount of loan lend to a customer or to be lend to a prospective customer. This model is also be applicable by merchandized organizations that sell goods on credit. Loss given default is defined as the loss incurred in the event of default and is equal to one minus recovery rate of default (Alvarez-Diez, Baixauli-Soler and Beida-Ruiz, 2009). This can be stated mathematically as; $1 - R_i$ where; R_i is the value received at default resolution or recovery rate of default instrument. Therefore, loss given default helps to predict the amount of loss in a credit in the event of default. If the value of collateral given is high, then the amount of loss on default is minimal or zero.

2.3.2 Accounts Payable Practices

Accounts payable is the amount of money promised by a recipient of goods to a supplier where a credit transaction is involved (Kinunda, 2008). It is the amount money a firm owes to its suppliers. It is one of the major sources of unsecured short term financing (Gitman, 2009; Hill & Sartoris, 1992). Management of accounts payables is an important aspect of ensuring efficient management of working capital. It is important for a firm to ensure that it has a good working relationship with its suppliers so that there can be a constant supplies of inventories. Firms should avoid delays in paying for their supplies because of the disadvantages attached to such delays that include lost cash discounts and reduced trust by the suppliers.

2.3.2.1 Relationship with Suppliers

Utilizing the relationship with the creditor is a sound objective that should be highlighted as important as having the optimal level of inventories (Hill & Sartoris, 1992). Accounts payable should be maximally used by firms. Sound management of suppliers' credit requires current up to date information on account and aging of payables to ensure proper payments (Helfert, 2003). Proper management of creditors enables a firm to maintain good relationship with the suppliers. This ensures that the firm has a continuous provision of trade credit which is a cheap source of finance.

2.3.2.2 Delays in Payments

Delaying payments to suppliers allows a firm to assess the quality of purchased products and can be an inexpensive and flexible source of financing the firm. On the other hand, late payment of invoices can be very costly if the firm is offered a discount for early payment (Raheman & Nasr, 2007; Gill … et al., 2010). A study by Mathuva (2010) found that an increase in the number of days payable by 1 day was associated with increased profitability. However, Deloof (2003) and Reheman and Nasr (2007) found that more profitable firms wait longer to pay their bills. This means that they withhold their payment to their suppliers so as to take the advantage of cash available for their working needs. Delaying payments to suppliers is in line with the working capital management rule that firms should strive to lag their payments to creditors as much as possible, taking care not to spoil their business relationships with them (Mathuva, 2010).

2.3.2.3 Payment Period

Mathuva (2010) discovered that firms in Kenya take an average time of 64 days to pay their creditors with a standard deviation of 103 days. They discovered that the maximum time the firms take to pay for their supplies is 534 days and a minimum of 0 days. The average payment period is considered by firms because it has a direct relationship with profitability. Mathuva (2010) defines average payment period as the length of time that a firm is able to defer payments for various resources purchased. It is the time taken by the firm to pay its creditors. Using data from financial statements the average payment

period is obtained by dividing accounts payable by cost of sales and multiplying the results by 365days (Deloof, 2003; Padachi, 2006; Reheman & Nasr, 2007; Saghir, Hashmi & Hussain, 2012).

Mathuva (2010) argues that there is a highly significant relationship between the time it takes the firm to pay its creditors and profitability. However, this contradicts the opinion of Deloof (2003) who asserts that there is a negative relationship between average payment period and profitability. Muchina and Kiano (2011) carried out a study about the influence of working capital management on firm's profitability. The study did not confirm nor reject that average payment period affects profitability.

Under this study, the objective was to establish the degree to which accounts payable practices influence profitability of manufacturing firms in Kenya and the null hypothesis was stated as follows

> **H$_{02}$:** Accounts payable practices do not influence profitability of
> manufacturing firms in Kenya

2.3.2.1.1 Transaction Cost Theory

Transaction cost theory is used to explain a number of different behaviors. Often this involves considering as transactions not only the obvious cases of buying and selling but also day to day emotional interactions and informal gift exchanges (Williamson, 1975). The transaction cost theory suggests that there are certain costs that people normally incur without knowing that they are a cost to them. These costs must be incurred whenever a transaction takes place. These costs are known as transaction costs. The idea that transactions form the basis of an economic thinking was introduced by John R. Common in 1931 (Williamson, 1975).

Transaction cost theory focuses on transactions and costs that attend completing transactions by one institutional mode rather than another (Williamson, 1975). The

theory's central claim is that the transactions will be handled in such a way as to minimize the costs involved in carrying them out (Muchina & Kiano, 2011). A transaction, a transfer of good or service is the unit of analysis in transaction cost theory and the means of effecting the transaction is the principal outcome of interest (Williamson, 1975). Accounts payable practices can be explained by transaction cost theory in that the loss in discounts from the suppliers is a cost to the debtor.

2.3.3 Inventory Control Practices

Inventory is the stock purchased with the purpose of resale in order to gain a profit. It represents the largest cost to a manufacturing firm. For a manufacturing firm, inventory consists of between 20% and 30% of the total investment (Garcia – Teruel & Martinez, 2007). Inventory should therefore be managed well in order to facilitate the firm's operations. There are three main types of inventories namely; raw materials, work in progress and finished goods. However, Hopp and Spearman (2000) classify inventory into raw materials, work in progress, finished goods and spare parts. Raw materials are the stocks that have been purchased and will be used in the process of manufacture while work in progress represents partially finished goods. Finished goods on the other hand, represent those items of stock that are ready to be monetized (Nwankwo & Osho, 2010). Since the level of inventory is large, the financial manager has to put into consideration the ordering cost, carrying cost and stock out cost of the inventory in determining the inventory level. For the purpose of this study Inventory level and inventory control systems were considered.

2.3.3.1 Inventory Level

In the management of inventory the firm is always faced with the problem of meeting two conflicting needs: - maintaining a large size of inventory for efficient and smooth production and sales operations and maintaining a minimum level of inventory so as to maximize profitability (Pandey, 2008). Both excessive and inadequate inventories are not desirable. The dangers of excessive inventories are that stockholding costs are too high and as a result the firm's profitability is reduced. According to Mohammad (2011)

managers can create value for shareholders by means of decreasing inventory levels. However, maintaining inadequate level of inventory is also dangerous because ordering costs are too high. It may also lead to stock out costs. Saleemi (1993) asserts that there are advantages of maintaining an ideal level of inventory. This includes economies of scale to be gained through quantity and trade discounts, less risks of deterioration and obsolescence, and reduced cost of insurance among others. A study carried out by Mathuva (2010) on the influence of working capital management components on corporate profitability found that there exists a highly significant positive relationship between the period taken to convert inventories into sales and profitability. This meant that firms maintained sufficiently high inventory levels which reduced costs of possible interruptions in the production process and loss of business due to scarcity of products.

Nyabwanga et al(2012) found that small scale enterprises often prepare inventory budgets and reviewed their inventory levels. These results were in agreement with the findings of Kwame (2007) which established that majority of businesses review their inventory levels and prepare inventory budgets. These findings had already been stressed by Lazaridis and Tryponidis (2006) that enhancing the management of inventory enables businesses to avoid tying up excess capital in idle stock at the expense of profitable ventures. Nyabwanga et al(2012) assert that good performance is positively related to efficiency inventory management.

2.3.3.2 Inventory Control System

A firm needs a control system to effectively manage its inventory (Pandey, 2008). There are several control systems in practice that range from simple to very complicated systems. A firm must ensure that the system it adopts must be the most efficient and effective. Pandey (2008) argues that small firms may opt to adopt simple two bin systems and the very large firms may choose to adopt very complicated systems such as ABC inventory control systems or Just in Time (JIT) systems. A study carried out by Grablowsky (2005) found that only large firms had established sound inventory control systems for determining inventory re-order and stock levels. The firms used quantitative

techniques such as EOQ and Linear Programming to provide additional information for decision making. Small firms on the other hand used management judgement without quantitative back up.

Under this study, the objective was to examine how inventory control practices influence profitability of manufacturing firms in Kenya and the null hypothesis was stated as follows;

H_{03}:   Inventory control practices do not influence profitability of manufacturing firms in Kenya

2.3.3.1.1 Economic Order Quantity Model of Inventory Management

This model is an inventory control model and is based on minimization of costs, between stock holding and stock ordering. It requires the determination of economic order quantity (EOQ) which is the ordering quantity at which stock holding costs are equal to stock ordering costs (Saleemi, 1993). It suggests that the optimal inventory size is the point at which stock ordering costs are equal to the stock holding costs. The optimal inventory size is also known as economic order quantity (EOQ). This model helps an organization to put in place an effective stock management system to ensure reliable sales forecasts to be used in ordering purposes (Atrill, 2006). In order to ensure applicability of the EOQ model several assumptions must be taken into consideration. First, the usage of stored product is assumed to be steady. Second, ordering costs are assumed to be constant, i.e. The same amount has to be paid for any order size. Finally, the carrying costs of inventory which are composed of cost of storage, handling and insurance are assumed to be constant per unit of inventory, per unit of time. The EOQ model therefore merely takes variable costs into consideration, although it can easily be extended so as to include fixed costs (Ross … et al., 2008). This model has been used in the past by Nyabwanga et al(2012) in Kenya.

The basic EOQ model is based on the assumptions that only one product is produced, annual demand requirements are known, demand is spread evenly throughout the year so that demand rate is reasonably constant, lead time does not vary, each order is received in a single delivery and there is no quantity discounts. The model is expressed as follows:

$$EOQ = \sqrt{\frac{2DS}{H}}$$

Where D = Demand in units per year

S = Ordering cost per unit

H = Cost of Holding Inventories per unit per year

EOQ = Economic Order Quantity

Maintaining optimal inventory levels reduces the cost of possible interruptions or loss of business due to the scarcity of products, reduces supply costs and protects against price fluctuations (Nyabwanga … et al., 2012).

2.3.4 Liquidity Management Practices

Manufacturing firms need cash and other liquidity assets or current assets to pay their bills or current liabilities as they fall due. Liquidity ratios measure the relationship between a firm's liquid or current assets and its current liabilities as they fall due (Cornett … et al., 2009). If a company has insufficient current assets in relation to its current liabilities, it might be forced into liquidation.

Liquidity problems can arise from the failure to convert current assets into cash in a timely manner or from excessive bad debt losses. Therefore, liquidity is an important aspect that conveys a good picture about the ability of the firm to generate cash and pay short term liabilities and long term debts as they fall due (Award & Al-Ewesat, 2012). Hence, Liquidity ratios are computed to compare the relationship between various groups of current assets and current liabilities to measure the liquidity position of a firm.

Saleemi (1993) argues that liquidity ratios help in ascertaining the effectiveness of the working capital management. Current, quick and cash ratios are the three types of liquidity ratios that are normally computed. Amalendu and Sri (2011) in their study on liquidity management on profitability in steel industries in India used current ratio and absolute liquidity ratio as measures of liquidity. They found a positive relationship between liquidity and profitability. However, for the purpose of this study, current and quick ratios as well as cash management were considered.

2.3.4.1 Current Ratio

This ratio compares total current assets to total current liabilities. Current assets are the assets which can be converted into cash within an accounting year and include short term securities, debtors, bills receivable and stock (Pandey, 2008). Current liabilities on the other hand, are claims from outsiders which are expected to mature for payment within an accounting year and include creditors, bills payable and outstanding expenses (Pandey, 2008). Current ratio is intended to indicate whether short term assets are sufficient to meet short term liabilities.

Cornett et al(2009) assert that current ratio measures the shilling of current assets available to pay each shilling of current liabilities. Wood and Sangster (1999) argue that current ratio is so sector dependent as to be incapable of being defined as generally best. They suggest factors that need to be considered when calculating this ratio. The factors are put in a form of questions. First, what is the norm in this industrial sector? Secondly, is this company significantly above or below that norm? And finally, if so, can this be justified after an analysis of the nature of these assets and liabilities, and of the reasons for the amounts of each held? The ratio when calculated is expressed as either a ratio to 1, with current liabilities being set to 1, or as a number of times representing the relative size of the amount of total current assets compared with current liabilities. The most acceptable current ratio is 2:1. Current ratio is computed by dividing current assets with current liabilities.

Current ratio indicates the liquidity position of a company. It measures the ability of a company to meet its current liabilities as they fall due. If a company has insufficient current assets in relation to its current liabilities, it might be unable to meet its commitments and be forced into liquidation (Saleemi, 1993).

2.3.4.2 Quick Ratio

Quick ratio measures the shillings of more liquid assets i.e. Cash and marketable securities and accounts receivable that are available to pay each shilling of current liabilities. An asset is liquid if it can be converted into cash immediately or reasonably soon without a loss of value (Pandey, 2008). Quick ratio is found out by dividing quick assets by current liabilities. Inventories are considered to be less liquid. Inventories normally require some time for realizing into cash; their value has a tendency to fluctuate (Pandey, 2008). Quick assets ratio measures firm's ability to pay off short term obligations without relying on inventory sales (Cornett … et al., 2009). Quick ratio is computed by getting the sum of accounts receivable, cash and marketable securities and dividing the results by current liabilities. The most ideal ratio is 1:1.

Scholars have different opinion on the relationship between liquidity ratios and profitability. According to a study carried out by (Radhika & Azhagaiah, 2012; Singh & Pandey, 2008) current ratio has a high significant positive co-efficient with profitability while Eljelly (2004) found that the relationship between current ratio and profitability is negative. Smith and Begemann (1997) found insignificant association between current ratio and profitability. Finally, Radhika and Azhagaiah (2012) found a negative association between quick ratio and profitability.

2.3.4.3 Cash Management

Cash management is the process of planning and controlling cash flows into and out of business, cash flows within the business, and cash balances held by a business at a point in time (Pandey, 2008). Naser, Nuseibel and Al-Hadeya (2013) see cash management as the process of ensuring that enough cash is available to meet the running expenses of a business and aims at reducing the cost of holding cash. Efficient cash management

involves the determination of the optimal cash to hold by considering the trade-off between the opportunity cost of holding too much cash and the trading cost of holding too little cash (Ross et al2008). Atrill (2006) asserts that there is a need for careful planning and monitoring of cash flows over time so as to determine the optimal cash to hold.

A study by Kwame (2007) established that the setting up of a cash balance policy ensures prudent cash budgeting and investment of surplus cash. These findings agreed with the findings of Kotut (2003) who established that cash budgeting is useful in planning for shortage and surplus of cash and has an effect on the financial performance of the firms. Ross et al(2008) assert that reducing the time cash is tied up in the operating cycle improves a business's profitability and market value. This further supports the significance of efficient cash management practices in improving business performance. Nyabwanga et al(2012) in their study on effects of working capital management practices on financial performance found that small scale enterprises financial performance was positively related to efficiency of cash management.

In this study, the objective was to establish whether liquidity management practices influence profitability of manufacturing firms in Kenya and the null hypothesis was stated as;

H_{04}: Liquidity management practices do not influence profitability of manufacturing firms in Kenya

2.3.4.1.1 Baumol's Cash Management Model

The model was designed to minimize the sum of opportunity cost associated with holding cash and trading costs associated with converting other to cash. The procedure is very similar to the EOQ Model for inventory size but it deals with different variables. It assumes that the firm holds a portfolio of marketable securities which can easily be converted into cash (Baumol, 1952).

According to this model, cash is assumed to start from a replenishment level, C, and then declines smoothly to a value zero. When cash declines to zero, it can be immediately replenished by selling another C worth of marketable securities, for which the firm has to pay a trading cost of F (Cornett … et al., 2009).

In Baumol model, the financial manager has to decide on the repartition of liquid funds between cash and marketable securities (Pandey, 2008). Once again, there is a trade-off which constitutes the basis for the calculation. Yet, this trade-off is related to the opportunity costs of holding cash which increase along with the cash level and the trading costs which are incurred with every transaction and which decrease when the cash level increases (Cornett …et al., 2009).

The opportunity costs represent the interest forgone for funds which are held in cash instead of being invested. The trading costs correspond to fixed costs which are incurred when a company decides to either buy or sell marketable securities (Pandey, 2008). If a company decides to maintain a low cash level it will have to carry out many transactions leading to high trading costs but low opportunity costs because there are little idle cash funds. If it maintains a high level of cash, the firm's opportunity costs will be higher due to the relatively large amount of un-invested cash but the trading costs will decrease since only a few transactions will be necessary (Pandey, 2008).

Baumol's cash management model has three assumptions; first, the firm uses cash at a steady predictable rate, cash flows from operations also occur at a steady state and finally the net cash out flow occur at a steady state.   Under these assumptions the model can be stated as follows:

$$C^* = \sqrt{2TF / i}$$

Where: C= is the optimal cash replenishment level

T = is the annual demand for cash

F = is the trading cost per transaction

    I = is the interest rate on marketable securities

Hence, using this formula an organization can determine the optimal cash replenishment level. Despite the fact that Baumol's cash management is an important tool in management, it suffers from a number of short comings; first, the model assumes that the firm has a constant, perfectly disbursement rate for cash. In reality, disbursement rates are much more variable and unpredictable; secondly, the model assumes that no cash will come in during the period in question. Since most firms hope to make more money than they pay out, and usually have cash inflows at all times, this assumption is obviously at odd with what we see. Finally, the model does not allow for any safety stock of extra cash to buffer the firm against unexpectedly high demand for cash (Cornett … et al., 2009).

2.3.4.1.2 Miller-Orr Cash Management Model

This model was derived by Morton Miller and Daniel Orr (Cornett … et al., 2009) in an attempt to produce a more realistic approach to cash management over Baumol's model. The model manages to achieve a reasonable degree of realism while not being too elaborate. It assumes that the net cash flows are uniformly distributed with zero value of mean and standard deviation. The model uses some information to derive a mathematical formula. First, the lower control limit, L, second, the trading cost for marketable securities per transaction, F, third, the standard deviation in net daily cash flows, σ, and finally, the daily interest rate on marketable securities, $i_{day.}$

The model is given by the pair of mathematical notion:

$$Z^* = \sqrt[3]{3F\sigma^2/4i_{days}} + L$$
$$H^* = 3Z^* - 2L$$

The firm determines L, and the firm can set it to a non-zero number to recognize the use of safety stock. Z* is the optimal cash return point and is the replenishment level to

which cash is replenished when the cash level hits L. H* is the upper limit for cash balances and cash balances are brought down to Z* when cash balance hits H* (Cornett … et al., 2009).

The firm sets the lower limit as per its requirements of maintaining cash balance and upper limit as the control limit as well as its return point. If cash balance reaches the upper limit, the firm buys sufficient securities to return the cash balance to a normal level called the return point. When cash balances reach a lower limit, the firm sells securities to bring the balance back to return point (Pandey, 2008).

O'Donnell & Goldberger (1964) assert that the adequacy of cash and current assets together with their effective handling virtually determines the survival or demise of a concern. An enterprise should maintain adequate working capital for its smooth functioning. If materials are recklessly purchased, it will result in dormant slow moving and absolute inventory. However, inadequate amount of inventory will result to stock outs and interruption in operations (O'Donnell & Goldberger, 1964). Cash must also be maintained at an ideal level. It may also result to increased cost due to mishandling, waste and theft. Too much or inadequate level of cash balances mean cash is not properly utilized. Inadequate level of cash balance for example can lead to stoppage in business operations (Padachi, 2006). A company may be profitable but with no liquid cash which can result to operations interruptions. The company can also be forced into winding up by its creditors.

2.3.5 Working Capital Levels

Working capital is the amount of funds which a company needs to finance its day to day operations (Nkwankwo & Osho, 2010). It is the difference between current assets and current liabilities. A company can maintain a high level of its working capital in relation to its total assets or may maintain its working capital at a low level. Whatever the level of working capital maintained by a firm, there is an opportunity cost that is incurred. It may either be liquidity risk or reduced profit. The opportunity cost depends on whether the firm adopts a conservative or aggressive working capital policy. For the purpose of

this study, aggressive investment, conservative investment, aggressive financing and conservative financing policies were considered.

2.3.5.1 Aggressive Investment Policy

An aggressive investment policy deals with the firm's active control and management of current assets with the aim of minimizing them (Hussain, Farooz & Khan, 2012). Under this policy current assets are only demanded as they are needed to facilitate the operation of the business. According to Al-shubiri (2011) aggressive investment policy results in minimal level of investment in current assets versus fixed assets. Aggressive investment policy indicates the smallest level of investment in short term assets versus long term assets (Nasir & Afza, 2009).

The degree of aggressiveness of working capital investment policy is measured by ratio of current assets to total assets, where the lower value of this ratio shows more aggressiveness (Weinraub & Visscher, 1998; Nasir & Afza, 2009). Other things being the same, an aggressive investment policy results in lower current assets, lower expenses, a shorter cash conversion cycle, higher risk and higher required return to compensate the risk (Pinches, 1997). Hussain et al(2012) found that firms that use an aggressive investment policy with low level of current assets increase profitability.

2.3.5.2 Conservative Investment Policy

Conservative assets management is a passive approach, in which current assets grow in size whatever the situation (Pinches, 1997). A conservative investment policy sets a greater proportion of funds in short term assets versus long term assets with opportunity cost of low level profit (Nasir & Afza, 2009). Conservative investment policy places a greater proportion of capital in liquid assets as opposed to productive assets (Al-shubiri, 2011). In managing current assets, the policy is more conservative, if the firm uses more current assets in proportion to total assets (Weinraub & Visscher, 1998). Al-mwalla (2012) found that a conservative investment policy has a positive impact on a firm's profitability and value.

Raheman et al(2010) found that firms follow a conservative working capital policy. However, Weiraub and Visscher (1998) had found that industries do not significantly follow either aggressive or conservative working capital policies. Therefore, some firms follow aggressive and others conservative working capital policies. There is no strong tendency that a more aggressive approach in one area is balanced by a more conservative approach in the other (Weinraub & Visscher, 1998). According to Sathymoorthi and Wally-Dima (2008) companies tend to adopt a conservative investment approach during the time of high business volatility and an aggressive investment approach in the time of low volatility.

2.3.5.3 Aggressive Financing Policy

According to Campsey, Brigham, Gilroy and Hutchinson (1994) current liability is a desirable source of financing because it is usually cheaper than long term liabilities. Aggressive financing policy utilizes higher levels of current liabilities and less long term debt (Nasir & Afza, 2009; Al-shubiri, 2011). Using aggressive financing policy the firm finances its seasonal and possibly some permanent requirements of current assets with current liabilities (Gitman, 2009). Other things remaining the same, the higher the current liabilities, the more aggressive the firm's financing policy and low level of current liability leads to conservative financing policy (Pinches, 1997).

Firms put the liquidity at risk, if they concentrate more on the utilization of current liabilities by using aggressive current liability policy (Nasir & Afza, 2009). The level of aggressiveness of working capital financing policy is measured by ratio of short term liabilities to total assets, where the higher value of this ratio shows more aggressiveness (Weinraub & Visscher, 1998; Nasir & Afza, 2009). An aggressive financing policy results in higher shorter term liabilities, shorter cash conversion cycle, lower interest cost, higher risk and higher required return (Pinches, 1997). Hussain et al(2012) found that firms that use an aggressive financing policy with high level of current liabilities

increase profitability. However, Al-mwalla (2012) found that an aggressive financing policy has a negative impact on firm's profitability and value.

2.3.5.4 Conservative Financing Policy

A conservative financing policy uses more long term debt and capital. In an aggressive financing policy, a firm uses high levels of short term liabilities and low level of long term debt (Weinraub & Visscher, 1998). According to Sathymoorthi and Wally-Dima (2008) companies tend to adopt a conservative financing approach during the time of high business volatility and an aggressive financing approach in the time of low volatility. Across the board firms use either an aggressive or conservative financing policy and there is no strong tendency that a more aggressive approach in one area is balanced by a more conservative approach in the other (Weinraub & Visscher, 1998).

Since the working capital levels have some influence on profitability as per the empirical evidence, the study proposed to investigate whether working capital levels influence profitability of manufacturing firms in Kenya and the null hypothesis was stated as follows:

H_{05}:   Working capital levels do not influence profitability of manufacturing Firms in Kenya

2.3.5.1.1 Risk Return Tradeoff Theory

The risk return trade off theory advocates that financial managers and investors maximize their returns from their investments and at the same time minimize the risk. Brooks (2013) asserts that the risk return trade off theory is concerned with how much risk one can bear and at the same time remain comfortable and satisfied with the return that an investment generates. Risk return trade off is defined as the relationship that exists between risk and return that usually hold, in which one must be willing to accept greater risk if one wants to purse greater returns (Pandey, 2008). The relationship between risk and return is often expressed as follows; Return = Risk-free-rate + Risk premium

The risk and the expected returns are expected to move in the same direction. The higher the risk, the higher is the expected return. Very low risk investments provide a low return and high risk investments provide a high return. A proper balance between risk and return should be maintained to maximize the value of a firm's shares (Pandey, 2008). Investors take higher risk investments in expectation of earning higher returns (Weinraub & Visscher, 1998).

Cornett et al(2009) assert that in the short run, higher risk investments often significantly under perform the lower risk investments. However, firms and investors should expect higher risk investments to earn higher returns only over the long term. This theory was used by Weinraub & Visscher (1998) – Industry Practice relating to aggressive and conservative working capital policies.

2.3.6 Profitability

Profitability is the ability for an organization to make profit from its activities. Agha (2014) defines profitability as the ability of a company to earn profit. Profit is determined by deducting expenses from the revenue incurred in generating that revenue. Profitability is therefore measured by incomes and expenses. Income is the revenues generated from activities of a business enterprise. The higher the profit figure the better it seen as the business is earning more money on capital invested. For a manufacturing firm, revenues are generated from sales of products produced. Expenses are the costs of the resources used up and consumed in the manufacturing process together with other selling and administrative expenses. Drucker (1999) asserts that for a business enterprise to continue running, it must make profits. However, a business can not shut down its doors simply because it has made a loss in a single financial year but when the firm makes losses continuously in consecutive years this jeopardizes the viability of that business (Dunn, 2009).

The amount of profit can be a good measure of performance of a company. So profit is used as a measure of financial performance of a company as well as a promise for the company to remain a going concern in the world of business (Agha, 2014). The profitability position of the manufacturing firms was analyzed using return on assets (ROA). Return on assets indicates how profitable a business is relative to its assets and gives how well the business is able to use its assets to generate earnings calculated. Nyabwanga, Ojera, Otieno and Nyakundi (2013) assert that return on assets must be positive and the standard figure for return on assets is 10% - 12%. The higher the ROA the better because the business is earning more money on the capital invested.

Working capital management plays an important role in improving profitability of firms. Firms can achieve optimal management of working capital by making trade off between profitability and liquidity (Makori and Jagongo, 2013). There is always a trade off between liquidity and profitability. When one gains, the other one ordinarily means giving up some of the other (Saleem and Rehman, 2011). Proper working capital management ensures that the company increases its profitability. Effective working capital management is very important due to its significant effect on profitability of company and thus the existence of a company in the market (Agha, 2014)

2.4 Critique of the Related Literature

Studies carried out in Kenya by (Muchina and Kiano, 2011; Nyabwanga … et al., 2012; & Nyabwanga … et al., 2013) were targeting SME's and excluding large enterprises. The results can only be interpreted in relation to small and medium enterprises.

Ikram, Mohamad, Khalid and Zaheer (2011) studied working capital management on profitability in the cement industry. The results of the study were based on only one sub sector within the manufacturing sector. Therefore, the results of this study should be used with caution and should only be generalized to the cement industry and not entire manufacturing sector.

Mathuva (2010) concentrated on the firms listed in Nairobi securities exchange. The companies listed in the stock exchanges are large companies. Small companies were excluded from this study. Therefore, the results of study can only be generalized on large and listed companies.

Studies on working capital management use secondary data. Mousavi and Jari (2012), Kaddumi and Ramadan (2012) and Gakure et al(2012) used record survey sheet to collect the secondary data. However, Nyabwanga et al(2012) studied the effects of working capital management practices on performance of small enterprises in Kisii South District in Kenya. They used a questionnaire to collect the primary data. Secondary data from financial statements give values at a specific date and therefore require to be supplemented by primary data collected from opinions of finance managers.

2.5 Research Gaps

Despite the fact that working capital management is a frequent area of research in finance and accounting, there is very little study that has been carried out on manufacturing firms. Most of the studies carried out ignore to include an explanation on the relationship between the studies and the related theories and models. More so, studies on the working capital management tend to be carried out more in the east. However, Gill et al(2010) carried out their research on American manufacturing companies. They argued that the results of their findings could only be generalized to manufacturing firms similar to those that they included in their research. The sample size that they used was also small. They further argued that future research should investigate generalization of the findings beyond the American manufacturing companies.

Padachi (2006) studied the trends in working capital management and its impact on firm's performance in small manufacturing companies in Mauritius. His study concluded that there is a pressing need for further empirical studies to be undertaken on small business financial management, in particular their working capital practices by

extending the sample size so that an industry – wise analysis can help to uncover the factors that explain the better performance for some industries and how these best practices could be extended to other industries.

Muchina and Kiano (2011) studied the influence of working capital management on firm's profitability of small and medium enterprises sector. They argued that despite significant role played by smes, their financial management environment is not well understood especially in the area of working capital management. However, in their study they attempted to analyze the relationship between working capital management efficiency and profit in SME sector in Kenya. They looked at the whole spectrum of enterprises and did not confine themselves on manufacturing firms. They also used secondary data only.

Raheman and Nasr (2007) in their study on working capital management and profitability concluded that if firms properly manage their cash, accounts receivables and inventories, it will ultimately lead to increased profitability of the firms. They suggested that further research be conducted on the same topic with different firms. They also argued that further research be extended to working capital components management including cash, marketable securities, receivables and inventory management. There has been no study on cash management, receivables and inventory management since the proposal to study on the same was given.

Therefore, this study was an attempt to fill the gap in knowledge concerning effects of working capital management on profitability in the whole spectrum of the manufacturing industry in Kenya both in quoted and unquoted companies. The study used primary data for the independent variables and secondary data for the dependent variable.

CHAPTER THREE
RESEARCH METHODOLOGY

3.0 Introduction

This chapter describes the methodological design that was used to achieve the aims and objectives of the study. Part 3.1 discussed the research design. The justification of the chosen research design was given. Part 3.2 to 3.9 describe the target population, sampling technique, sample size, research instruments, data collection procedures, pilot test, data analysis and presentations, statistical model and hypothesis testing that were used in the study.

3.1 Research Design

Research design is the plan, structure of investigation conceived so as to obtain answers to research questions and to control variance (Kerlinger, 1973). Kothari (2004) states that research design is the arrangement of the conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. In a study, a plan or program is prepared on what is to be done from writing the hypothesis all through to data analysis. As Kothari (2004) puts it, it is the blue print for the collection, measurement and analysis of data and includes an outline of what is to be done from writing the hypothesis and its operational implications to the final analysis of data. It implies how research objectives will be reached and how the problem encountered in the research will be tackled (Kerlinger, 1973).

Shaughnessy, Zechmeister and Zechmeister (2002) assert that there are many different types of research designs that can be used in research. However, historical research design, case and field research design, descriptive research, correlational research design, ex post facto research design, time series research design, experimental research design and quasi experimental research design are the most used in social sciences. Each research design has its own merits. This research design used correlational research design because this research design attempts to explore relationships to make predictions. Correlational research design is also appropriate because only one set of

subjects with six variables was used. Therefore, this research design was used to identify, describe, show relationships and analyze variables of working capital management that affect profitability in manufacturing firms in Kenya. The main objective of a correlational research design is the discovery of associations among different variables (Cooper & Schindler, 2011). Thomson, Diamond, mcwilliams and Snyder (2005) argue that correlational evidence is more informative when exemplary practices are followed as regards to measurements, quantifying effects, avoiding common analysis errors and using confidence intervals to portray the range of possible effects and the precision of the effects estimates. Correlational research design has been used in similar past studies. Two most recent studies that used correlation research designs are Mousavi and Jari (2012) and Kaddumi and Ramadan (2012). Mousavi and Jari (2012) used correlational research design in their study to investigate the relationship between working capital management and corporate performance of companies listed in the Tehran stock exchange. Kaddumi and Ramadan (2012) used correlational research design to investigate the effects of working capital management on profitability on Jordan industrial firms listed at Amman Stock Exchange.

3.2 Population

A population is defined as total collection of elements about which we wish to make some inferences (Cooper & Schindler, 2011). Other scholars (mcmillian & Schumacher 2010; Zikmund, 1997) define population as a large collection of subjects from where a sample can be drawn. Kothari (2004) refers population to all items in any field of inquiry which is also known as the universe.

Kitchenham and Pfleeger (2002) assert that a target population is the group of individuals to whom the survey applies. It is the collection of individuals about whom conclusions and inferences are made (Enarson, Kennedy & Miller, 2004). Mugenda and Mugenda (2004) term target population as that population to which a researcher wants to generalize the results of his study.

44

The study's target population was 413 manufacturing firms operating in Nairobi industrial area and its environs. The respondents were the chief finance officers of manufacturing firms registered with KAM and were in KAM's 2011 directory. The study focused exclusively on the manufacturing firms that deal with transformation of raw materials and semi finished products into more complex form or for the final consumers. The 413 firms operated in twelve major industry groups as shown in appendix V111.

3.3 Sampling Frame

Sampling frame is defined as a list of elements from which a sample is actually drawn (Cooper & Schindler, 2011). It is a list containing items from which the sample is drawn (Kothari, 2004). For the purpose of this study sampling frame constituted the firms' names contained in the KAM's 2011 directory.

3.4 Sample Size and Sampling Technique

The term sample is defined in various ways by different scholars. Bryman (2008) and Spiegal (2008) define a sample as a part of the total population. However, Kothari (2004) defines a sample as a collection of units chosen from the universe to represent it. The sample should be as representative as possible of the entire population. Kerlinger (1973) asserts that the smaller the sample, the larger is the sampling error and the larger the sample, the smaller the error.

Kerlinger (1973) indicates that a sample size of 10% of the target population is large enough so long as it allows for reliable data analysis by cross tabulation, provides desired level of accuracy in estimates of the large population and allows for testing the significance of differences between the estimates. Jayarathne (2014) while studying the impact of working capital management on profitability from listed companies in Sri Lanka used Naasiuma (2000) model to calculate the sample size from a population of 39 listed companies. Jayarathne (2014) arrived at a sample of 28 companies. In Kenya, Nyanamba (2013) used Naasiuma (2000) model in his study on effects of corporate

reforms on corporate governance in coffee societies. This study used Naasiuma (2000) model to determine the sample size. The sample size in this study was determined using the following formula:

$N = N (cv^2) / \{cv^2 + (N-1) e^2\}$

Where n = sample size

N = target population

Cv = co-efficient of variation which is taken as 0.5

E = Tolerance at desired level which is taken at 0.05 or at 95% confidence level

Using this formula, the sample size was computed thus:

$N = 413 * (0.5)^2 / \{(0.5)^2 + (413-1) (0.05)^2\}$

$N = 413 * 0.25 / \{0.25 + (412 * 0.0025)\}$

$N = 103.25 / \{0.25 + 1.03\}$

$N = 103.25 / 1.28$

N = 80.66. This constituted 19.61% of the target population.

Proportional allocation was used to determine the size of each sample for different strata Saunders, Lewis and Thornhill (2007). The sample was stratified into the twelve sub-sectors as per KAM 2011 directory classification. The sample was determined as shown in table 3.4 below:

Table 3.4: Determination of Sample Size

Category of Manufacturer	Total No. Of Firms	%age Ratio	Sample Size % age * 81
Building, Mining & Construction	10	2.42	2
Chemical & Allied Sector	61	14.77	12

Energy, Electrical & Electronics	18	4.39	4
Foods & Beverages Sector	88	21.31	17
Leather & Footwear Sector	6	1.45	1
Metal & Allied Sector	45	10.90	9
Motor Veh. Assembly & Accessories	20	4.84	4
Paper & Board Sector	52	12.59	10
Pharmaceutical & Med. Equip. Sector	19	4.60	4
Plastics & Rubber Sector	53	12.83	10
Textile & Apparels Sector	27	6.54	5
Timber, Wood & Furniture Sector	14	3.39	3
Total	**413**	**100.00**	**81**

The study used stratified random sampling technique in the selection of the sample. Bryman (2008), Cooper and Schindler (2011) and Saunders … et al., (2007) assert that stratified random sampling technique is appropriate where most population can be segregated into several mutually exclusive sub-populations or strata.

3.5 Data Collection Instruments

The study used a questionnaire and a record survey sheet to obtain primary data and secondary data respectively. Data for the dependent variable (profitability) was collected from financial statements using a record survey sheet. Using record survey sheet, important figures from statements of comprehensive income and financial position were recorded for subsequent analysis. Data was obtained from Nairobi Securities Exchange (NSE), web sites of different manufacturing firms, from the firms' offices and from the registrar of companies. The data collected span a period of five years covering the period 2008 to 2012. The reason to restrict the period of the study to five years was that the latest data was readily available for this period.

Saunders et al(2007) indicate that most studies use questionnaires. Newing (2011) and Bryman (2008) explain that questionnaires consist of a series of specific, usually short questions that are either asked verbally by an interviewer or answered by the respondents on their own. Questionnaires may be close or open – ended. In close ended questionnaires, the response categories are exhaustive and include possible responses expected from respondents that include opinions and policy issues. A questionnaire was used to collect data for the independent variables. A questionnaire was used in Kenya by Nyabwanga et al(2012) and Kalundu et al(2012) to collect data on the effects of working capital management practices on financial performance on small and medium scale enterprises in Kisii South District and credit risk management practices in pharmaceutical manufacturing companies in Kenya respectively.

3.6 Data Collection Procedure

Data was collected from the stratified sample of 81 firms. The data was collected through the use of record survey sheet and a self administered questionnaire. Record survey sheet was used to collect secondary data from financial statements that were obtained from the registrar of companies, Nairobi securities exchange, companies' offices and websites.

A questionnaire was used to collect primary data. Cooper and Schindler (2011) support the use of self administered questionnaires in descriptive studies because they cost less. Saunders et al(2007) argue that self administered questionnaires are usually completed by the respondents' electronically using internet, posted to respondents who return them by post after completion, or delivered by hand to each respondent and collected later. In this study drop and pick method was used to administer the questionnaires. This method is convenient to use, cheap, easier and quicker to administer. It is also highly convenient for the respondents as they can complete the questionnaire during their spare time when their work load is manageable. In the recent past the use of drop and pick administered questionnaire method was used in Bangladesh by Rahman (2011) to collect primary data on working capital management on profitability in textile industry. In Africa, Dumbu

and Chabaya (2012) successfully used drop and pick method to administered their questionnaire on their study on the impact of working capital management practices on performance of manufacturing micro and small enterprises in Zimbabwe.

3.7 Pilot Test

The purpose of a pilot test is to detect weaknesses in the design and implementation of a questionnaire and to provide proxy for data collection of a probability sample (Cooper & Schindler, 2011). Other scholars argue that the purpose of pilot testing is to establish the accuracy and appropriateness of the research design and instrumentation (Saunders … et al., 2007; Sekaran, 2006; Bryman, 2008). Pilot testing has dual advantages; first, is to catch potential problems, costly mistakes, provide an indication of time required for actual field work and possible modifications of the instrument and modality of data collection, second, enhancing the training of field staff, review of the instrument, prevention of wasteful expenditures on a full blown survey whose results may not be acceptable (Star, 2008). Thus, to check the validity and reliability of the questionnaires in gathering the data required for the purposes of the study, a pilot study was carried out.

Baker (1988) argues that the size of a sample for the purpose of pilot testing can range between 5% and 10%. However, Mugenda and Mugenda (2004) argue that the pretest sample should be between 1% and 10% depending on the size of the sample, the larger the sample, the smaller the percentage. In this study, the questionnaire was pilot tested on 10% of the sample to ensure that the instrument was relevant and reliable. The questionnaire was tested on eight (8) respondents. In a pilot test the respondents do not have to be statistically selected when testing for validity and reliability (Cooper & Schindler, 2006). Nyabwanga et al(2012) assert that the respondents for a pilot study must come from outside the sample selected from the main sample of the study and they effectively used this method in their study on effects of working capital management practices on financial performance of small and medium enterprises in Kisii south district. They administered 10 questionnaires to small and medium enterprises in the neighbouring Kisii central district. For the purpose of this study, the pilot test was done

on firms registered with KAM that were within Nakuru region. This minimized the cost of carrying out the pilot test because the companies are close to each other. Nakuru region also neighbours Nairobi environ where the main study was carried out.

3.7.1 Validity of Research Instrument

Validity refers to whether the questionnaire is measuring what it purports to measure (Bryman & Cramer, 2006; Bryman, 2008). Mcmillan & Schumacher (2010) describe validity as the degree of congruence between explanations of phenomena and the realities of the world. While absolute validity is difficult to establish, demonstrating the validity of a developing measure is very important in research (Bryman, 2008). This study used both construct validity and content validity.

Saunders et al(2007) explain construct validity as the extent to which the measurement questions actually measure the presence of those constructs one intended to measure. In this study and for the purpose of construct validity, the questionnaire was divided into several sections to ensure that each section assessed information for a specific objective, and also ensured that the same closely tied to conceptual framework of the study.

Content validity is the extent to which the measurement device provides adequate coverage of investigative questions. Creswell (2003) suggests that a colleague and / or an external auditor can provide additional insight into the study and research findings. To ensure content validity the questionnaire was subjected to though examination by two independent resource persons, from the institute of certified public accountants of Kenya. The resource persons were asked to evaluate the statements in the questionnaire for relevance and whether they were meaningful and clear.

On the basis of evaluation, the instrument was adjusted appropriately before subjecting it to the final data collection exercise. Quality items were chosen from review of relevant theoretical and empirical literature of credit policy, accounts payable practices, inventory control practices, liquidity management practices, working capital levels and

50

profitability. These items were used to construct the questionnaire in Appendix 1. Nyabwanga et al(2012) used this approach of enhancing content validity in testing their questionnaires.

3.7.2 Reliability of the Research Instrument

Reliability has been defined by various scholars as the repeatability, stability or internal consistency of a questionnaire (Bryman, 2008; Cooper & Schindler, 2011; mcmillan & Schumacher, 2010). In this study, the Cronbach's alpha was used to determine how reliable the instrument was. Items in the questionnaire underwent reliability analysis in accordance with the six factors extracted. The reliability co-efficient tells the consistency of the questionnaire. Cronbach's alpha was used to calculate the average of all possible split-half reliability co-efficients.

Cronbach's alpha was used to test the reliability of the measures in the questionnaire (Cronbach, 1951). Bryman (2008) suggests that where cronbach alpha is used for reliability test, as a rule of thumb, cronbach alpha values for items included in a study should not be lower than 0.8. Nunnally (1978) suggested that where the cronbach's alpha is used for reliability test, as a rule of thumb, cronbach's alpha values for items included in a study should not be lower than 0.7. Gliem and Gliem (2003) recommend a cronbach that exceeds 0.7. In this study, reliability of 0.7 and above was considered acceptable and the formula developed by Cronbach was used to calculate the alpha (Cronbach, 1951).

Sekaran (2006) and Cooper and Schindler (2011) assert that cronbach's alpha has the most utility for multi-item scales at the interval level of measurement. Cronbach's alpha requires only a single administration of questionnaire and provides a unique, quantitative estimate of the internal consistency of a scale. To increase the reliability of the questionnaire, this study used cronbach's alpha for separate domains of the questionnaire rather than the entire questionnaire. Sekaran (2006) states that in almost all cases, cronbach's alpha can be considered a perfectly adequate index of the inter item

consistency reliability. This study ensured that the questionnaires were self administered (drop and pick later). This ensured that the targeted respondents filled the questionnaire.

3.8 Data Analysis

The data collected was first cleaned, sorted and coded using numerical numbers. Then it was entered in the SPSS software after which analysis was done. The data was analyzed in accordance with the objectives of the study. Statistical Package for Social Sciences (SPSS) version 20.0 was used as a tool to analyze the data. SPSS program is the most frequent used for data analysis. In the past, a number of studies used SPSS program to analysis their data with the same theme of working capital management and profitability. These studies include; Raheman et al. (2010), Saleem and Rehman (2011), Mohammad (2011), Afza and Nazir (2011), Radhika and Azhagarah (2012), Hussain et al(2012), Ahmad et al(2012) and Kaddumi and Ramadan (2012).

Descriptive analysis was the first step in the analysis. Descriptive statistics show the percentages and mean of different items in the study. In the second step, the study applied quantitative analysis. Before, quantitative analysis was carried out, factor analysis was conducted. Principal component analysis (PCA) was used as a data reduction technique to reduce a large set of measures to smaller, more manageable number of composite variables to be used in subsequent analysis. All composite variables with factor loading of less than 0.4 were eliminated from further analysis (David, Patrick and Philip, 2010).

Before carrying out factor analysis, two tests were carried out to determine whether factor analysis was necessary. Kaiser-Meyer-Olkin (KMO) and Barttlett's test of spherity analysis were carried out. The Kaiser-Meyer-Olkin (KMO) measure is used to examine the appropriateness of factor analysis. High values (0.5 - 1.0) indicate that factor analysis is appropriate. Therefore, if the KMO is more than 0.5 and Bartlett's value is less than 0.05, then factor analysis is necessary (Tabachnick & Fidell, 2007; William, Brown & Osman, 2010). Values of below 0.5 imply that factor analysis may

not be appropriate (Paton, 2002). Vijayakumar (2013) in their study of working capital efficiency and corporate profitability from Indian Automobile industry used Kaiser-Merger-Olkin (KMO) measure to examine the appropriateness of the use of factor analysis. They found KMO measure to be 0.582. This signified that factor analysis was appropriate to be used in that analysis. Bartlett's test of Sphericity gave a chi – square value of 155.445 with a p-value of 0.000. This further supported the use of factor analysis in the study. In Kenya, Omesa, Maniagi, Musiega and Makori (2013) carried out a study on working capital management and corporate performance. They used Kaiser-Meyer-Olkin and Bartlett's measure of Sphericity to examine the appropriateness for the use of factor analysis. They found KMO measure to be 0.520 that signified that factor analysis was appropriate to be used in that study. Bartlett's test of Sphericity gave a chi – square value of 207.922 with a p-value of 0.000 which was significant at 99% confidence. This further supported the use of factor analysis in the study.

Pearson's correlation, regression and ANOVA analysis were used. Karl Pearson's correlation was used to show the relationship between variables such as those between working capital management and profitability. Pearson's correlation was used to measure the degree of association between different variables under consideration. A number of recent studies have used Pearson's correlation, regression and ANOVA analysis. Kaddumi and Ramadan (2012) used the models to determine the effects of working capital management on profitability of Jordan industrial firms listed at Amman stock exchange. Hussain, Farooz and Khan (2012) used these three models to investigate the relationship between aggressiveness investment policy and aggressiveness financing policy with profitability in Pakistan manufacturing firms.

In this study, an analysis of partial correlation between variables was also determined. Kothari (2004) points out that partial coefficient of correlation measures separately the relationship between two variables in a way that the effects of other related variables are eliminated; the aim of the analysis was to measure the relationship between an independent variable on the dependent variable holding all other variables constant; thus

each partial coefficient of correlation measures the effect of its independent variable on dependent variable. Coefficient correlation between each set of pairs of variables was computed guided by research hypothesis. A t-test at 5% level of significance was used to determine the significance of partial correlation coefficient

Finally, the study used the regression analysis to estimate causal relationship between profitability and other chosen independent variables. Multiple regression analysis was used. Multiple regression analysis was used in the past by Uremadu, Egbide and Enyi (2012) in their study on effects of working capital management and liquidity on corporate profitability among Nigerian quoted firms. They used multiple analytical models to estimate the relationship between the level of corporate profitability and four independent variables; inventory conversion period, debtors' collection period, creditors' payment period and cash conversion cycle.

3.9 Statistical Model and Hypothesis Testing

A standard multiple regression analysis was conducted to evaluate how well the independent variables were significantly related to profitability (dependent variable). In a standard multiple regression analysis all the independent variables are entered into the regression equation at once because there are no control variables (Cameron, 2005). The model was used in the past by Raheman et al(2010) in their study on working capital management and corporate performance of manufacturing sector in Pakistan as well as Hussain et al(2012) in their study on aggressiveness and conservativeness of working capital management in Pakistan manufacturing sector. In this study the standard multiple regression model had one dependent variable (Y) - for profitability and five independent variables (X_1, X_2, X_3, X_4 & X_5) being X_1 (Credit Policy), X_2 (Accounts payable Practices), X_3 (Inventory Control Practices), X_4 (Liquidity Management Practices) and X_5 (Working Capital Levels) that were used to show that the stated independent variables had an influence on profitability. The regression model was given by the following equation: $Y = \beta_0 + \beta_1 x_1 + \beta_2 X_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \varepsilon$

Where

Y	=	Profitability
B_0	=	Constant
X_1	=	Credit policy
X_2	=	Accounts payable practices
X_3	=	Inventory Control Practices
X_4	=	Liquidity Management Practices
X_5	=	Working Capital Levels
B_1	=	Regression Coefficient of variable X_1 (Credit Policy)
B_2	=	Regression Coefficient of Variable X_2 (Accounts Payable Practices)
B_3	=	Regression Coefficient of Variable X_3 (Inventory Control practices)
B_4	=	Regression coefficient of variable X_4 (Liquidity management Practices)
B_5	=	Regression Coefficient of variable X_5 (Working Capital Levels)
E	=	Error term

This study determined the sample size using a stratified sampling technique which is probabilistic. Testing of the study hypotheses was done through the use of probability. The method of hypothesis testing or significance testing is said to be probabilistic only when the sample from the population is determined using probability sampling method (Mosteller, Rourke & Thomas, 2000; King'oriah, 2004).

3.9.1 Testing Hypothesis 1

To test the first hypothesis that credit policy does not have any influence on profitability of manufacturing firms in Kenya, the following regression was used;

$$Y = \alpha_1 + \beta_1(X_1) + \varepsilon$$

Where $\beta 1$ was the regression coefficient of credit policy, X_1 was credit policy. The other independent variables; accounts payable practices, inventory control practices, liquidity management practices and working capital levels were held constant.

3.9.2 Testing Hypothesis 2

To test the second hypothesis that accounts payable practices do not influence profitability of manufacturing firms in Kenya, the following regression was used;

$$Y = \alpha_2 + \beta_2(X_2) + \varepsilon$$

Where β_2 was the regression coefficient of accounts payable practices, X_2 was the accounts payable practices. The other independent variables credit policy, inventory control practices, liquidity management practices and working capital levels were held constant.

3.9.3 Testing Hypothesis 3

To test the third hypothesis that inventory control practices do not influence profitability of manufacturing firms in Kenya, the following regression was used;

$$Y = \alpha_3 + \beta_3(X_3) + \varepsilon$$

Where β_3 is the regression coefficient of inventory control practices, X_3 was inventory control practices. The other independent variables credit policy, accounts payable practices, liquidity management practices and working capital levels were held constant.

3.9.4 Testing Hypothesis 4

To test the fourth hypothesis that liquidity management practices do not influence profitability of manufacturing firm in Kenya, a fourth regression was used;

$$Y = \alpha_4 + \beta_4(X_4) + \varepsilon$$

Where β_4 was the regression coefficient of liquidity management practices, X_4 was liquidity management practices. The other independent variables credit policy, accounts payable practices, inventory control practices and working capital levels were held constant.

3.9.5 Testing Hypothesis 5

To test the fifth hypothesis that working capital levels do not influence profitability of manufacturing firms in Kenya, a fifth regression was used;

$$Y = \alpha_5 + \beta_5(X_5) + \varepsilon$$

Where β_5 was the regression coefficient of working capital levels, X_5 were working capital levels. The other independent variables credit policy, accounts payable practices, inventory control practices and liquidity management practices were held constant.

3.9.6 Overall Model

The test for significance of coefficient of multiple regression was determined by the use of F- test. This test was to check the significance of the whole regression model with the prediction that all independent variables i.e. Credit policy, accounts payable practices, inventory control practices, liquidity management practices and working capital levels had no influence on dependent variable that is $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$ and the alternative prediction that at least one of the independent variable was not equal to zero that is $\beta_j \neq 0$; j = 1, 2, 3, 4, 5. The hypothesis to test is here below stated;

$$H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$$

$$H_1: \text{At least one of } (\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 \neq 0)$$

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

The purpose of the study was to determine the effects of working capital management on profitability of manufacturing firms in Kenya. This chapter presents the response rate, sample firms' characteristics, and descriptive analysis of the data, reliability, factor, correlation, regression and ANOVA analysis. The chapter further presents the findings from the tests of the five hypotheses that were drawn from the objectives.

4.2 Pilot Test Results

A pilot study was carried out to check on validity and reliability of the questionnaire in gathering the data. A sample of 8 manufacturing firms was picked. Return rate was 100%. Factor analysis was carried out with a threshold of a factor loading of 0.3. All composite measures that gave a factor loading of less than 0.3 were subsequently dropped from the questionnaire. The composite measures that were retained constituted all the questions in the questionnaire that were administered to the respondents during main study. The results of factor analysis are as shown in table 4.5 below:

Table 4.5: Factor Analysis Results

	Composite Measures	Dropped Measures	Retained Measures
Credit Policy	19	2	17
Accounts Payable Practices	8	2	6
Inventory Control Practices	8	3	5
Liquidity Management Practices	12	4	8
Working Capital Levels	6	0	6

The results of the reliability test are shown in table 4.6.The study used cronbach's alpha statistic with a threshold of more than 0.7. All variables gave a cronbach's alpha of more than 0.7and therefore were retained for further study.

Table 4.6: Reliability Test Results

Variable	Cronbach's Alpha
Credit Policy	0.913
Accounts Payable Practices	0.713
Inventory Control Practices	0.703
Liquidity Management Practices	0.833
Working Capital Levels	0.833

4.3 Response Rate

A total of 81 questionnaires were distributed to sampled respondents who were the chief finance officers of the sampled manufacturing firms. Completed questionnaires received were 71 in number which represented 87.7% response rate and 10 questionnaires were not received which represented 12.3% of the total questionnaires distributed. Mugenda and Mugenda (2004) assert that a response rate of more than 50% is adequate for analysis. Babbie (2004) also asserts that a return rate of 50% is acceptable for analysis and publishing. Babbie (2004) also stated that a 60% return rate is good and a 70% return rate is very good. The overall response rate attained in this study of 87.7% was higher compared to other similar studies. For example, Ojeka (2012) reported a response rate of 85% in his study on credit policy and its effect on liquidity in manufacturing firms in Nigeria. Kalunda et al(2012) reported a response rate of 70% in their study on pharmaceutical manufacturing companies in Kenya and their credit risk management practices. From the 71 questionnaires received there were no inconsistencies and errors. Therefore, information from all the questionnaires was used for analysis. The drop and pick method was used in administering questionnaires and this method partly contributed to the high response rate achieved in this study. In addition, the higher response rate was attributable to the fact that anonymity was assured as the potential respondents were not required to disclose traceable identities. Response rate for the returned and unreturned questionnaires is presented in table 4.7

Table 4.7: Rate of Response by the Respondents

Response	Respondents	(%)
Returned	71	87.7
Not Returned	10	12.3
Total Distributed	**81**	**100.0**

4.4 Firms' Characteristics

Several aspects to describe the targeted manufacturing firms were used. The key factors of the interest to this study were organizational form; whether listed company, other listed companies, partnership or a co-operative society. The second aspect of interest was the organizational structure of the manufacturing firm; whether simple, functional form, divisional or matrix form. The other aspects of interest within the sample were; firm's number of years of operation, types of manufactured products, number of workers employed by the firms, classification of the firms under KAM and the duration of the firms under KAM. The sample characteristics information was considered crucial in understanding the in-depth characteristics among sampled manufacturing firms. The findings of these sample characteristics are presented in sections 4.4.1 to 4.4.7.

4.4.1 Industry Experience

The study sought to establish the period the firms had been in operation. The distribution of firms' industry experience is shown in table 4.8. A significant majority (61.9%) of the respondents indicated that their firms were aged less than thirty years and only (25. 4%) were above 40 years old since they started their operations. This shows that the firms have little experience in the manufacture and majority of the firms are small. However, this study dealt with all sorts of firms; small, medium and large.

Table 4.8: Industry Experience

Category	(%)
1 – 10 Years ago	12.7
11 – 20 Years ago	25.4
21 – 30 Years ago	23.8

31 – 40 Years ago	12.7
41 – 50 Years ago	16.9
Over 50 Years ago	8.5
Total	**100.0**

4.4.2 Firms' Duration with KAM

The study sought to establish the length of time the firms have been members of Kenya Association of Manufacturers. Table 4.9 below shows the distribution of the firms by length of time they have been members of Kenya Association of Manufacturers. Table 4.9 indicates that (11.3%) of the respondents had been members of KAM for between 1 – 5 years, (19.7%) between 6 – 10 years, (18.3%) between 11 – 15 years, (16.9%) between 16 – 20 years, (18.3%) between 21 – 25 years and (15.5%) over 25 years. This indicated that over (50%) of the firms were members of KAM for a period less than 15 years. This is in conformity to table 4.6 above that shows that majority of the firms commenced their operations recently. Kenya Association of Manufacturers was established in 1954 (KAM, 2006). Therefore, it has been in existence for the last 60 years. Only old and established firms wish to be under the umbrella of KAM. Moreover, this indicates that industrial manufacturing is a young sector in Kenya that has yet to gain experience and skills to profitably compete in international market.

Table 4.9: Firms' Duration with KAM

Category	(%)
1 – 5 Years	11.3
6 – 10 Years	19.7
11 – 15 Years	18.3
16 – 20 Years	16.9
21 – 25 Years	18.3

Over 25 Years	15.5
Total	**100.0**

4.4.3 Firms' KAM Classification

The study sought to establish the class under which the firms have been grouped by the Kenya Association of Manufacturers. As reflected in table 4.10 below, only (2.8%) of the firms have been grouped under building, mining and construction sector, (14.1%) chemical and allied sector, (5.6%) energy, electrical and electronics sector, (19.7%) foods and beverages sector, (1.4%) leather and footwear sector, (9.9%) metal and allied sector, (5.6%) motor vehicles assemblers and accessories sector, (12.8%) paper and board sector, (5.6%) pharmaceutical and metal equipment sector, (12.8%) plastic and rubber sector, (5.6%) textile and apparels and (4.2%) timber, wood and furniture sector. This shows that foods and beverages sector had the highest number of firms followed by chemical and allied sector and leather and footwear sector had the least number of firms. This is because agribusiness is one of the oldest economic activities in Kenya. The sector has grown rapidly over the years alongside astronomical population growth to support ever increasing demand for foodstuffs and beverages. The byproducts of food processing are used as derivatives for some chemical manufacturing. Thus, foods and beverages and chemical and allied sectors are interrelated in terms of technology and production inputs. Technology for leather and footwear is not well developed in Kenya and such products cannot be competitively produced in Kenya. This explains the concentration nature of these two sectors.

Table 4.10: Firms' KAM Classification

Category	(%)
Building, Mining and Construction	2.8
Chemical and Allied Sector	14.1
Energy, Electrical and Electronics Sector	5.6
Foods and Beverages Sector	19.7
Leather and Footwear Sector	1.4
Metal and Allied Sector	9.9
Motor Vehicles Assemblers and Accessories Sector	5.6
Paper and Board Sector	12.8
Pharmaceutical and Metal Equipment Sector	5.6
Plastic and Rubber sector	12.8
Textile and Apparels Sector	5.6
Timber, Wood and Furniture Sector	4.2
Total	**100.0**

4.4.4 Firms' Organizational Form

The study sought to establish the firms' form of organization. The distribution of the firms by organization form is shown in table 4.11. A significant majority (94.4%) of the respondents indicated that their firms are organized as limited companies while the rest (5.6%) are organized as other forms of organizations. This indicates that about all the firms are formal and abide with statutory requirements that include filing of annual returns with Kenya Revenue Authority. It was expected that such formal organizations have no problem in responding to questionnaires with information on issues pertaining to finance. Kalunda et al (2012) carried out a study in pharmaceutical companies and their credit risk management in Kenya. All the 20 firms were organized as limited companies. The response rate was 70% (14).

Table 4.11: Firm's Organizational Form

Category	(%)
Listed Company	25.4
Other Limited Companies	69.0
Partnership	1.4
Sole Proprietorship	1.4
Co – operative Society	1.4
Others	1.4
Total	**100.0**

4.4.5 Workers Employed by the Firms

The study sought to establish the number of workers employed by the firms. The distribution of the companies in respective of workers they employed is shown in table 4.12 below. The respondents indicated that (5.6%) of their firms employed between 1 – 10 workers, (16.9%) between 11 – 50 workers, (25.4%) between 51 - 100 workers, (33.7%) between 101 – 250 workers, (9.9%) between 251 - 500 workers and (8.5%) of the firms employed over 500 workers. This indicates that majority of the firms (76%) employed between 11 - 250 workers. This further indicates that majority of the firms in the manufacturing industry in Kenya are small, medium and large (Kenya, Republic of 1999 & Kenya, Republic of, 2005). This was expected because majority of manufacturing firms employ up to 100 workers (Kenya, Republic of, 2007). This reflects that Kenya is a nascent industrializing nation whose manufacturing sector has not grown as much as comparable nations in the Middle East. Manufacturing sector does not contribute greatly to employment in Kenya.

Table 4.12: Workers Employed by the Firms

Category	(%)
Between 1 and 10 Workers	5.6
Between 11 and 50 Workers	16.9
Between 51 and 100 Workers	25.4
Between 101 and 250 Workers	33.7
Between 251 and 500 Workers	9.9
Above 500 Workers	8.5
Total	**100.0**

4.4.6 Firms' Manufactured Products

The study sought to establish the types of products manufactured by the firms. The distribution of the types of the products manufactured by the firms is shown in table 4.13. Majority (80.3%) of the respondents indicated that their firms deal with either raw materials or finished products. A significant number of respondents (64.8%) indicated that their firms deal with finished goods. This shows that most manufacturing firms in Kenya are engaged in primary and processing industrial activities. Thus, value addition is largely minimal leading to the firms' inability to competitively offer their products in the world market. This means that majority of the firms have the ability to participate in the international market through exports, but command low prices relative to their counterparts in the developed nations.

Table 4.13: Firms' Manufactured Products

Category	(%)
Raw Materials	15.5
Parts	4.2
Semi – Assembled Components	14.1
Finished Goods	64.8
All above	1.4
Total	**100**

4.4.7 Firms' Organizational Structure

The study sought to establish the form of organization structure established in the firms. Table 4.14 shows the distribution of the firms with their organization structure. A significant majority (70.5%) of the firms shows that the firms' organizational structures are either simple or functional. The rest of the firms (29.5%) are organized either as a division or matrix. This is expected because the firms employ up to 100 workers and therefore they are small and medium (ROK, 2007). Table 4.14 also shows that the firms are small and medium. Small firms do not require complex organizational structures.

Table 4.14: Firms' Organizational Structure

Category	(%)
Simple Form	31.0
Functional Form	39.5
Divisional Form	22.5
Matrix	7.0
Total	**100.0**

4.5 Assumptions of Multiple Regression Analysis

4.5.1 Normality Tests for the Profitability

Inferential statistics are meant to infer whether there is underlying relationship within the respective variables. For the purpose of subsequent analysis, the dependent variable was subjected to normality test to check whether the data provided was normally distributed or not. If the dependent variable is not normally distributed then there would be problems in subsequent statistical analysis until the variable assumes normality (Child, 1990). The best way to evaluate how far data is from normal is to look at a graph and see if the distribution deviates grossly from a bell-shaped normal distribution (Garson, 2012). Normality has been visually assessed by looking at a normal histogram of frequencies with a superimposed curve.

66

Figure 4.2 shows that profitability is approximately normally distributed with a mean of 19.89 and a standard deviation of 5.902 and the number of manufacturing firms that responded were 71 represented by N = 71.
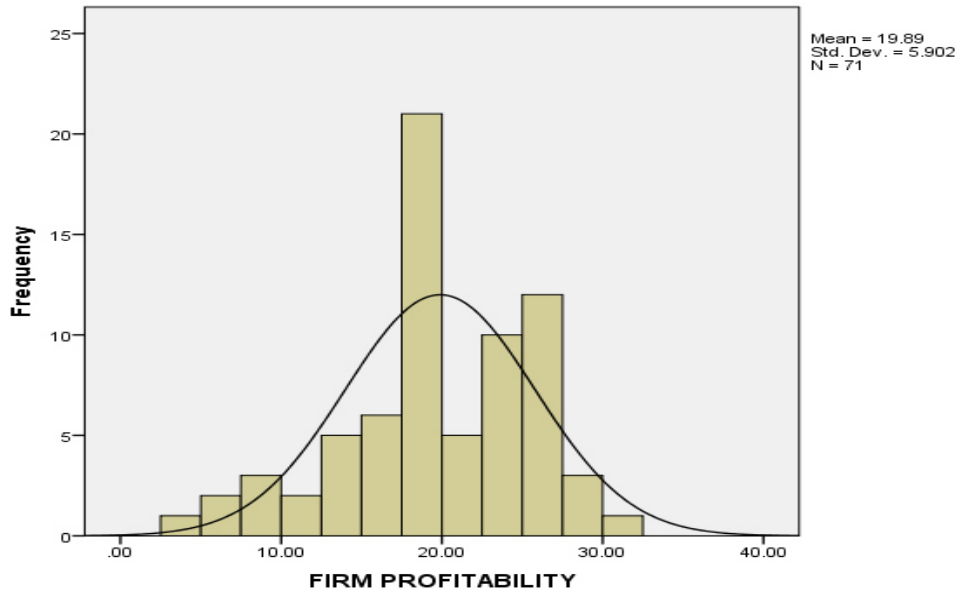
Figure 4.2: Normal Histogram for Profitability

Shapiro –Wilk (W) test was used to test normality of profitability (Dependent Variable). Shapiro –Wilk (W) Test for normality of profitability was used because the sample size was small (71 respondents). Shapiro – Wilk (W) test is appropriate where the sample is between 7 to 2000 respondents (Shapiro and Wilk, 1965). For large samples of between 2000 and 5000 respondents, Kolmogorov – Smirnov (D) test is appropriate (Park, 2008; Garson, 2012). The hypothesis to test was whether the data was normally distributed is given by H_0 and H_1, set $\alpha = 0.05$, the rule is reject H_0, if p-value is less than α, else fail to reject H_0: (Park, 2008; Garson, 2012), Where:

H_0: The data is normal

H_1: The data is not normal

The results of the test are shown in table 4.15. The table indicates that using the Shapiro – Wilk test, the profitability data was normal since the p – value for the test was 0.086

which is higher than 0.05. The study therefore concluded that the profitability variable was normal in distribution.

Table 4.15: Normality Results for Profitability

	Shapiro - Wilk		
	Statistic	Df	Sig.
Profitability	0.957	71	0.086

4.5.2 Autocorrelation Test for Profitability

The study determined whether there was autocorrelation through calculation of Durbin – Watson statistic. The statistic has to lie between 1.5 – 2.5 (Cameron, 2005; Curwin & Slater, 2008; Garson, 2012). The hypothesis to test was whether there was evidence of lack of autocorrelation given by H_0 and H_1, set $\alpha = 0.05$, the rule was to reject H_0, if p – value was less than α else fail to reject H_0: (Garson, 2012) Where:

H_0: There was no evidence of autocorrelation

H_1: There was evidence of autocorrelation

The results of the test are shown in table 4.16. Table 4.16 shows a Durbin –Watson co-efficient of 1.8423 with a p-value of 0.1674. Since Durbin –Watson coefficient was between 1.5 and 2.5 and p-value higher than 0.05, the study failed to reject the null hypothesis that there was no autocorrelation in the data residual. The study therefore concluded that there was no autocorrelation of the profitability. Thus, linear regression model was appropriate for this study. Ogundipe, Idowu and Ogundipe (2012) used Durbin – Watson test to determine whether there was autocorrelation in their data residuals. Since their calculated Durbin – Watson coefficient was between 1.5 and 2.5 (i.e. 1.961) they concluded that there was no autocorrelation in the data residuals. This justified the use of the regression model in their study.

Table 4.16: Autocorrelation Test for Profitability

	Durbin –Watson	
	Statistic	Sig.
Profitability	1.8423	0.1674

4.5.3 Homoscedastic Test for Profitability

Homoscedasticity suggests that the dependent variable has an equal level of variability for each of the values of the independent variables (Garson, 2012). A test for homoscedasticity is made to test for variance in residuals in the regression model used. Lack of an equal level of variability for each value of the independent variables is known as heteroscedasticity. The probability – probability plot (P-P Plot) is a graphical method that is used to assess the normality as well as homoscedasticity of data distribution. It compares an empirical cumulative distribution function of a variable with a specific theoretical cumulative distribution function (Park, 2008). If two distributions match, the plot forms a linear pattern passing through the origin with a unit slope. The more the straight line formed by the P-P plot, the more the variable distribution conforms to normality and homoscedasticity (Garson, 2012). The normal P-P plot of profitability shown in figure 4.3 shows that there are minimum deviates of the points from the line that cuts across the plane at 45^0. This guaranteed that the data used for the dependent variable (profitability) was normally distributed and homoscedastic and therefore the study adopted the multiple linear regression model.
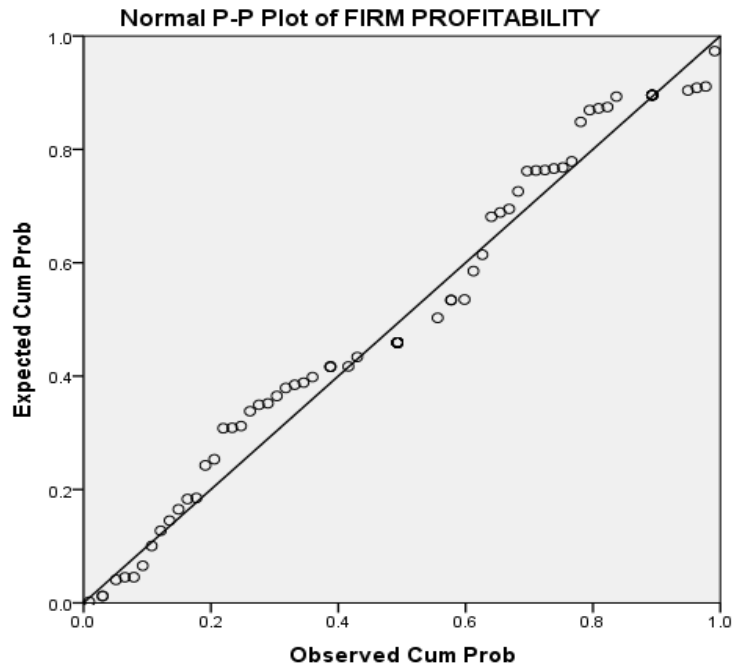
Figure 4.3: Homoscedastic Test Profitability

4.5.4 Testing for Outliers

Detecting of outlier observations was done using cook's distance statistic. An outlier refers to an observation that is numerically distant from the rest of the data (Barnett & Lewis, 1994). Cook's distance statistic of 0.00 – 1.00 was taken as the standard threshold in this study. The results of the analysis show minimum cook's distances of 0.000 for all the independent variables and maximum values of between 0.173 and 0.429. The mean values of the all the independent variables range between 0.012 and 0.025. The results showed that there was no problem of outliers. The study therefore assumed normality assumption in the use of linear regression. The results of the analysis are shown in table 4.17 below.

Table 4.17: Cook's Distance Statistics

	Min. Value	Max. Value	Mean Value	Standard Deviation	N
Credit Policy	0.000	0.429	0.025	0.067	71
Accounts Payable Practices	0.000	0.316	0.017	0.043	71
Inventory Control	0.000	0.173	0.012	0.025	71
Liquidity	0.000	0.220	0.017	0.037	71
Working Capital Levels	0.000	0.280	0.017	0.044	71

4.6 Effects of Credit Policy on Profitability in Manufacturing Firms

The first objective of the study was to determine whether credit policy influences profitability of manufacturing firms in Kenya. The objective was tested through seventeen (17) composite measures which were laid on scaled questionnaire. The findings were presented in table 4.59 (Appendix IV) which shows the frequencies of responses and mean on the effect of credit policy on profitability.

Credit management and policy are the basis for making decisions on extending credit. The respondents were requested to indicate whether their firms extended credit facilities to their customers. A significant majority (88.8%) indicated that their firms extended credit facilities to their customers, (5.6%) did not commit themselves while few (5.6%) indicated that their firms did not extend credit facilities to their customers. This shows that the majority of the respondents were of the opinion that their firms extended credit facilities to their customers. The responses had a mean of 4.28. Most responses were 4, confirming that firms extend credit facilities to their customers and therefore the firms were maximizing their profits because the purpose of extending credit is to maximize profits (Damilola, 2006).

Production cycle of a manufacturing firm is always longer than that of a merchandized organization. The respondents were requested to indicate whether their firms consider the production cycle when setting credit standards. A significant majority (83.1%) of the

respondents indicated that their firms consider production cycle when setting credit standards, (8.5%) decline to indicate while few (8.4%) indicated that their firms did not consider the production cycle. Majority were of the opinion that production cycle of manufacturing firms is considered before credit standards are set. The responses had a mean of 4.10. Most of the responses were 4, confirming that the production cycle is considered when setting the credit standards. This confirms the result of the study carried out by Ojeka (2012) in Nigeria that found out that manufacturing companies in Nigeria consider the production cycle when setting their credit standards.

The length of credit period customers are allowed has an implication on both sales and profitability. The respondents were requested to indicate whether the period of time they allow their credit customers has any influence on sales. A significant majority (83.1%) indicated that the length of time customers are allowed on credit sales has an influence on sales, (9.9%) declined to indicate while few (7%) indicated that the length of time did not have any influence on sales. Majority of the respondents were of the opinion that the length of credit period customers are allowed has an implication on both sales and profitability. The responses had a mean of 4.23. Most of the responses were 4, confirming the statement that the length of credit period allowed to customers has an implication on sales and profitability. Lazaridis and Tryfonidis (2006) argue that credit period whether from suppliers or granted to customers, in most cases, has a positive impact on profitability.

The respondents were requested to indicate whether their firms frequently reviewed levels of accounts receivables. A significant majority (95.8%) indicated that their companies frequently reviewed levels of accounts receivables, (2.8%) declined to indicate while few (1.4%) indicated that their companies did not review the levels of their accounts receivables. Most of the respondents opined that their firms frequently reviewed levels of accounts receivables. The responses had a mean of 4.41. Majority of the responses were 4 and this confirms the statement that firms frequently review levels of accounts receivables. This is in line with the argument of Elliots (2009) that

management must review and revise their credit policies periodically to incorporate changes in strategic direction and risk tolerance or market conditions.

Credit sales are a sign that a firm is able to maximize its sales and therefore the profits. However, the debts from customers must be recoverable. The respondents were requested to indicate whether their firms reviewed the level of their debts. A significant majority (87.3%) indicated that their firms reviewed the level of their debts, (9.9%) did not commit themselves while few (2.8%) indicated that their firms did not review the level of their debts. This shows that majority of the respondents showed that their firms review the level of their bad debts. The responses had a mean of 4.23. Most of the responses were 4 meaning that firms review the level of their bad debts. Eugene (1992) and Owolabi and Obida (2012) argue that where goods are sold on credit a monitoring system is important because without it, receivables will build up to excessive levels and bad debts will off set profit on sales. Corrective action is often needed and the only way to know whether the situation is getting out of hand is to set up and then follow a good receivable control system.

The respondents were requested to indicate whether their firms investigated the creditworthiness of their customers. A significant majority (84.5%) indicated that their firms investigated the creditworthiness of their customers before they extended credit facilities to them, (5.6%) declined to indicate while few (9.9%) indicated that their firms did not investigate creditworthiness of their customers before extending credit facilities. This indicates that the majority of the respondents were in agreement that their firms investigate creditworthiness of their customers. The response question had a mean of 4.14. Most responses were 4 and this confirms that firms investigate creditworthiness of their customers. So that credit is not allowed to customers who may default, creditors must apply the techniques of credit selection and standard for determining which customer should receive credit (Dunn, 2009). This process involves evaluating the customer creditworthiness.

The respondents were requested to indicate whether their firms write off bad debts from customers who do not pay. A majority (56.4%) of the respondents indicated that their firms write off bad debts from customers who do not pay, (22.5%) declined to indicate while few (21.1%) indicated that their firms do not write off bad debts from customers. Majority of the respondents were of the opinion that their firms write off as bad debts from customers who do not pay. The responses had a mean of 3.42. Most of the responses were 3. This indicates that on average the respondents were neutral as to whether their firms write off bad debts from customers who do not pay. This shows that the firms have optimal credit policies that ensure that credit facility is granted only to customers who pay their debts. Ross et al. (2008) assert that firms that are efficient in receivable management should determine their optimal credit which minimizes the total costs of granting credit.

The respondents were requested to indicate whether their firms had set credit terms that stipulated credit period extension. A majority (63.4%) indicated that their firms had set credit terms that had stipulated credit period extension, (8.5%) declined to indicate while (28.1%) indicated that their firms had not set credit terms. The responses had a mean of 3.37. This indicates that most of the responses were 3 which mean that the respondents were indifference. This further means that (50%) of the firms set credit terms that stipulate credit period extension and (50%) of the firms do not. Ojeka (2012) carried out a study in Nigeria that showed that manufacturing companies set credit terms that stipulate credit period extension and that the credit terms are reasonable enough to induce sales.

The respondents were requested to indicate whether their firms allowed cash discounts to their customers to induce them to pay promptly. A significant majority (70.5%) indicated that their firms allowed cash discounts to their customers to induce them pay promptly, (22.5%) declined to indicate while few (7%) indicated that their firms did no allow cash discounts to their customers. Majority of the respondents opined that their firms allow cash discounts to their customers to induce them pay promptly. The

responses had a mean of 3.9. Therefore, most responses were 4 indicating that firms allow cash discounts to their customers to induce them pay promptly. Reigner and Hill (2010) argue that a cash discount acts as a tool to accelerate credit collection from the customers and this helps the firm reduce on the level of receivables and their associated costs. This means that the credit policy is designed well enough to bring about maximum profit.

The respondents were requested to indicate whether their firms stipulated the amount of discount allowed to a customer. A majority (69%) indicated that their firms stipulated the amount of discount allowed to their customers, (19.7%) declined to indicate while few (11.3%) indicated that their firms did not stipulate the amount of discount allowed to their customers. The responses had a mean of 3.76. Hence, most of the responses were 4. This indicates that firms stipulate the amount of discount allowed to their customers. Dunn (2009) asserts that once a credit decision has been made, the creditor has to decide on the credit period, specify cash discount if any and credit instrument to be used. This enables the debtor know with certainty the actual amount that he will pay and when to pay.

The respondents were requested to indicate whether their firms considered production cycle when setting the collection period. A significant majority (73.3%) indicated that their firms considered production cycle when setting the collection period, (15.5%) did not commit themselves while few (11.2%) indicated that their firms did not consider the production cycle when setting the collection period. Majority of the respondents opined that their firms considered production cycle when setting the collection period. The responses had a mean of 3.86 and this is an indication that most responses were 4. This shows that firms considered production cycle when setting collection period. This is in line with the results of the study by Ojeka (2012) that found that manufacturing companies in Nigeria consider production cycle when setting collection period.

The respondents were requested to indicate whether the period between credit sales and cash collection was longer than 30 days. A majority (60.6%) indicated that the period between credit sales and cash collection period was longer than 30 days, (14.1%) did not commit themselves while (25.3%) indicated that the period between credit sales and cash collection was shorter than 30 days. Majority of the respondents were of the opined that the credit period allowed to customers is longer than 30 days. The responses had a mean of 3.62. This is an indication that most of the responses were 4. Hence, the support of the fact that the period allowed to customers is longer than 30 days. Ojeka (2012) found that debtors collection period of manufacturing companies in Nigeria on average was 30.65. However, Muchina and Kiano (2011) while studying small scale enterprises in Kenya found that on average debtor collection period was 37 days. These two past studies support the findings of this study that on average credit period between credit sales and cash collection period is longer than 30 days

The respondents were requested to indicate whether their firms had set lenient credit policies. A majority (56.4%) indicated that their firms' credit policies were lenient, (19.7%) did not commit themselves while (23.9%) indicated that the firms' credit policies were not lenient. Majority of the respondents indicated that their firms had set lenient credit policies. The responses had a mean of 3.35. This indicates that most responses were 3. This further indicates that the respondents were indifference as to whether the credit policies set are lenient or stringent. This is an optimal credit policy. According to Owolabi and Obida (2012) a loose credit policy increases sales and profitability at the expense of liquidity and risk of bad debts. A strict credit policy on the other hand increases liquidity and reduces the risk of bad debts but also reduces sales and profitability. Therefore, a firm should strike a balance between loose and strict credit policies.

The respondents were requested to indicate whether their firms' overall credit policy had an ability to increase sales. A significant majority (81.7%) indicated that their firms' overall credit policy had an ability to increase sales, (12.7%) did not commit themselves

76

while few (5.6%) indicated that the firms' overall credit policy did not have an ability to increase sales. Majority of the respondents were of the opinion that their firms overall credit policy had an ability to increase sales. The responses had a mean of 4.17. Thus, most responses were 4 implying that firms' overall credit policies have the ability to increase sales. This is an optimal credit policy that increases both liquidity and profitability and reduces risk of bad debts (Owolabi & Obida, 2012).

The mean score of the responses was 3.89 on a scale of one to five. This shows that there were more respondents who agreed with the statements in support of credit policy having an influence on profitability. It can therefore be concluded that when credit policy is well designed, it can adequately increase sales, reduce bad debts and improve profitability in manufacturing firms.

The findings related to this objective are in concurrence with findings of prior studies. Lazaridis and Tryfonidis (2006) found that credit period whether from suppliers or granted to customers, in most cases, have a positive impact on profitability. They found that firms were able to maximize sales and profits. Further, two collaborative studies were carried out in Nigeria by (Ojeka, 2012; Owolabi & Obida, 2012) who argue that where goods are sold on credit a monitoring system is important because without it, receivables will build up to excessive levels and bad debts will off set profit on sales. Corrective action is often needed and the only way to know whether the situation is getting out of hand is to set up and then follow a good receivable control system. Elliots (2009) suggests a need for management to review and revise their credit policies periodically to incorporate changes in strategic direction and risk tolerance or market conditions. Dunn (2009) on the other hand suggests that customers who may default should not be allowed credit and the suppliers must apply the credit selection and standard for determining which customer should receive credit and only credit worthy customers should access credit.

Many manufacturing firms in Kenya continue to extend credit to their customers. Due to bulkiness in production the firms must ensure that the stock does not pile up. The firms have designed credit policies to ensure efficiency in selling on credit. Although selling on credit comes with challenges like delay in receiving cash from the customers, bad debts and increased borrowing to finance credit sales, precautions are taken to ensure that risk is minimized. At the same time increased credit sales bring about increased total sales and therefore increased profits. The responses from the respondents indicate the existence of a high acceptance of the credit policies by the chief finance officers of manufacturing firms in ensuring that the credit policies are designed in such a manner that they are capable of increasing profitability of their firms.

4.6.1 Reliability Measurement for Credit Policy

The reliability analysis was done on all the 17 composite measures to determine whether they met the threshold of more than 0.7. The results of the analysis are as shown on table 4.18. The results of the analysis show cronbach's alpha of 0.828. This implies that the instrument was sufficiently reliable for measuring credit policy.

Table 4.18: Reliability Measurement Results of Credit Policy

Variable	Number of items	Cronbach's Alpha
Credit Policy	17	0.828

Two tests were carried out to determine whether factor analysis was appropriate and the results are displayed in table 4.19. The KMO results indicate a value of 0.689 which is higher than the recommended value of 0.5 (Tabachnick & Fidell, 2007; William, Brown, Osman, 2010). Bartlett's test of sphericity on the other hand showed a p-value of 0.000 which was lower than 0.05 (Tabachnick & Fidell, 2007; William, Brown, Osman, 2010). The two tests indicate that it was desirable to perform principal component analysis.

Table 4.19: KMO and Bartlett's Test Results of Sphericity for Credit Policy

Kaiser- Meyer-Olkin Measure of Sampling Adequacy		0.689
Bartlett's Test of Sphericity	Approx. Chi square	614.185
	Df	136
	Sig.	.000

When the 17 composite measures on credit policy were subjected to principal component analysis, the results indicated that majority of the items, 14 measures loaded between 0.538 and 0.873 while only 3 measures "your firm sometimes take legal action against customers who refuse to pay, the firm regularly writes to customers reminding them to pay their debts and the discount allowed to your customers depend on the credit period allowed" had a factor loading of less than 0.4 (David et al., 2010). The factors with low factor loading (< 0.4) were subsequently dropped and the critical drivers of profitability are presented in table 4.60 (Appendix V). The rest of the study used the retained 14 measures as the composite measure of credit policy.

4.6.2 Correlation Analysis between Credit Policy and Profitability

A correlation coefficient statistic that describes the degree of linear association between credit policy and profitability was determined. Table 4.20 indicates that there is a positive significant linear relationship between credit policy and profitability of manufacturing firms in Kenya. This relationship has been illustrated by correlation co-efficient of 0.346 at 0.01 significant level. This indicates that there is a positive and significant relationship between credit policy and profitability. These results conform to previous studies done by Gill et al. (2010) that found that firms that maintain accounts receivables at optimal level are able to create and maximize their profits. This suggests that credit policy is good for explaining the financial success of manufacturing firms in Kenya and it is a critical factor to consider when taking decision to improve profitability.

Table 4.20: Correlation between Credit Policy and Profitability

		Profitability	Credit Policy
Profitability	Pearson Correlation	1	.346[**]
	Sig. (2-tailed)		.015
	N	71	71
Credit Policy	Pearson Correlation	.346[**]	
	Sig. (2-tailed)	.015	
	N	71	71

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

4.6.3 Regression Line Fitting between Credit Policy and Profitability

A regression line was superimposed on the scatter plot of profitability versus credit policy as shown on figure 4.4. The regression line indicates a positive gradient. The finding of a positive relationship between credit policy and profitability concurs with findings of past studies. Agha (2014) found a positive relationship between credit policy measured by debtors' turnover and profitability measured by return on assets. Arshad and Gondal (2013) on the other hand, found a significant relationship between accounts receivables period and profitability that was measured by return on assets. A positive gradient means that credit policies used by the manufacturing firms are neither too strict nor are they lenient. This ensures that the creditworthy customers are allowed to carry goods on credit and this has an impact of increasing sales and by extension the profits. Customers who are not creditworthy are not allowed to carry goods on credit. By extension the firms are able to minimize the amount of bad debts and therefore increased profits.
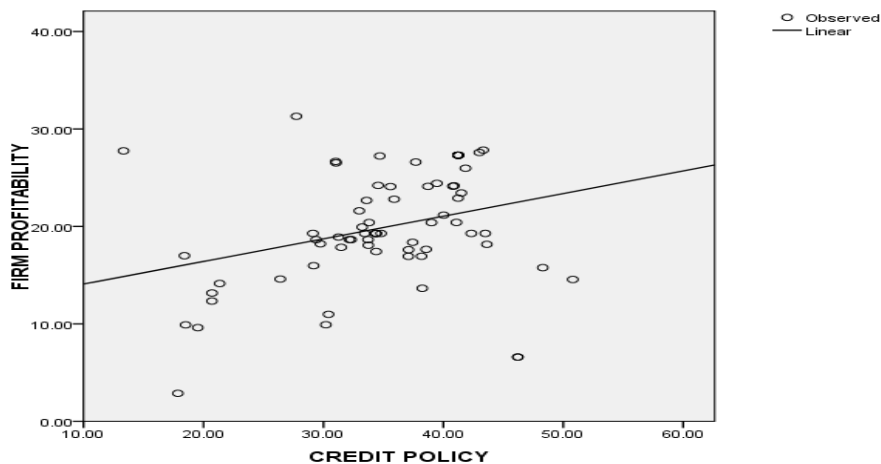
Figure 4.4: Curve Fit of Credit Policy and Profitability

Regression analysis was conducted to determine the amount of variation in profitability explained by credit policy. The calculated R – value was 0.346. R^2 value = 0.12 which means that 12% of the corresponding variation in profitability can be explained by change in credit policy. The rest 88% can only be explained by other factors that are not in the model. The results of the analysis are shown in table 4.21.

Table 4.21: Linear Estimation of Credit Policy and Profitability

R	R Square	Adjusted R Square	Std. Error of the Estimate
.346	.120	.115	5.77739

A one way analysis of variance (ANOVA) that provided information about levels of variability within the regression model and which formed a basis for tests of significance was used. ANOVA for the linear model presented in Table 4.22 of credit policy and profitability has an F - value = 7.248 which is significant with p value = 0.016 < 0.05 meaning that the overall model is significant in the prediction of profitability in manufacturing firms in Kenya. The study therefore rejected the null hypothesis that

81

credit policy has no influence on profitability of manufacturing firms in Kenya and confirmed indeed that there is a positive and significant influence of credit policy on profitability in manufacturing firms in Kenya.

Table 4.22: ANOVA for Credit Policy and Profitability

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	231.765	1	231.765	7.248	.016
Residual	2206.346	69	31.976		
Total	2438.111	70			

Analysis of the regression model coefficients is shown in table 4.23. From the table there is a positive beta co-efficient of 0.323 as indicated by the co-efficient matrix with a p-value $= 0.011 < 0.05$ and a constant of 12.512 with a p-value $= 0.000 < 0.05$. Therefore, both the constant and credit policy contribute significantly to the model. The model can provide the information needed to predict profitability from credit policy. The regression equation is presented as follows: $Y = 12.512 + 0.323X_1 + \varepsilon$; Where Y = Profitability, X_1 is the credit policy and ε is the error term

Table 4.23: Regression Coefficients of Credit Policy and Profitability

	Coefficients			
	B	Std. Error	T	Sig.
(Constant)	12.512	3.347	3.738	.000
Credit Policy	0.323	0.123	2.626	.011

4.6.4 Conclusion on Credit Policy

Despite the fact that the results of the study indicate ideal credit policies, there is still a room for improving the credit policies to ensure maximum profit. Situations, business environment and customer's behavior change. Therefore, credit policy that may be deemed to be ideal today may not be so sometime later. The finance managers should

review their credit policies regularly to ensure that they remain ideal. In light of transaction cost theory, transactions are handled in such a way as to minimize the costs involved in carrying them. Firms should design credit policies that are capable of increasing sales and profit at the same time minimizing the risk of bad debts. The firms must be able to trade off between return and risk.

4.7 Effects of Accounts Payable Practices on Profitability

The second objective of the study was to assess the degree to which accounts payable practices influence profitability of manufacturing firms in Kenya. The objective was tested through six (6) composite measures on a scaled questionnaire. The findings were presented in table 4.24 which shows the frequencies of responses and mean on the effect of accounts payable practices on profitability.

Firms that receive credit facilities from their suppliers are firms that have good relationship with their suppliers. The respondents were requested to indicate whether their firms received credit facilities from their suppliers. A significant majority (91.6%) indicated that their firms received credit facilities from their suppliers, (2.8%) did not commit themselves while few (5.6%) indicated that their firms did not receive any credit facility from their suppliers. The question had a mean of 4.24 and this shows that most of the responses were 4. This is an indication that firms receive credit facilities from their suppliers. When a firm carries goods on credit, it sometimes forgoes a cash discount. Therefore, as argued by Horne and Wachowiwz (2005), a firm must weigh the advantages of paying cash and therefore receive cash discount and the possibility of losing cash discount, and any possible late payment penalties.

A significant majority (73.2%) of the respondents indicated that their firms received cash discounts from their suppliers, (15.5%) did not commit themselves while few (11.2%) indicated that their firms did not receive cash discounts from their suppliers. The responses had a mean of 3.79 and this shows that most of the responses were 4. This implies that the firms receive cash discounts from their suppliers. A customer receives a

cash discount when he makes payment within the cash discount period offered by the supplier. Otherwise, the retailer pays the full invoice price within the trade credit period (Huang, Chou & Liao, 2007). Cash discount period is shorter than the trade credit period. Huang, Chou & Liao (2007) assert that cash discount has the effect of reducing the cost of sales for a customer and therefore increased profit.

Interest charged by suppliers to debtors' overdue accounts is an indication that all is not well with the debtor. It is a sign that the debtor is in financial problems and is not able to meet his financial obligations when they fall due. The respondents were requested to indicate whether their firms were sometimes charged an interest by suppliers for late payments. A few (38.1%) of the respondents indicated that that their firms were sometimes charged an interest by their suppliers for late payment, (33.8%) did not commit themselves and few others (28.2%) indicated that their firms were never charged any interest for late payment. The responses had a mean of 3.13 suggesting that majority of responses were 3 and this shows indifference as to whether the firms are charged interest on late payment on their accounts. Basically, this shows that a few firms may be having problems in meeting their financial obligations. A study by Ojeka (2012) in Nigeria showed that businesses are allowed to charge interest on overdue invoices up to 2% interest per month on the outstanding amount. By adding this interest to the invoice prompts reluctant debtors to settle their accounts immediately. This shows that the debtors are ignorant of settling their accounts unless they are pressurized by the suppliers.

Waiving of a debt is a sign that the debtor has financial difficulties and other creditors are cautioned from dealing with those customers. The respondents were requested to indicate whether their firms' past debts have ever been waived by their suppliers. A few (30.9%) of the respondents indicated that debts of their firms had experienced a waiver of their debts by their suppliers, (22.5%) did not commit themselves while (46.5%) of the respondents indicated that their firms' suppliers had never waived the debts of their firms. The responses had a mean of 2.70 which shows that most responses were 3

indicating that the respondents were indifference as to whether their firms' past debts had been waived by their suppliers. Creditors do not normally waive debts owed by their customers unless they are sure that the customers will never pay their debts. Neilthorpe and Digney (2011) carried out a study on the injstices that creditors do in pursuing bankrupt debtors whose lives and circumstances are already extremely difficult. They discovered that creditors only waive debts owed by their customers only when they are permanently incapacitated to pay the debts. The creditors also ensure that such debtors are not extended further credit in future. Therefore, this study shows that manufacturing firms in Kenya have capacity to pay their debts and continue taking credit from their creditors.

The respondents were requested to indicate whether their firms are sometimes unable to pay their suppliers. A majority (60.5%) indicated that their firms sometimes are unable to pay their suppliers, (15.5%) did not commit themselves while few (23.9%) of the respondents said that their firms had no problems paying their debts. The responses had a mean of 3.49 that shows that most of the responses had a 3 and this indicates indifference situation or a 50-50 situation where half of the respondents approved and the other half disapproved the fact that their firms are sometimes unable to pay their debts. Further, it is true that firms may have been unable to pay their debts in the past may be due to financial commitment in the purchase of non current assets. Dominy and Kempson (2003) argue that despite a firm having problems in paying creditors due to unavoidable circumstances it must ensure that the debt is paid so that good relationship continues with the creditor.

Dominy and Kempson (2003) carried out a study on review of creditor and debtor approaches to non payment of bills in UK. From the study they were able to categorize customers owing money into three groups according to their ability to pay; there are those who had money to pay when the debts fell in arrears and were still in a position to pay when creditors reach the late stages of debt recovery. At the other extreme end, there are people who do not have money either when the debts fall into arrears or when their

creditors seek to recover the money owed. In between was a third group, that comprise people who are able to pay when the debts fall into arrears, however, as a result of a change in circumstances, they can no longer afford to pay.

When the respondents were requested to indicate whether the payment period allowed to their firms by their suppliers was reasonable; a significant majority (80.2%) indicated that the credit period allowed by their suppliers was reasonable, (12.7%) did not commit themselves while few (7%) of the respondents indicated that the credit period allowed by their suppliers was not reasonable.   It shows that majority of the respondents agreed that payment period allowed to their firms by their suppliers was reasonable. The responses had a mean of 3.94. Majority of the responses were 4 indicating that payment period allowed to their firms by their suppliers was reasonable. The study by Muchina and Kiano (2011) shows that on average the firms were taking 64 days to pay their debts. This is two months or so. This confirms that the creditors allow enough time to the manufacturing firms to pay their debts.

The mean score of all the responses was 3.55 on a scale of one to five. This shows that there were more respondents who agreed with the statements in support of accounts payable practices having an influence on profitability. This means that accounts payable practices are fairly good. Utilizing the relationship with the suppliers is a sound objective that should always be highlighted as important just like optimal levels of inventories and ideal credit policies (Hill & Sartoris, 1992).   Accounts payable should be optimally used by manufacturing firms. Sound management of suppliers' credit requires current up to date information on account of aging of payables to ensure proper payments (Helfert, 2003).

Table 4.24: Accounts Payable Practices Results

Key: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

	Statement	1 %	2 %	3 %	4 %	5 %	Likert Mean
1	The firm receives credit facilities from its suppliers	1.4	4.2	2.8	52.1	39.5	4.24
2	The firm receives cash discounts from its suppliers upon payment within a stipulated period of time	5.6	5.6	15.5	50.7	22.5	3.79
3	The firm is sometimes charged an interest by its suppliers for late payment	9.9	18.3	33.8	25.4	12.7	3.13
4	The firm's past debts have ever been waived by suppliers	21.1	25.4	22.5	23.9	7.0	2.70
5	The firm is sometimes unable to pay its suppliers on time	7.0	16.9	15.5	40.8	19.7	3.49
6	The payment period allowed to the firm by its suppliers is reasonable	1.4	5.6	12.7	57.7	22.5	3.94
	Average	**7.7**	**12.7**	**17.1**	**41.8**	**20.7**	**3.55**

4.7.1 Reliability Measurement for Accounts Payable Practices

The reliability analysis was done on all the 6 composite measures to determine whether they met the threshold of more than 0.7. The results of the analysis are as shown on table 4.25. The results of the analysis show cronbach's alpha of 0.844. This implies that the instrument was sufficiently reliable for measuring accounts payable practices.

Table 4.25: Reliability Measurement Results of Accounts Payable Practices

Variable	Number of Items	Cronbach's Alpha

87

Accounts Payable Practices	6	0.844

Two tests were carried out to determine whether factor analysis was appropriate and the results are displayed in table 4.26. The KMO results indicate a value of 0.519 which is higher than the recommended value of 0.5 (Tabachnick & Fidell, 2007; William, Brown, Osman, 2010). Bartlett's test of sphericity on the other hand showed a p-value of 0.000 which was lower than 0.05 (Tabachnick & Fidell, 2007; William, Brown, Osman, 2010). The two tests indicate that it was desirable to perform principal component analysis.

Table 4.26: KMO and Bartlett's Test Results for Accounts Payable Practices

Kaiser- Meyer-Olkin Measure of Sampling Adequacy		0.519
Bartlett's Test of Sphericity	Approx. Chi square	78.152
	Df	15
	Sig.	.000

When the 6 composite measures on accounts payable practices were subjected to principal component analysis and the results indicated that all of the items had measures loaded between 0.587 and 0.900. This means that all the factors had factor loading of more than 0.4 (David et al., 2010). Therefore, all the composite measures were retained as critical drivers of profitability and the results are presented in table 4.27. The rest of the study used all the 6 measures as the composite measure of accounts payable practices.

Table 4.27: Component Matrix of Accounts Payable Practices

Factor	Factor Loading
The firm receives cash discounts from its suppliers upon payment within a stipulated period of time	0.900
The firm is sometimes unable to pay its suppliers on time	0.816
The payment period allowed to the firms by its suppliers is reasonable	0.815
The firm receives credit facilities from its suppliers	0.783
The firm is sometimes charged an interest by its suppliers for late payment	0.660
The firm's past debts have ever been waived by its suppliers	0.587

4.7.2 Correlation between Accounts Payable Practices and Profitability

A correlation coefficient statistic that describes the degree of linear association between accounts payable practices and profitability was determined. Table 4.28 indicates that there is a positive significant linear relationship between accounts payable practices and profitability of manufacturing firms in Kenya. This relationship has been illustrated by correlation co-efficient of 0.403 at 0.01 significant level. The results conform to the previous studies done by (Mathuva, 2010) that showed that there is a positive and significant relationship between the time it takes the firm to pay its creditors and profitability. A positive relationship between accounts payable and profitability may be due to the fact that the manufacturing firms in Kenya may rely more on credit facilities offered by the suppliers than loans to finance working capital. Credit facilities from suppliers are not charged any interest unlike loans from commercial banks. This facility has an influence on profitability.

Table 4.28: Correlation between Accounts Payable Practices and Profitability

		Profitability	Accounts Payable Practices
Profitability	Pearson Correlation	1	.403[**]
	Sig. (2-tailed)		.000
	N	71	71
Accounts Payable Practices	Pearson Correlation	.403[**]	1
	Sig. (2-tailed)	.000	
	N	71	71

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

4.7.3 Curve Fit between Profitability and Accounts Payable Practices

A regression line was superimposed on the scatter plot of profitability versus accounts payable practices as shown on figure 4.5. The regression line indicates a positive gradient which means that an improvement in accounts payable practices leads to an increased in profitability. This study contradicts the findings of the study by Saghir, Hashmi and Hussain (2011) who found that lower profitability was associated with an increase in the number of days of accounts payables. However, the findings of the study conform to the study carried out by Kaddumi and Ramadan (2012) who investigated the effects of working capital management on profitability of Jordan industrial firms listed at Amman stock exchange. They found a positive relationship between average payment period with profitability. The positive relation between average payment period and profitability can be explained by the fact that lagging payments to suppliers ensures that the firm has some cash to purchase more inventory for sale thus increasing its sales level hence boosting its profits.
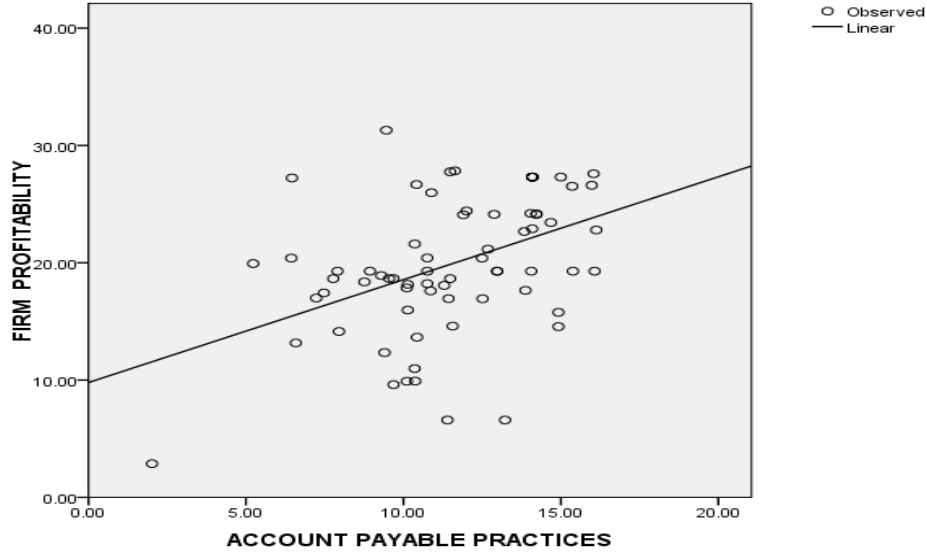
Figure 4.5: Curve Fit of Accounts Payable Practices and Profitability

Regression analysis was conducted to determine the amount of variation in profitability explained by accounts payable practices. The calculated R – value was 0.403. R^2 value was 0.162 which means that 16.2% of the corresponding variation in profitability can be explained by change in accounts payable practices. The rest 83.8% can be explained by other factors that are not in the model. The results of the analysis are shown in table 4.29.

Table 4.29: Model Summary for Accounts Payable Practices

R	R Square	Adjusted R Square	Std. Error of the Estimate
.403	.162	.157	5.34355

A one way analysis of variance (ANOVA) whose results formed a basis for tests of significance was used. The ANOVA for the linear model presented in table 4.30 of accounts payable and profitability has an F value = 16.014 which is significant with p-value p = 0.000 < 0.05 meaning that the overall model is significant in the prediction of profitability in manufacturing firms in Kenya. The study therefore reject the null hypothesis that accounts payable practices do not have any influence on profitability of

manufacturing firms in Kenya and confirm indeed that there is a positive and significant influence of accounts payable practices on profitability of manufacturing firms in Kenya.

Table 4.30: ANOVA for Accounts Payable Practices and Profitability

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	459.268	1	459.268	16.014	.000
Residual	1978.843	69	28.679		
Total	2438.111	70			

Analysis of the regression model coefficients is shown in table 4.31. From table 4.31 there is a positive beta co-efficient of 0.911 as indicated by the co-efficient matrix with a p-value = 0.000 < 0.05 and a constant of 9.892 with a p-value = 0.000 < 0.05. Therefore, both the constant and accounts payable practices contribute significantly to the model. Therefore, the model can provide the information needed to predict profitability from accounts payable practices. The regression equation is presented as follows: $Y = 9.892+0.911X_2 + \varepsilon$; Where Y = Profitability, X_2 is the accounts payable practices and ε is the error term

Table 4.31: Regression Coefficients of Accounts Payable Practices & Profitability

	Coefficients			
	B	Std. Error	T	Sig.
(Constant)	9.892	2.671	3.703	.000
Accounts Payable Practices	.911	.231	3.944	.000

4.7.4 Conclusion on Accounts Payable Practices

Accounts payable practices should encourage the firms maintain the right amount of credit with their suppliers. If well utilized accounts payable practices is a major source of short term financing. However, if not properly utilized, it may bring about more

losses to the business than the benefits. This is because the firm may lose future supplies on credit from suppliers and loss of cash discounts due to late payment (Raheman & Nasr, 2007; Gill et al., 2010). The study shows that there is a strong relationship between the firms and the suppliers. However, there is still a room for improvement. Firms should ensure that they pay for their supplies early enough to avoid a situation where the suppliers remind them of their debts. Early payment enables the firms enjoy good cash discounts.

4.8 Effects of Inventory Control Practices on Profitability

The third objective of the study was to examine how inventory control influences profitability of manufacturing firms in Kenya. The objective was tested through five (5) composite measures on a scaled questionnaire. The findings were presented in table 4.32 which shows the frequencies of responses and mean on the effect of inventory control on profitability.

Defined levels of inventories ensure that firms are able to plan when to procure for additional inventories. The respondents were requested to indicate whether their firms had defined levels of inventories for their raw materials. A majority (66%) indicated that their firms had defined levels of inventories for their raw materials, (12.7%) did not commit themselves while few (11.2%) indicated that their firms did not have defined levels of inventories for their raw materials. The responses had a mean of 3.85. Majority of responses had 4 indicating that the firms have defined levels of inventories for raw materials. With well defined levels of raw materials, firms are able to maintain ideal levels of stock and this further means minimum cost of ordering and stock holding. Therefore, the firms are able to maximize their profits. This contradicts the study carried out by Nyabwanga et al. (2012) that showed that majority of small firms do not stock optimal quantities of inventories and do not determine re-order points.

An ideal level of inventories is a good indicator that the inventories are well managed and this leads to increased profitability. The respondents were requested to indicate

93

whether their firms had determined optimal batch sizes. A significant majority (77.4%) indicated that their firms had determined optimal batch sizes, (16.5%) did not commit themselves while few (5.6%) indicated that their firms had not determined optimal batch sizes. The responses had a mean of 3.90. Review of inventory levels helps firms determine ideal levels of inventory and reduces redundant inventory. Atrill (2006) asserts that there are certain costs that relate to holding too much inventories and also costs relating to holding too little inventories. Thus, the management should put in place an effective management system to ensure reliable sales forecast to be used in stock ordering purposes.

Respondents were requested to indicate whether their firms reviewed inventory levels periodically. A significant majority (91.5%) indicated that their firms reviewed inventory levels periodically, (5.6%) did not commit themselves while few (2.8%) indicated that their firms do not review their inventories levels. The responses had a mean of 4.32. This is an indication that most of the responses were 4 implying that firms review inventory levels periodically. Ross et al. (2008) observed that the economic order quantity model is one of the approaches of determining the optimum inventory level and takes into account the inventory carrying costs, inventory shortages costs and total costs that help in determination of the appropriate inventory level to hold. The holding costs increase in time e.g. Insurance, rent e.t.c. Therefore, the management needs to keep on reviewing the level of inventories periodically.

Keeping accurate records helps firms reduce pilferages and theft as well as maintaining ideal levels of inventories. This has an effect of reducing total cost of operation. The respondents were requested to indicate whether their firms maintained accurate records. A significant majority (94.4%) indicated that their firms keep accurate inventory records, (5.6%) did not commit themselves while few (2.8%) indicated that their firms did not keep accurate records. The responses had a mean of 4.34 and therefore, many of the responses were 4 indicating that firms maintain accurate records. The requirements of inventories keep on changing periodically. Therefore, records well kept help

managers determine optimal inventories levels. Lazaridis and Tryfonidis (2006) found that firms that do not maintain optimal levels of inventories lead to tying up excess capital at the expense of profitable operations. They argued that managers of firms should keep their inventories to an optimum level since mismanagement of inventory will lead to tying up of excess capital at the expense of profitable operations.

A firm that has a sound inventory control system is capable of maximizing profits. The respondents were asked to indicate whether their firms had inventory control systems. A significant majority (91.5%) indicated that their firms had inventory control systems, (4.2%) did not commit themselves while few (4.2%) indicated that they did not have inventory control systems. The responses had a mean of 4.22 indicating that firms have established inventory control systems. This contradicts the study carried out by Grablowsky (2005) that found that only large firms had established sound inventory control systems for determining inventory order and stock levels. The firms use quantitative techniques such as EOQ and Linear Programming to provide additional information for decision making. Small firms on the other hand use management judgement without quantitative back up.

The mean score of all the responses was 4.11 on a scale of one to five. This shows that there were more respondents who agreed with the statements in support of inventory control having an influence on profitability. This shows that the finance managers of the firms take precautions to ensure that their firms maintain ideal levels of inventories both for finished goods and for raw materials to ensure increased profitability. Saleemi (1993) asserts that firms can derive advantages by maintaining ideal levels of inventories and these include economies of scale to be gained through quantity and trade discounts, less deterioration and obsolescence, and reduced cost of insurance. Maintaining ideal levels of inventories bring about increased profitability and therefore the firms are maximizing profits. A study carried by Nyabwanga et al. (2012) showed that good performance is positively related to efficiency of inventory management. They also found that the firms

were more efficient in the management of inventory than in the management of either cash or receivables.

Table 4.32: Inventory Control Practices Results

Key: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

	Statement	1 %	2 %	3 %	4 %	5 %	Likert mean
1	The firm has defined levels of inventories for raw materials	5.6	5.6	12.7	50.7	25.4	3.85
2	The firm has determined optimal batch sizes	1.4	4.2	16.9	57.7	19.7	3.90
3	The firm reviews inventory levels periodically	1.4	1.4	5.6	52.1	39.4	4.32
4	The firm keeps accurate inventory records	0	1.4	4.2	59.2	35.2	4.34
5	The firm has installed an inventory control system	1.4	2.8	4.2	54.9	36.6	4.22
	Average	**1.96**	**3.08**	**8.72**	**54.92**	**31.32**	**4.11**

4.8.1 Reliability Measurement for Inventory Control Practices

The reliability analysis was done on all the items to determine whether they met the threshold of more than 0.7. The results of the analysis show cronbach's alpha of 0.777. This implies that the instrument was sufficiently reliable for measuring inventory control. The results of the analysis are as shown in table 4.33 shown below:

Table 4.33: Reliability Measurement Results of Inventory Control Practices

Variable	Number of Items	Cronbach's Alpha

Inventory Control	5	0.777

Two tests were carried out to determine whether factor analysis was appropriate and the results are displayed in table 4.34. The KMO results indicate a value of 0.790 which is higher than the recommended value of 0.5 (Tabachnick & Fidell, 2007; William, Brown, Osman, 2010). Bartlett's test of sphericity on the other hand showed a p-value of 0.000 which was lower than 0.05 (Tabachnick & Fidell, 2007; William, Brown, Osman, 2010). The two tests indicate that it was desirable to perform principal component analysis.

Table 4.34: KMO and Bartlett's Test Results for Inventory Control Practices

Kaiser- Meyer-Olkin Measure of Sampling Adequacy		0.790
Bartlett's Test of Sphericity	Approx. Chi square	121.832
	Df	10
	Sig.	.000

When the 5 composite variables on inventory control practices were subjected to principal component analysis the results indicated that all of the composite variables had measures loaded between 0.478 and 0.719 which were higher than 0.4 as recommended by David et al. (2010). All the factors were retained as critical drivers of profitability and the results are presented in table 4.35. The rest of the study used all the 5 measures as the composite measures of inventory control practices.

Table 4.35: Component Matrix of Inventory Control Practices

Factor	Factor

	Loading
The firm has installed an inventory control system	0.719
The firms keeps accurate inventory records	0.705
The firm reviews inventory levels periodically	0.680
The firm has determined optimal batch sizes	0.479
The firm has defined levels of inventories for raw materials	0.478

4.8.2 Correlation between Inventory Control Practices and Profitability

A correlation coefficient statistic that describes the degree of linear association between inventory control practices and profitability was determined. Table 4.36 indicates that there is a positive significant linear relationship between inventory control practices and profitability of manufacturing firms in Kenya. This relationship has been illustrated by a correlation coefficient of 0.601at 0.01 significant level. This implies that there is a positive and significant relationship between inventory control practices and profitability of manufacturing firms in Kenya. The results conform to the previous studies done by (Nyabwanga et al., 2012) who found that good business performance is positively related to efficiency of inventory management. This positive relationship between inventory control practices and profitability indicates that the manufacturing firms have installed sound inventory control systems that ensure that total cost between stock holding and ordering are at minimum level.

Table 4.36: Correlation between Inventory Control Practices and Profitability

		Profitability	Inventory Control Practices
Profitability	Pearson Correlation	1	.601[**]
	Sig. (2-tailed)		.000
	N	71	71
Inventory Control Practices	Pearson Correlation	.601[**]	1
	Sig. (2-tailed)	.000	
	N	71	71

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

4.8.3 Regression Line between Inventory Control Practices and Profitability

A regression line was superimposed on the scatter plot of profitability versus inventory control practices as shown on figure 4.6. The regression line indicates a positive gradient. The findings of a positive relationship between inventory control practices and profitability concurs with those of Makori and Jagongo (2013) that found a significant relationship between inventory control and profitability and where profitability was measured by return on assets (ROA). A positive relationship indicates that maintaining high inventory levels reduces the cost of possible interruptions in production process and loss of business due to scarcity of products. Maintaining of high level of inventories helps to reduce the cost of supplying the products and protects the firm against price fluctuations as a result of adverse macro economic factors.
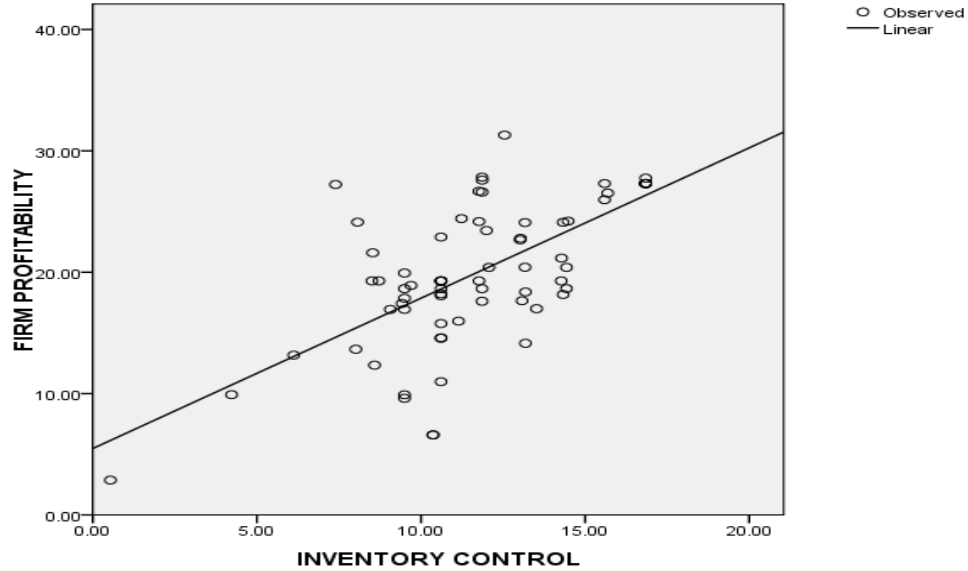
Figure 4.6: Curve Fit of Inventory Control Practices and Profitability

Regression analysis was conducted to determine the amount of variation in profitability explained by inventory control practices. The calculated R – value was 0.601. R^2 value = 0.361 which means that 36.1% of the corresponding variation in profitability can be explained by change in inventory control practices. The rest 63.9% can be explained by other actors that are not in the model. The results of the analysis are shown in table 4.37.

Table 4.37: Model Summary of Inventory Control Practices

R	R Square	Adjusted R Square	Std. Error of the Estimate
.601	.361	.354	4.23445

A one way analysis of variance (ANOVA) whose results formed a basis for tests of significance was used. The ANOVA for the linear model presented in table 4.38 of inventory control practices and profitability has an F value = 48.909 which is significant with p-value p = 0.000 < 0.05 meaning that the overall model is significant in the prediction of profitability in manufacturing firms in Kenya. We therefore reject the null hypothesis that inventory control practices do not have any influence on profitability of

100

manufacturing firms in Kenya and confirm indeed that there is a positive and significant influence of inventory control practices on profitability of manufacturing firms in Kenya.

Table 4.38: ANOVA for Inventory Control Practices and Profitability

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1011.331	1	1011.331	48.909	.000
Residual	1426.780	69	20.678		
Total	2438.111	70			

Analysis of the regression model coefficients is shown in table 4.39. From table 4.39 there is a positive beta co-efficient of 1.239 as indicated by the co-efficient matrix with a p-value = 0.000 < 0.05 and a constant of 5.476 with a p-value = 0.012 < 0.05. Therefore, both the constant and inventory control practices contribute significantly to the model. Therefore, the model can provide the information needed to predict profitability from inventory control practices. The regression equation is presented as follows: $Y = 5.476 + 1.239X_3 + \varepsilon$; Where Y = Profitability, X_3 is the inventory control practices and ε is the error term

Table 4.39: Regression Coefficients of Inventory Control Practices &Profitability

	Coefficients			
	B	Std. Error	T	Sig.
(Constant)	5.476	2.130	2.571	.012
Inventory Control Practices	1.239	.177	6.993	.000

4.8.4 Conclusion on Inventory Control Practices

The results of the study have shown that when firms maintain good inventory control systems, the firms' profits are high. The firms should install modern inventory control

systems such as economic order quantity (EOQ) and just in time (JIT). These inventory control systems help firms maintain optimal inventory levels. Maintaining optimal inventory levels reduces cost of possible interruptions or loss of business due to scarcity of products at the same time it reduces high cost of maintaining stock. Cost of high stock includes stock theft, expiry, insurance and storage. In light of EOQ model, costs have to be maintained at minimal level between stock holding and ordering. The firms should also be able to put in place an effective stock management system that ensures reliable sales forecast to be used in order purposes. Trained accountants should be employed to help in maintaining accurate inventory records.

4.9 Effects of Liquidity Management Practices on Profitability

The fourth objective of the study was to establish whether liquidity management practices influence profitability of manufacturing firms in Kenya. The objective was tested through eight (8) composite measures on a scaled questionnaire. The findings were presented in table 4.61 (Appendix VI) which shows the frequencies of responses and mean on the effect of liquidity management practices on profitability.

Current assets are assets that are in liquid or need near liquid form. Liquid assets are used to meet the short term debts of a firm that fall due within a short time. These short term debts may include suppliers, various unpaid bills and part of the long loan that falls due.

The respondents were requested to indicate whether their firms maintained current assets at a higher level than current liabilities. A significant majority (90.2%) indicated that their firms maintained current assets at a higher level than the current liabilities, (7%) did not commit themselves while few (2.8%) indicated that their firms maintained current assets at a lower level than the current liabilities. The responses had a mean of 4.30. Majority of the responses were 4 and this indicates that current assets are maintained at a higher level than the current liabilities. Current assets are important to the financial health of businesses of all sizes as the amounts invested in them are often high in proportion to the total assets employed. Current ratio which is the ratio of current

102

assets over current liability should be maintained at a level of 2:1 for an ideal situation (Pandey, 2008). A study carried out by Raheman and Nasr (2007) found that firms maintained liquidity ratio at 1.53. This means that the current assets were 1.53 more than the current assets. Hence, current assets are maintained at a level higher than current liabilities.

In manufacturing firms inventories constitute of raw materials, work in progress and finished stock. If inventories constitute a high percentage value of the current assets then the assets that are near cash have a small value. Quick ratio will be low and this is a threat to liquidity. The respondents were requested to indicate whether inventory constituted a large portion of the total current assets. A significant majority (83.1%) indicated that inventories constitute a large portion of the total current assets, (5.6%) did not commit themselves, while few (11.3%) indicated that inventories maintained by their firms constitute a small portion of the current assets. The responses had a mean of 4.01. Most responses were 4 indicating that inventories constituted a large portion of the total current assets. Due to the composition of inventories of manufacturing firms of raw materials, work in progress and stock of finished goods, manufacturing firms maintain large inventories. A typical manufacturing firm maintains inventories that are in excess of 50% of the total assets (Padachi, 2006; Reheman & Nasr, 2007; Mathuva, 2010; Muchina & Kiano, 2011 and Nyabwanga et al., 2012). Therefore, this study confirms the result of the previous studies that inventories constitute a large portion of both current and total assets.

Respondents were requested to indicate whether cash and marketable securities were maintained at a higher level than the current liabilities. A significant majority (67.6%) indicated that cash and marketable securities were maintained at a higher level than the current liabilities, (23.9%) did not commit themselves while few (8.5%) indicated that their firms maintained cash and marketable securities at a lower level than current liabilities. The responses had a mean of 3.77. Most responses were 4 indicating that cash and marketable securities were maintained at a higher level than the current liabilities.

Opler, Pinkowitz, Stulz and Willianson (1999) while studying on the determinants and implication of corporate cash holdings found that firms with strong growth opportunities and riskier cash flows hold relatively high ratios of cash to non cash assets. They also found that firms that do well tend to accumulate more cash.

Current, quick assets and cash ratios constitute liquidity ratios. Ideal liquidity ratios show that a company is not experiencing liquidity problems and at the same time the firm is able to maximize profits. The respondents were requested to indicate whether their firms maintained liquidity ratios at optimal levels. A significant majority (78.8%) indicated that their firms maintained liquidity ratios at optimal levels, (12.7%) did not commit themselves while few (8.4%) indicated that their firms did not maintain liquidity ratios at optimal levels. The responses had a mean of 3.92. Majority of the responses were 4 indicating that the firms maintain liquidity ratios at optimal levels. This, however, contradicts the findings by Nyabwanga et al. (2013) who established that the current and quick ratios of smes studied were below standard norm of 2:1 and 1:1 respectively.

Respondents were requested to indicate whether their firms always prepared cash budgets. A significant majority (88.7%) indicated that their firms prepared cash budgets while the rest (11.3%) indicated that their firms did not prepare cash budgets. The responses had a mean of 4.10. Most of the responses were 4. This shows that majority of the firms prepare cash budgets. This is in agreement with the findings of Kotut (2003) who established that over 56.25% of businesses studied prepared cash budgets on daily basis and used them to plan for shortage and surplus of cash. However, it contradicted the study carried out by Nyabwanga et al. (2012) who found that on average managers in Kisii did not embrace cash budgeting as a tool to plan and control cash flows of their businesses.

Respondents were requested to indicate whether cash flow projections aided them in financial planning. A significant majority (85.9%) indicated that their firms were aided

by cash flow projections in their financial planning, (12.7%) did not commit themselves while few (1.4%) indicated that the cash flow projections did not aid their firms in financial planning. The responses had a mean of 4.13. Most responses were 4 indicating that the firms are aided by cash flow projections in their financial planning. Cash flows are the heart of all businesses and Sebastian (2010) argues that cash flow which is cash receipts and cash payments determine the ability of firms to generate profit and continue their operations. Therefore, the use of cash flow projections by the firms enabled the firms maximize their profits.

Respondents were requested to indicate whether their firms had an optimal cash balance policy. A significant majority (74.6%) indicated that their firms had an optimum cash balance policy, (12.7%) did not commit themselves while few (12.7%) indicated that their firms did not have an optimum cash balance policy. The responses had a mean of 3.84. This means that most responses were 4 indicating that firms have optimum cash balance policies. A study by Kwame (2007) established that setting up of a cash balance policy ensures prudent cash budgeting and investment of cash surplus. Further, Ross et al (2008) assert that reducing the time cash is tied up in the operating cycle improves a business's profitability and market value and furthers the significance of efficient cash management practices in improving business performance.

Both too high and too low liquidity levels are undesirable. The firms need to determine ideal levels of liquidity. Ideal liquidity levels keep on changing with changing circumstances and therefore firms need to regularly assess the optimal and minimum liquidity levels. The respondents were requested to indicate whether their firms regularly assessed the optimum and minimum levels of liquidity. A significant majority (83.1%) of the respondents indicated that their firms regularly assess optimum and minimum liquidity levels, (11.3%) did not commit themselves while few (5.6%) indicated that their firms do not assess regularly the minimum and optimum liquidity levels. The responses had a mean of 3.94. Most responses were 4 indicating that firms regularly assess the optimum and minimum levels of liquidity. According to trade theory, firms

set their levels of cash holding by weighing the marginal costs and marginal benefits of holding cash (Afza & Nasir, 2011).   They also argue that firms have to regularly assess the optimal and minimum levels of liquidity.

The mean score of all the responses was 4.00 on a scale of one to five. This shows that there were more respondents who agreed with the statements in support of liquidity management practices having an influence on profitability. This indicates that firms are holding a lot of liquid cash and therefore they can not maximize their profit. At the same time the firms are liquid enough and therefore there is no likelihood of the firms going bankrupt. High liquidity level means that the firms are putting their resources in liquid or unproductive assets and this means that the firms can not maximize their profits. Bagchi and Khamrui (2012) assert that as firms increase the level of liquidity the profitability of the firm declines. There is a negative relationship between liquidity management practices and profitability. When liquidity level is high, it is a good picture about the firm's ability to generate cash and pay short term and long term debts as they fall due and at the same time the profitability level comes down (Award & Al-Ewesat, 2012).

4.9.1 Reliability Measurement for Liquidity Management Practices

The reliability analysis was done on all the 8 composite measures to determine whether they met the threshold of more than 0.7. The results of the analysis show cronbach's alpha of 0.811. This implies that the instrument was sufficiently reliable for measuring liquidity. The results of the analysis are as shown in table 4.40 shown below:

Table 4.40: Reliability Measurement Results of Liquidity Management Practices

Variable	Number of Items	Cronbach's Alpha
Liquidity Management Practices	8	0.811

Two tests were carried out to determine whether factor analysis was appropriate and the results are displayed in table 4.41. The KMO results indicate a value of 0.759 which is higher than the recommended value of 0.5 (Tabachnick & Fidell, 2007; William, Brown,

Osman, 2010). Bartlett's test of sphericity on the other hand showed a p-value of 0.000 which was lower than 0.05 (Tabachnick & Fidell, 2007; William, Brown, Osman, 2010). The two tests indicate that it was desirable to perform principal component analysis.

Table 4.41: KMO and Bartlett's Test Results for Liquidity Management Practices

Kaiser- Meyer-Olkin Measure of Sampling Adequacy		0.759
Bartlett's Test of Sphericity	Approx. Chi square	200.220
	Df	28
	Sig.	.000

When the 8 composite measures on liquidity management practices were subjected to factor analysis the results indicated that all of the composite measures had measures loaded between 0.357 and 0.722. The factor loadings for all the composite measures met the threshold of 0.4 (David et al., 2010). Therefore, all the composite measures of liquidity management practices were retained as critical drivers of profitability and the results are presented in table 4.42. The rest of the study used all the 8 measures as the composite measure of liquidity management practices.

Table 4.42: Component Matrix of Liquidity Management Practices

Factor	Factor Loading
The firms always prepares cash budgets	0.722
The inventories constitute a large portion of the total current assets	0.700
The firm has an optimum cash balance policy	0.650
The current assets are maintained at a higher level than the current liabilities	0.634
The firm is aided by cash flow projections in financial planning	0.630
The firm regularly assesses the optimum and minimum levels of liquidity	0.596
The liquidity ratios are maintained at optimal levels	0.553
The cash and marketable securities are maintained at a higher level than the current liabilities	0.357

4.9.2 Correlation between Liquidity Management Practices and Profitability

A correlation coefficient statistic that describes the degree of linear association between liquidity management practices and profitability was determined. Table 4.43 indicates that there is a positive significant linear relationship between liquidity management practices and profitability of manufacturing firms in Kenya. This relationship has been illustrated by correlation coefficient of 0.711 at 0.01 significant level. This implies that there is a positive and significant relationship between liquidity management practices and profitability of manufacturing firms in Kenya. This conforms with the results of the study carried out by Amalendu and Sri (2011) that found that there is a positive relationship between current ratio and absolute liquidity ratio with profitability. The positive relationship between liquidity management practices and profitability suggests that managers of manufacturing firms are able to handle and manage cash effectively. Through proper management of cash, the managers are able to create high profits for their companies.

Table 4.43: Correlation of Liquidity Management Practices and Profitability

		Profitability	Liquidity Management Practices
Profitability	Pearson Correlation	1	.711**
	Sig. (2-tailed)		.000
	N	71	71
Liquidity Management Practices	Pearson Correlation	.711**	1
	Sig. (2-tailed)	.000	
	N	71	71

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

4.9.3 Regression Line between Liquidity Management Practices & Profitability

A regression line was superimposed on the scatter plot of profitability versus liquidity management practices as shown on figure 4.7. The regression line indicates a positive

gradient which means that maintenance of an ideal level of liquidity leads to increased profitability. The results conform to the previous studies done by (Hutchison, Farris & Anders, 2007; Nyabwanga et al., 2012) that found that financial performance was positively related to efficiency of cash management. A positive relationship between liquidity management practices and profitability implies that the manufacturing firms in Kenya are efficient in cash management and are able to set cash targets and maintain optimal cash balances. They are able to trade off between the opportunity cost of holding too much cash and the trading cost of holding too little cash.
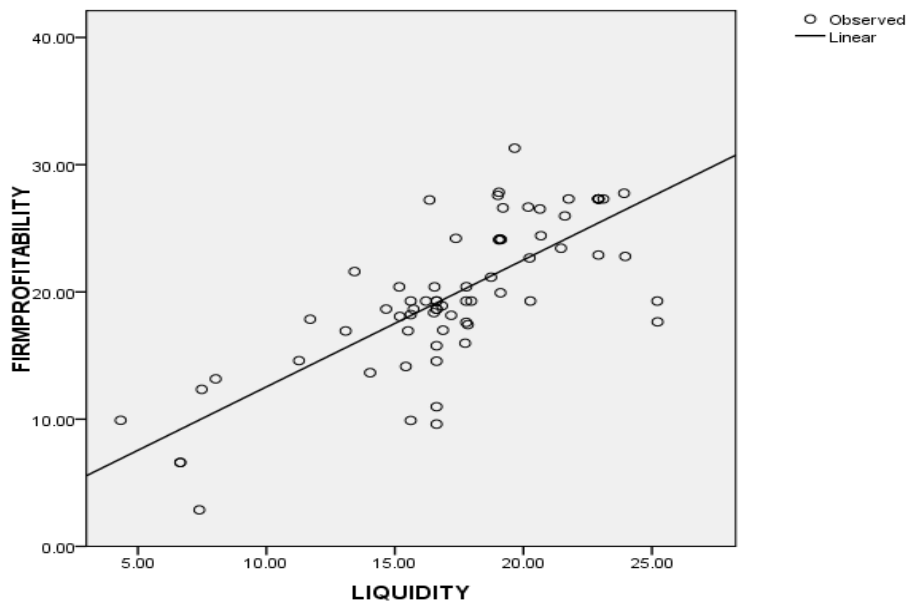
Figure 4.7: Curve Fit of Liquidity Management Practices and Profitability

Regression analysis was conducted to determine the amount of variation in profitability explained by liquidity management practices. The calculated R – value was 0.711. R^2 value = 0.5055 which means that 50.55% of the corresponding variation in profitability can be explained by change in liquidity management practices. The rest 49.45% can be explained by other factors that are not in the model. The results of the analysis are shown in table 4.44.

Table 4.44: Model Summary of Liquidity Management Practices

R	R Square	Adjusted R Square	Std. Error of the Estimate
.711	.506	.491	3.88568

A one way analysis of variance (ANOVA) whose results formed a basis for tests of significance was used. The ANOVA for the linear model presented in table 4.45 of liquidity management practices and profitability has an F value = 90.677 which is significant with p-value = $0.000 < 0.05$ meaning that the overall model is significant in the prediction of profitability in manufacturing firms in Kenya. We therefore reject the null hypothesis that liquidity management practices do not have any influence on profitability of manufacturing firms in Kenya and confirm indeed that there is a positive and significant influence of liquidity management practices on profitability of manufacturing firms in Kenya.

Table 4.45: ANOVA for Liquidity Management Practices and Profitability

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1384.553	1	1384.553	90.677	.000
Residual	1053.558	69	15.269		
Total	2438.111	70			

Analysis of the regression model coefficients is shown in table 4.46. From table 4.46 there is a positive beta co-efficient of 0.912 as indicated by the co-efficient matrix with a p-value = $0.000 < 0.05$ and a constant of 3.145 with a p-value = $0.151 > 0.05$. Therefore, the constant does not contribute significantly to the model and it is not different from zero. However, liquidity management practices contribute significantly to the model. Therefore, the model can provide the information needed to predict profitability from liquidity management practices. The regression equation is presented as follows: Y =

$0.912X_4 + \varepsilon$ Where Y is the Profitability, X_4 is the liquidity management practices and ε is the error term

Table 4.46: Prediction of Profitability from Liquidity Management Practices

	Coefficients			
	B	Std. Error	T	Sig.
(Constant)	3.145	2.248	1.399	.151
Liquidity Management Practices	.912	.094	9.702	.000

4.9.4 Conclusion on Liquidity Management Practices

Firms should invest the excess cash they hold to productive assets. This ensures that firms are able to maximize their profits. The Baumol cash model shows that a firm incurs an opportunity cost by holding cash. This opportunity cost increases with along with the cash level. This further shows that when a firm holds a lot of cash, it can not be able to maximize its profit. According to the Miller – Orr model of cash management, a firm must set a lower cash level, optimal cash return level and the upper limit. Cash should never be allowed to go beyond the upper limit or below the lower limit. The results of the study show that the firms hold a lot of cash. This is an indication that the manufacturing firms in Kenya have not established their optimal cash target, lower and upper cash limits. This further shows that the firms are not able to maximize their profits.

4.10 Effects of Working Capital Levels on Profitability

The fifth objective of the study was to investigate whether working capital levels influence profitability of manufacturing firms in Kenya. The objective was tested through six (6) composite measures on a scaled questionnaire. The findings were presented in table 4.47 which shows the frequencies of responses and mean on the effect of working capital levels on profitability.

The study sought to establish whether the firms applied aggressive, moderate or conservative working capital policies. High risk - high return working capital investment and financing strategies are aggressive strategies while low risks and low return strategies are conservative strategies (Moyer, mcguigan & Kretlow, 2002; Pinches, 1997; Brigham & Gapenski, 1994 & Gitman, 2009).

An aggressive investment policy is an indicator that firms are properly utilizing their current assets optimally. The respondents were requested to indicate whether current assets are maintained at a low level percentage of the total assets. A majority (69.1%) indicated that their firms maintain a low level of current assets in relation to total assets, (12.7%) did not commit themselves while few (18.2%) claimed that their firms maintained a high level of current assets to the total assets. The responses had a mean of 3.51. Majority of the responses were 4. This is an aggressive investment policy because current assets are kept low and are not allowed to grow in size and have an effect of increasing profitability. Empirical studies carried out by Pinches (1997) indicated that an aggressive investment policy with low levels of current assets results to low expenses and a higher return. This study is further supported by a recent study carried out by Hussain et al. (2012) who found that firms use an aggressive investment policy with low level of current assets increase profitability.

Ideal current assets to current liabilities ratio is 2:1. A firm that is able to maintain this ratio is a sign that the firm is healthy and is able to maximize its profits. The respondents were requested to state whether their firms were able to maintain a current ratio of 2:1. A significant majority (74.7%) indicated that their firms maintained the ideal ratio and (7%) of the respondents did not commit themselves while few (18.3%) indicated that their firms did not maintain a current ratio of 2:1. The responses had a mean of 3.65. This shows that firms are able to maintain current ratio at 2:1. This means that manufacturing firms in Kenya apply moderate investing policy in managing their working capital levels. Raheman & Nasr (2007) assert that current assets of a

manufacturing typical firm accounts for over half of its total assets and excessive level of current assets can easily result in a firm realizing a substandard return on investment. However, firms with too little current assets may result to shortages and difficulties in maintaining smooth operations (Horne & Wachowicz, 2000).

Current liabilities constitute part of the total liabilities. Therefore, current liabilities should always be less than total liabilities. The ratio between current liabilities and total liabilities should be kept low to moderate depending on the firm. The respondents were requested to indicate whether their firms maintained a high ratio of current liabilities to total liabilities. A slight majority (50.7%) indicated that their firms maintained a high ratio of current liabilities in relation to total liabilities, (15.5%) did not commit themselves and (31%) of the respondents indicated that their firms maintain a low ratio between current liabilities to total liabilities. The responses had a mean of 3.38. Most of the responses were 3. This shows that the respondents were indifference as to whether their firms maintain a high or low ratio of current liabilities to total liabilities. This is an indication that manufacturing firms in Kenya apply moderate financing policies and the findings contradict the findings of Weinraub and Vissscher (1998) who found that firms were utilizing high levels of current liabilities to total liabilities.

A high ratio of current Liabilities to total assets ratio is a sign that a firm is using a high degree of aggressive financing policy. The respondents were requested to indicate whether their firms were maintaining a high level of current liabilities to total assets. A slight majority (56.3%) indicated that their firms were maintaining a high ratio, (11.3%) were indifference while (32.4%) indicated that their firms maintained a low ratio. The responses had a mean of 3.35. Majority of the responses were 3. This shows that the number of respondents agreeing and disagreeing on this view was almost equal. Therefore, this shows that firms are applying moderate financing policy. When a firm is utilizing a high ratio of current liabilities in relation to total assets then there is a possibility of a working capital deficit. Working capital deficit exists if current liabilities exceed current assets. In such a situation, short term funds are used to finance part of the

non current assets and the firm is said to be adopting an aggressive working capital (Bhattacharya, 2001). Empirical studies carried out by (Weinraub & Visscher, 1998; Nasir & Afza, 2009 and Hussain et al., 2012) show that firms that use aggressive financing policy with high level of current liabilities increase profitability. However, a study carried out by Al-mwalla (2012) shows contrary that an aggressive financing policy has a negative impact on firm's profitability.

For a stable organization long term funds, finance non current assets while current assets are financed by current liabilities. The respondents were requested to indicate whether current assets in their firms were financed from long term funds. A few (39.5%) indicated that the current assets of their firms were financed through long term funds, (11.3%) did not commit themselves while (49.3%) indicated that current assets were financed through current liabilities of their firms. The responses had a mean of 2.89. This shows that majority of the responses were 3 indicating that firms apply moderate financing and investing policies. This confirms the assertion by Gitman (2009) that working capital is financed by a combination of long term and short term funds of a firm.

Long term sources of funds consist of capital (equity from owners) and long term debt which only provide for a relatively small portion of the working capital requirements. Finance theory dictates that only the permanent portion of the working capital should be supported by the long term financing (Gitman, 2009). Thus, the firms appropriately utilize both current liabilities and long term funds to finance the current assets.

The mean score of all the responses was 3.30 on a scale of one to five. This shows that there were almost an equal number of respondents who agreed and those who disagreed with the statements in support of working capital levels having an influence on profitability. This implies that both conservative and aggressive financing and investing policies are not applied by manufacturing firms in Kenya. Thus, it can be argued that the firms apply moderate financing and investing policies in managing their working capital.

Whatever the level of working capital maintained by firms, there is an opportunity cost that is incurred. It may either be liquidity risk or reduced profit. Neither conservative nor aggressive financing policy is being applied by the firms and this means that there is neither too high nor too low use of long term debt and capital (Weinraub & Visscher, 1998). Since the firms use moderate financing and investing policies, it may be concluded that the business environment is moderately volatile. Firms tend to adopt a conservative financing approach during the time of high business volatility and an aggressive financing policy during the time of low volatility (Sathymoorthi & Wally-Dima, 2008). Since, the firms are maintaining ideal levels of working capital; it can be argued that the firms apply moderate investing policy. This implies that firms' profitability level is moderate (Nasr & Afza, 2009).

Table 4.47: Working Capital Levels Results

Key: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

	Statement	1 %	2 %	3 %	4 %	5 %	Likert Mean
1	The firm maintains a low level of current assets as a percentage of total assets	9.9	8.4	12.7	59.2	9.9	3.51
2	The firm maintains a current ratio of 2:1	7.0	11.3	7.0	59.2	15.5	3.65
3	The firm maintains a high level of current liabilities in relation to total liabilities	18.3	12.7	18.3	40.8	9.9	3.11
4	The firm maintains a high level of current liabilities in relation to total assets	8.5	23.9	11.3	36.6	19.7	3.35
5	The firm maintains a high level of current assets in relation to current liabilities	11.3	9.9	18.3	50.7	9.9	3.38
6	The current assets are financed by long term funds of the firm	12.7	36.6	11.3	28.2	11.3	2.89
	Average	**11.28**	**18.58**	**12.12**	**44.80**	**13.26**	**3.30**

4.10.1 Reliability Measurement for Working Capital Levels

The reliability analysis was done on all the 6 composite measures to determine whether they met the threshold of more than 0.7. The results of the analysis show cronbach's alpha of 0.853. This implies that the instrument was sufficiently reliable for measuring working capital levels. The results of the analysis are as shown in table 4.48 below:

Table 4.48: Reliability Measurement Results of Working Capital Levels

Variable	Number of Items	Cronbach's Alpha
Working Capital Levels	6	0.853

Two tests were carried out to determine whether factor analysis was appropriate and the results are displayed in table 4.49. The KMO results indicate a value of 0.516 which is higher than the recommended value of 0.5 (Tabachnick & Fidell, 2007; William, Brown, Osman, 2010). Bartlett's test of sphericity on the other hand showed a p-value of 0.000 which was lower than 0.05 (Tabachnick & Fidell, 2007; William, Brown, Osman, 2010). The two tests indicate that it was desirable to perform principal component analysis.

Table 4.49: KMO and Bartlett's Test Results for Working Capital Levels

Kaiser- Meyer-Olkin Measure of Sampling Adequacy		0.516
Bartlett's Test of Sphericity	Approx. Chi square	118.902
	Df	15
	Sig.	.000

When the 6 composite measures on working capital levels were subjected to principal component analysis, the results indicated that all of the composite measures had measures loaded between 0.744 and 0.845. These loadings were higher than 0.4 (David et al., 2010). Therefore, all the six composite measures of working capital levels were retained as critical drivers of profitability. The results of the analysis are presented in table 4.50 below.

Table 4.50: Component Matrix of Working Capital Levels

Factor	Factor Loading
The firms maintain a high level of current liabilities in relation to total liabilities	0.845
The firms maintain a low level of current assets as a percentage of total assets	0.800
The firm maintains a current ratio of 2:1	0.777
The current assets are financed by long term funds of the firm	0.776
The firm maintains a high level of current assets in relation to current liabilities	0.774
The firms maintain a high level of current liabilities in relation to total assets	0.744

4.10.2 Correlation between Working Capital Levels and Profitability

A correlation coefficient statistic that describes the degree of linear association between working capital levels and profitability was determined. Table 4.51 indicates that there is a positive significant linear relationship between working capital levels and profitability of manufacturing firms in Kenya. This relationship has been illustrated by correlation coefficient of 0.538 at 0.01 significant level. This implies that there is a positive and significant relationship between working capital levels and profitability of manufacturing firms in Kenya. The results contract the findings by Al-shubiri (2011) that showed that there is a negative relationship between working capital levels and profitability. However, the finding conforms to the results of Hussain et al. (2012) that revealed that low investment in current assets and low current liabilities financing increases the profitability of the firms. The positive relationship between working capital levels and profitability implies that the manufacturing firms in Kenya invest heavily in the productive assets (non current assets) and have low investment in the non productive assets (current assets). Productive assets have the ability to generate profit unlike the non productive assets. However, investment in current assets ensures that there is enough liquid assets.

Table 4.51: Correlation between Working Capital Levels and Profitability

		Profitability	Working Capital Levels
Profitability	Pearson Correlation	1	.538[**]
	Sig. (2-tailed)		.000
	N	71	71
Working Capital Levels	Pearson Correlation	.538[**]	1
	Sig. (2-tailed)	.000	
	N	71	71

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

4.10.3 Curve Fit between Working Capital Levels and Profitability

A regression line was superimposed on the scatter plot of profitability versus working capital levels as shown on figure 4.8. The regression line indicates a positive gradient which shows that there is a positive relationship between working capital levels and profitability. The results contradict the study conducted by Al-mwalla (2012) that found that an aggressive financing policy has a negative impact on profitability and value. However, the results conform to the study done by (Hussain et al., 2012) that found that the application of an aggressive financing policy with high level of current liabilities has a positive influence on profitability. The positive relationship from the results indicates that manufacturing firms have employed finance managers who are able to maintain ideal working capital levels. The finance managers are able to balance between the levels of current assets and current liabilities against the levels of non current assets and non current liabilities.
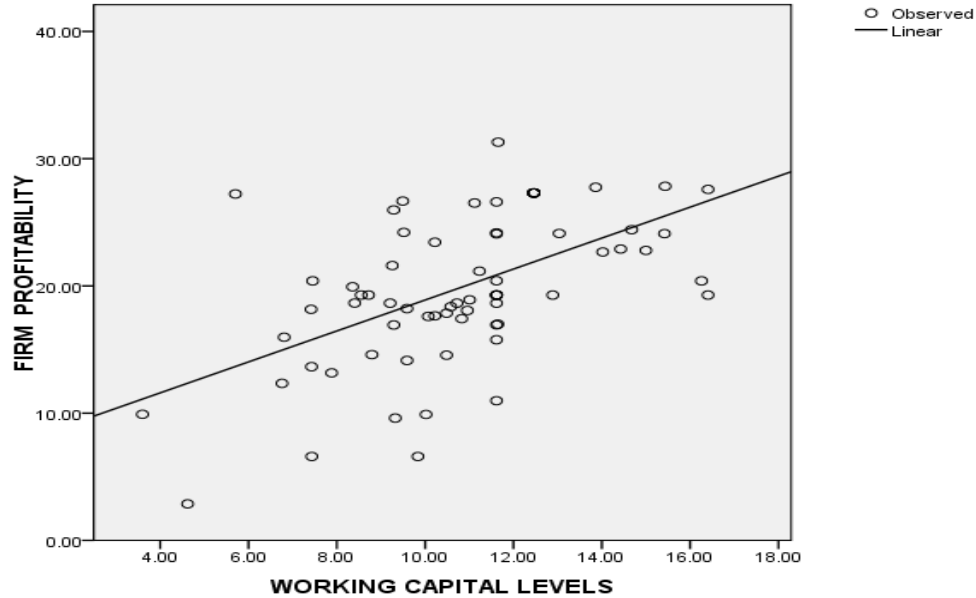
Figure 4.8: Curve Fit between Working Capital Levels and Profitability

Regression analysis was conducted to determine the amount of variation in profitability explained by working capital levels. The calculated R – value was 0.538. R^2 value was 0.2894 which means that 28.94% of the corresponding variation in profitability can be explained by working capital levels. The rest 71.06% can be explained by other factors that are not in the model. The results of the analysis are shown in table 4.52.

Table 4.52: Model Summary for Working Capital Levels

R	R Square	Adjusted R Square	Std. Error of the Estimate
.538	.289	.281	4.87459

A one way analysis of variance (ANOVA) whose results formed a basis for tests of significance was used. The ANOVA for the linear model presented in table 4.53 of working capital levels and profitability has an F value = 45.756 which is significant with p-value = 0.000 < 0.05 meaning that the overall model is significant in the prediction of profitability in manufacturing firms in Kenya. The study therefore rejected the null

119

hypothesis that working capital levels do not have any influence on profitability of manufacturing firms in Kenya and confirm indeed that there is a positive and significant influence of working capital levels on profitability of manufacturing firms in Kenya.

Table 4.53: ANOVA for Working Capital Levels and Profitability

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	972.123	1	972.123	45.756	.000
Residual	1465.988	69	21.246		
Total	2438.111	70			

Analysis of the regression model coefficients is shown in table 4.54. From table 4.54 there is a positive beta co-efficient of 2.145 as indicated by the co-efficient matrix with a p-value = 0.000 < 0.05 and a constant of 8.034 with a p-value = 0.000 < 0.05. Both the constant and working capital levels contribute significantly to the model. Therefore, the model can provide the information needed to predict profitability from working capital levels. The regression equation is presented as follows: $Y = 8.034 + 2.145X_5 + \varepsilon$; Where Y = Profitability, X_5 is the working capital levels and ε is the error term

Table 4.54: Prediction of Profitability from Working Capital Levels

	Coefficients			
	B	Std. Error	T	Sig.
(Constant)	8.034	3.023	2.658	.000
Working Capital Levels	2.145	.391	5.486	.000

4.10.4 Conclusion on Working Capital Levels

From the study, it was discovered that the finance managers are very cautious in the use of working capital items. They apply moderate financing and investment policies. Aggressive investing and financing have the effect of increasing profitability while conservative working capital policies have the effect of reducing profitability. However,

aggressiveness brings about increased risk. Return – Risk trade off theory requires firms balance between profitability and liquidity. Despite the fact that the firms adopt moderate working capital policy, the chief finance officers may be doing it unconsciously. Therefore, the firms should employ finance managers with sound financial knowledge or train the finance managers on financial matters to ensure that they understand better utilization of working capital items for the purpose of maximizing profits for their firms.

4.11 Effects of Working Capital Management on Profitability

4.11.1 Combined Correlation Matrix for the all Variables

Results in table 4.62 (Appendix VII) show that all the variables are positively correlated. Profitability positively correlates with all the independent variables. Correlation between the dependent (profitability) and each of the independent variables is here below ranked in accordance with their strength; Liquidity 0.711, Inventory Control 0.601, Working Capital Levels 0.538, Accounts Payable Practices 0.403 and Credit Policy 0.346. Correlation between profitability and liquidity is the strongest and credit policy has the lowest among all the independent variables. This implies that the relationship between profitability and liquidity is 0.711 and credit policy is 0.346.

The strength of relationships among independent variables is measured by the coefficient of correlation. When the relationship between two independent variables is strong, it is known as multicollinearity. When multicollinearity exists between independent variables, the results of multiple regression analysis can not be relied upon. There is no specific value at which we would say multicollinearity exists; it is a matter of judgement (Curwin & Slater, 2008). Correlation among the independent variables in this study do not show any sign of multicollinearity. Conventionally, a correlation of more than 0.8 or less than -0.8 between two independent variables is a sign of multicollinearity (Waters, 2011; and Garson, 2012). Correlation among all the independent variables show a correlation of less than 0.8 and more than -0.8 with the highest correlation being between inventory control and liquidity of 0.685 and the lowest

correlation between credit policy and liquidity of 0.281. Credit policy shows the following correlation with the following independent variables; accounts payable practices (0.578), inventory control (0.297), Liquidity (0.281) and working capital levels (0.357). Accounts payable practices have correlation with inventory control (0.491), liquidity (0.473) and working capital levels (0.581). Inventory control has a correlation of 0.685 and 0.488 with liquidity and working capital levels respectively. Liquidity has a correlation of 0.619 with working capital levels. Since correlation among all the independent variables were less than 0.8 and more than -0.8, the study concluded that there was no multicollinearity among the independent variables (Water, 2011; and Garson, 2012). Therefore, the study was justified to apply linear regression analysis.

4.11.2 Test for Multicollinearity

Multicollinearity is an unacceptable high level of inter correlation among the independent variables, such that effects of independent variables can not be separated (Garson, 2012). In multiple regression, the variance inflation factor (VIF) is used as an indicator of multicollinearity. Variance inflation factor (VIF) is a factor by which the variance of the given partial regression coefficient increases due to given variable's extent of correlation with other predictors in the model (Dennis, 2011). As a rule of thumb, lower levels of variance inflation factor (VIF) are desirable as higher levels of VIF are known to affect adversely the results associated with multiple regression analysis. A simple diagnostic of co linearity is the variance inflation factor for each regression coefficient.

Garson (2012) asserts that the rule of thumb is that VIF > 4.0 multicollinearity is a problem and other scholars use more lenient cut off of VIF > 5.0 when multicollinearity is a problem. However, O'Brien (2007) suggests that this rule of thumb should be assessed in contextual basis taking into account factors that influence the variance of regression coefficient. He further argued that the VIF value of 10 or even 40 or higher does not necessarily suggest the need for common treatment of multicollinearity such as using ridge regressions, elimination of some variables or combine into a single variable.

This study adopted a VIF value of 4.0 as the threshold. Credit policy had a VIF of 1.962, accounts payable practices 2.357, inventory control 2.020, liquidity 2.115 and working capital levels 1.504. These results indicate that the VIF values of the independent variables were within the threshold of 4.0. This indicated that that there was no threat of multicollinearity problem and therefore, the study used linear regression model. The results of the analysis are shown in table 4.55.

Table 4.55: Co linearity Statistics

	Co linearity Statistics	
	Tolerance	VIF
Credit Policy	.510	1.962
Accounts Payable Practices	.424	2.357
Inventory Control	.495	2.020
Liquidity	.473	2.115
Working Capital Levels	.665	1.504

4.11.3 Combined Effect of the Independent Variables on the Profitability

A combined effect of all the independent variables; credit policy, accounts payable practices, inventory control practices, liquidity management practices and working capital levels on profitability were tested. This was done through standard multiple linear regression analysis. The multiple linear regression analysis determined the amount of influence that each independent variable had on profitability on a joint model.

The result in table 4.56 shows that R^2 was 0.933. This implies that 93.3% of the variation in profitability is explained by the variation in the independent variables jointly (credit policy, average payable practices, inventory control practices, liquidity management practices and working capital levels). The remaining 6.7% can be explained by other factors that are not in the model. This shows a very good fit of the multiple data on the regression model. This fitness level is higher than all the levels of fitness the individual variables had on individual regression models.

Table 4.56: Model Summary on Combined Effect

R	R Square	Adjusted R Square	Std. Error of the Estimate
.966	.933	.922	3.71343

A. Predictors: Credit Policy, Accounts Payable Practices, Inventory Control Practices, Liquidity Management Practices, Working Capital Levels

The analysis of variance (ANOVA) in table 4.57 shows a good result for the multiple linear regression model. It is an indication that working capital management components influence profitability significantly. It shows the significance of the F statistics of 405.482 The p-value is 0.000 which is less than 0.05. This confirms the model's goodness of fit to explain the variations and validate that the independent variables affect the dependent variable.

The hypothesis to be tested was:

$H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$

$H_1:$ At least one of $(\beta_1, \beta_2, \beta_3, \beta_4, \beta_5) \neq 0$

Therefore, the null hypothesis was rejected that all the partial regression coefficients are equal to zero and concluded that at least one of the partial regression coefficients is not equal to zero. The implication to these findings is that all the independent variables; credit policy, accounts payable practices, inventory control practices, liquidity management practices and working capital levels have a significant combined effect on profitability and can be used to predict profitability.

Table 4.57: ANOVA for Multiple Regression Analysis

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	29764.413	5	5952.883	405.482	.000
Residual	954.233	65	14.681		
Total	30718.646	70			

A. Predictors: Credit Policy, Accounts Payable Practices, Inventory Control Practices, Liquidity Management Practices, Working Capital Levels

Table 4.58 on coefficients showed that for liquidity management practices, the regression coefficient is positive (0.693) indicating that the more ideal level of liquidity, the higher the profitability of the manufacturing firm and the relationship is statistically significant (p = 0.000). The regression coefficient on inventory control practices is positive (0.401) and the relationship is statistically significant (p= .012). Working capital levels show a positive coefficient (.402) and the relationship is statistically significant (p = .033). The relationship between credit policy and profitability shows a positive coefficient (0.061). The relationship is not statistically significant (.151). The coefficient value for accounts payable practices negative (-0.099) indicating a negative relationship. Therefore, for every unit change in accounts payable practices it results into 0.099 decrease in profitability. The relationship is not statistically significant as shown by p-value .162.

This model suggests that once liquidity management practices, inventory control practices and working capital levels are taken into account, the effect of credit policy and accounts payable practices disappears. This means that profitability has less to do with credit policy and accounts payable practices than it does with liquidity management practices, inventory control practices and working capital levels.

The t – values confirmed that liquidity, is the most useful predictor of effectiveness of profitability (t = 4.582), then inventory control (t = 1.958), working capital levels (t = 1.379), credit policy (t = 0.735) and the least is accounts payable practices (t = -0.335).

Table 4.58: Beta Coefficients of the Variables of the Combined Model

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
Credit Policy	0.061	0.083	0.811	0.735	0.111
Accounts Payable Practices	-0.099	0.292	-0.043	-0.335	0.162
Inventory Control Practices	0.401	0.201	0.217	1.958	0.012
Liquidity Mgt. Practices	0.693	0.151	0.517	4.582	0.000
Working Capital Levels	0.402	0.291	0.114	1.379	0.033

A. Dependent Variable: Profitability

B. Linear Regression through the Origin

4.11.4 Optimal Conceptual Model

The research findings of this study as shown in table 4.58, indicated that there was a need to modify the model. The model was therefore modified in line with the established results in table 4.58. The optimal conceptual model has independent variables aligned according to their degree of influence on the dependent variable, that is, profitability. According to the findings in table 4.58 liquidity management practices, inventory control practices and working capital levels had significant influence on profitability in that order. Their p-values were liquidity management practices (.000), inventory control practices (0.012) and working capital levels (0.033). However, Credit policy and accounts payable practices did not significantly influence profitability as indicated in table 4.58, credit policy (Sig. 0.111) and Accounts payable practices (Sig .162). Credit policy and accounts payable practices were therefore dropped from the optimal conceptual model.

The regression equation for the relationship can be remodeled as shown below:

$$Y = 0.693X_1 + 0.401X_2 + 0.402X_3 + \varepsilon$$

Where: Y = Profitability

      X_1 = Liquidity Management Practices

      X_2 = Inventory Control Practices

      X_3 = Working Capital Levels

The reviewed optimal conceptual model of this study is as shown in figure 4.9. The new adjusted optimal conceptual model is a realignment arising from the degree of influence for each variable with a significant influence on profitability; liquidity management practices, accounts payable practices and working capital levels
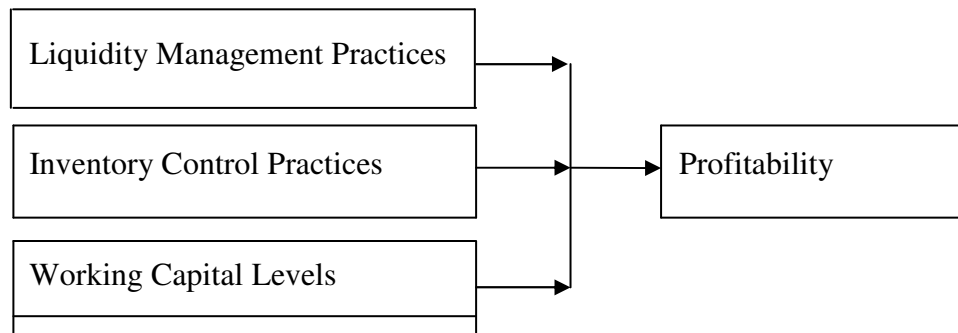

Figure 4.9: Optimal Conceptual Framework

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The main objective of this study was to determine the effects of manufacturing firms in Kenya. From the overall objective, the study sought to find out if credit policy, accounts payable practices, inventory control practices, liquidity management practices and working capital levels influence profitability of manufacturing firms in Kenya. This chapter presents the summary of major findings of the study, overall conclusions based on managerial and theoretical implications of working capital management in manufacturing firms in Kenya. Finally, the chapter highlights important recommendations for further research.

5.2 Summary of the Findings

The study was conducted based on the premise that working capital management does not influence profitability of manufacturing firms in Kenya. The study reviewed both theoretical and empirical literature on working capital management. From the review of the related literature, a comprehensive conceptual framework of argument of the relationship between working capital management and profitability was formulated.

The hypothesized relationship was tested empirically guided by the following specific objectives; to determine whether credit policy influences profitability of manufacturing firms, to a determine the degree to which accounts payable practices influence profitability of manufacturing firms, to examine how inventory control practices influence profitability of manufacturing firms, to establish whether liquidity management practices influence profitability of manufacturing firms and to investigate whether working capital levels influence profitability of manufacturing firms in Kenya. The hypothesized relationship between the working capital management and profitability were presented in a conceptual framework.

Based on the conceptual framework and objectives of the study, a questionnaire was prepared and tested both for validity and reliability using Cronbach's Co-efficient alpha α, through a pilot study. The pretested questionnaire was used to collect the primary data for the independent variables and a record survey sheet for the dependent variable (profitability) from a stratified sample of 81 firms. Out of 81 firms, (71) 87.7% responded. The independent variables of the study were tested for multicollinearity and independence. Durbin –Watson test was carried out to test the independence of variables. Normality tests were carried out on the profitability (dependent variable) using a histogram of frequencies and Shapiro – Wilk test. Statistical package for social sciences (SPSS) version 20.0 was used as the statistical tool for analysis all through. Quantitative data was analyzed and described using descriptive and inferential statistics. Scatter plots were used to examine and see if linear regression relationship existed after which inferential statistical analysis for every variable was made. Multiple linear regression analysis was used to test the combined effect of all the independent variables.

5.2.1 Credit Policy and its Effect on Profitability

The results of correlation showed that there was a positive significant linear relationship between credit policy and profitability. This relationship was illustrated by correlation coefficient of 0.346 at 0.01 significant levels. R square was 12% and this was relatively low. This shows that Credit policy explains 12% of the variation in profitability of manufacturing firms in Kenya. An F statistics of 7.248 indicated that the model was significant. This was supported by the probability value of 0.016 which was less than 0.05. This indicated that the overall model applied can significantly predict outcome valuable. These findings led to the rejection of null hypothesis and accepted the alternative hypothesis that credit policy significantly influences profitability of manufacturing firms in Kenya.

5.2.2 Accounts Payable Practices and their Effect on Profitability

The results of correlation showed that there was a positive significant linear relationship between accounts payable practices and profitability. This relationship was illustrated by

correlation coefficient of 0.403 at 0.01 significant levels. R square was 16.2% and this is relatively low. This shows that accounts payable practices explain 16.2% of the variation in profitability of manufacturing firms in Kenya. An F statistics of 16.014 indicated that the model was significant. This was supported by the probability value of 0.000 which was less than 0.05 and therefore indicated that the overall model applied can significantly predict the outcome valuable. The findings implied that the accounts payable practices influence firms' profitability in manufacturing firms in Kenya. These findings led to the rejection of null hypothesis and accepted the alternative hypothesis that accounts payable practices significantly influence profitability of manufacturing firms in Kenya.

5.2.3 Inventory Control Practices and their Effect on Profitability

The results of quantitative analysis showed that there was a positive significant linear relationship between inventory control practices and profitability. This relationship was illustrated by correlation coefficient of 0.601 at 0.01 significant levels. R square was 36.1% and this was quite high. This showed that inventory control practices explain 36.1% of the variations in profitability of manufacturing firms in Kenya. An F statistics of 48.909 indicated that the model was significant. This was supported by the probability value of 0.000 which was less than 0.05 and therefore indicated that the overall model applied can significantly predict (profitability) outcome valuable. These findings led to the rejection of null hypothesis and accepted alternative hypothesis that inventory control practices significantly affect profitability of manufacturing firms in Kenya.

5.2.4 Liquidity Management Practices and their Effect on Profitability

The results of inferential analysis showed that there was a positive significant linear relationship between liquidity management practices and profitability. This relationship was illustrated by correlation coefficient of 0.711 at 0.01 significant levels. R square was 50.6% and this was quite high. This shows that liquidity management practices explain 50.6% of the variation in profitability of manufacturing firms in Kenya. An F statistics of 90.677 indicated that the model was significant. This was supported by the probability

value of 0.000 which was less than 0.05 and therefore indicated that the overall model applied can significantly predict (profitability) outcome valuable. These findings led to the rejection of null hypothesis and accepted the alternative hypothesis that liquidity management practices significantly affects profitability of manufacturing firms in Kenya.

5.2.5 Working Capital Levels and their Effect on Profitability

The results of quantitative analysis showed that there was a positive significant linear relationship between working capital levels and profitability. This relationship was illustrated by correlation coefficient of 0.538 at 0.01 significant levels. R square was 28.9% and this was moderate. This implies that working capital levels explain 28.9% of the variation in profitability of manufacturing firms in Kenya. An F statistics of 45.756 indicated that the model was significant. This was supported by a probability value of 0.000 which was less than 0.05 and therefore indicated that the overall model applied can significantly predict profitability. These findings led to the rejection of null hypothesis and accepted the alternative hypothesis that working capital levels significantly affect profitability of manufacturing firms in Kenya.

5.2.6 Combined Effect of all Independent Variables on Profitability

The study found that there is a strong combined effect of the study independent variables (credit policy, accounts payable practices, inventory control practices, liquidity management practices and working capital levels) on profitability of manufacturing firms in Kenya. The effect was further found to be statistically significant.

The findings indicated that not all independent variables (credit policy, accounts payable practices, inventory control practices, liquidity management practices and working capital levels) made a significant contribution in explaining the dependent variable (profitability). It was found that only Liquidity management practices and inventory control practices had a positive and significant influence on profitability of manufacturing firms. Credit policy and working capital levels did not contribute

significantly on profitability and accounts payable practices contributed negatively on profitability of manufacturing firms although this contribution was insignificant.

5.3 Conclusion

Based on the empirical evidence adduced in this study, a number of logical conclusions can be made.

5.3.1 Credit Policy and its Effect on Profitability

The positive and statistically significant relationship between credit policy and profitability implies that finance managers can maximize profits for their firms by extending credit to their customers and ensuring that their credit policies are neither too lenient nor too strict. They should ensure that they extend credit to only customers well known to the firm and have a good history with the firm. Cash discounts should be provided to the customers to induce them pay promptly. The credit period extended should not be too long to ensure recovery of cash early. Further, it can be concluded that there exists a positive and significant relationship between credit policy and profitability in manufacturing firms in Kenya. This implies that credit policies were statistically significant in explaining profitability of manufacturing firms in Kenya

5.3.2 Accounts Payable Practices and their Effect on Profitability

Manufacturing firms in Kenya can reap reasonable benefits in inculcating a good relationship with their suppliers. It is also evident that accounts payable practices encourage firms maintain the right amount of credit with their suppliers. Well utilized accounts payable is a major source of short term financing and the firm does not need to borrow from the market if it can prudently utilize accounts payables.

5.3.3 Inventory Control Practices and their Effect on Profitability

The findings of inventory control on profitability of manufacturing firms in Kenya showed that finance managers of manufacturing firms take precautions to ensure that their firms maintain ideal levels of inventories of both raw materials and finished goods.

This may have led to increased profitability of manufacturing firms in Kenya and therefore it can be concluded that there exists a positive and significant relationship between inventory control and profitability.

5.3.4 Liquidity Management Practices and their Effect on Profitability

The results of the study found that firms maintain high levels of liquid cash and this may have led to reduced profitability. Therefore, it can be concluded that manufacturing firms in Kenya have the ability to generate cash and pay short term and long term debts when they fall due. The firms have no threats of becoming bankrupt. However, the firms can not maximize their profits because the excess cash has no ability to generate profits. The cash can be converted into productive assets and therefore generate further profits.

5.3.5 Working Capital Levels and their Effect on Profitability

The results of the study were that manufacturing firms in Kenya applied moderate financing and investment policies during the study period. Therefore, it is concluded that the business environment was moderately volatile and this implies that the firms' profitability level was moderate. It can further be concluded that there exists a positive relationship between working capital levels and profitability of manufacturing firms in Kenya. Working capital level was significant in explaining profitability of manufacturing firms in Kenya.

5.4 Recommendations of the Study

Based on the study findings, the following recommendations have been made;

5.4.1 Credit Policy and its Effect on Profitability

Finance managers of manufacturing firms should regularly review their credit policies to ensure that they are ideal. Ideal credit policies ensure that both sales and profit increase and at the same time minimize the risk of bad debts. They should design credit policies that are capable of helping their firms collect proceeds from debtors as good working

capital management urges for quick cash collection from credit sales for quick re-investment in the short term securities in order to boost profitability.

5.4.2 Accounts Payable Practices and their Effect on Profitability

Kenya Association of Manufacturers should advise member firms to ensure improvement in the relationship between their firms and their suppliers. Firms pay promptly their credit purchases so that the companies' names are not damaged. This ensures good reputation and goodwill. Early payment ensures that manufacturing firms enjoy good relationship with their suppliers and also enjoy cash discounts for early payment. Cash discounts help to increase profit and good relationship with suppliers ensures availability of supplies and therefore improved working capital.

5.4.3 Inventory Control Practices and their Effect on Profitability

Firms should install and maintain good inventory control systems such as Economic Order Quantity (EOQ) and Just in Time (JIT). This ensures that firms are maintaining ideal levels of inventory that have an effect of increasing profitability of the firms. The management should ensure that the staff is qualified to perform duties assigned. Ideal inventories levels should be maintained. The staff should also maintain accurate inventory records. All these have an impact on the profitability level of the firms.

5.4.4 Liquidity Management Practices and their Effect on Profitability

The finance managers should establish optimal cash targets, lower and upper cash limits in their firms. This ensures that firms hold neither too low nor too high cash levels. They should invest excess cash in productive assets. This ensures that firms do not hold excessive cash at the expense of increased fixed assets that are able of improving profitability.

5.4.5 Working Capital Levels and their Effect on Profitability

The Board of Directors of the manufacturing firms should employ finance managers with sound financial knowledge or retrain their finance managers on financial matters to

ensure that they understand better utilization of working capital items for the purpose of maximizing profits for their firms. The retrained finance managers will help the firms maintain ideal levels of working capital and hence increased profitability of the firms.

5.5 Areas for Further Research

This study was not able exhaust all working capital management components that have effects on profitability in manufacturing firms. Therefore, effects of prepayments, accrued expenses, government regulations and policy, economic environment and culture on profitability of manufacturing firms need be established in future studies.

5.6 Policy Implication

The Government of Kenya through the Ministry of Industrialization should create an authority to oversee the development and success of manufacturing sector so as to be in line with the economic pillar of Vision 2030. Kenya Association of Manufacturers (KAM) and policy makers should advocate for qualified personnel to be employed as chief finance officers in the member firms. This will ensure that chief finance officers are members of the Institute of Certified Public Accountants of Kenya (ICPAK) and are regulate by ICPAK to attain a number of continuous professional development credit hours per year.

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APPENDIX 1 QUESTIONNAIRE

Introduction

I am a student at Jomo Kenyatta University of Agriculture and Technology pursuing a PHD Degree in Business Administration (Finance Option). My Research Project is on the effects of working capital management on profitability of manufacturing firms in Kenya. This questionnaire is aimed at collecting information on the given topic. The information provided will be held confidential and used for the purpose of enabling the researcher accomplish an academic requirement.

Instructions

Please respond each question by putting a tick ($\sqrt{}$)

PART - A

Background Information

1. When did your company commence its operations?

1-10 Years ago	( )
11-20 Years ago	( )
21-30 Years ago	( )
31- 40 Years ago	( )
41-50 Years ago	( )
Over 50 Years ago	( )

2. What is the length of time your company has been a member of Kenya Association of Manufacturers?

1-5 Years	( )
6-10 Years	( )
11-15 Years	( )
16-20 Years	( )
21-25 Years	( )
Over 25 Years	( )

3. Under what classification is your company placed by Kenya Association of Manufacturers (KAM)?

Building, Mining and Construction ( )

Chemical and Allied Sector ( )

Energy, Electrical and Electronics Sector ( )

Foods and Beverages Sector ( )

Leather and Footwear Sector ( )

Metal and Allied Sector ( )

Motor Vehicles Assemblers and Accessories Sector ( )

Paper and Board Sector ( )

Pharmaceutical and Metal Equipment Sector ( )

Plastic and Rubber Sector ( )

Textile and Apparels Sector ( )

Timber, Wood and Furniture Sector ( )

4. What is your organizational form?

Listed Company ( )

Other limited companies ( )

Partnership ( )

Sole Proprietorship ( )

Co-operative Society ( )

Other, please specify ……………………………………………………..

5. How many workers are currently employed by your company employed?

Between 1 and 10 workers ( )

Between 11 and 50 workers ( )

Between 51 and 100 workers ( )

Between 101 and 250 workers ( )

Between 251 and 500 workers ( )

Over 500 workers ( )

6. What types of products does your company deal with?

     Raw Materials   ( )

     Parts   ( )

     Semi-Assembled components   ( )

     Finished Goods   ( )

     Don't know   ( )

7. What formal organization structure does your company have?

     Simple form   ( )

     Functional   ( )

     Divisional   ( )

     Matrix   ( )

     Other, please specify………………………………………………………..

PART – B

Credit Policy

The following statements relate to credit policy, credit standards, credit terms and collection efforts by your company. Indicate how agreeable you are with the statements by placing a tick (√) against correct option. Strongly agree – (SA), Agree – (A), Neutral – (N), Disagree – (D), Strongly Disagree – (SD)

s

	Statement	Response				
		SA	A	N	D	SD
1	The firm extend s credit facilities to its customers					
2	The firm considers production cycle when setting credit standards					
3	The length of time allowed to your customers has an influence on sales					
4	The firm frequently reviews levels of accounts receivables					

5	The firm frequently reviews the levels of bad debts					
6	The firm investigates the credit worthiness of customers who want credit facilities					
7	The firm regularly writes to customers reminding them to pay their debts					
8	The firm Sometimes writes off bad debts from customers who do not pay					
9	The firm sometimes take legal action against customers who refuse to pay					
10	The firm has set credit terms that stipulate credit period extension					
11	The firm allows cash discounts to customers to induce them pay promptly					
12	The firm stipulates the amount of discount allowed to a customer on payment within a specified time					
13	The discount given to your customers depend on the credit period allowed					
14	The firm considers production cycle when setting collection period					
15	The average length of time between credit sales and cash collection from the customers is longer than 30 days					
16	The firm has set a lenient credit policy					
17	The overall firm's credit policy has an ability to increase sales					

PART - C

Accounts Payable Practices

For the following statements you are requested to indicate whether you Agree (A), Disagree (D), Strongly Agree (SA), Strongly Disagree (SD) or Neutral (N) about accounts payable practices in your firm

	Statement	Response				
		SA	A	N	D	SD
1	The firm receives credit facilities from its suppliers					
2	The firm receives cash discounts from its suppliers upon payment within a stipulated period of time					
3	The firm is sometimes charged an interest by its suppliers for late payment					
4	The firm's past debts have ever been waived by its suppliers					
5	The firm is sometimes unable to pay its suppliers on time					
6	The payment period allowed by your suppliers to your firm is reasonable					

PART - D

Inventory Control Practices

For the following questions you are requested to indicate whether you Agree (A), Disagree (D), Strongly Agree (SA), Strongly Disagree (SD) or Neutral about inventory control practices in your firm

	Statement	Response				
		SA	A	N	D	S D
1	The firm has a defined level of inventories for raw materials					

2	The firm has determined optimal batch sizes					
3	The firm reviews inventory levels periodically					
4	The firm keeps accurate inventory records					
5	The firm has installed an inventory control system					

PART - E

Liquidity Management Practices

For the following questions you are requested to indicate whether you Agree (A), Disagree (D), Strongly Agree (A), Strongly Disagree (SD) or Neutral about Liquidity Management Practices in your firm

	Statement	Response				
		SA	A	N	D	SD
1	Current assets are maintained at a higher level than the current liabilities					
2	Inventories constitute a large position of the total current assets					
3	Cash and marketable securities are maintained at a higher level than the current liabilities					
4	Liquidity ratios are maintained at optimal level					
5	The firm always prepares a cash budget					
6	The firm has been aided by Cash flow prediction in financial planning					
7	The firm has an optimum cash balance policy					
8	The firm regularly assesses the optimum and minimum levels of liquidity					

PART - F

Working Capital Levels

For the following questions you are requested to indicate whether you Agree (A), Disagree (D), Strongly Agree (SA), Strongly Disagree (SD) or Neutral (N) about investment and financing policies in your firm

	Statement	Response				
		SA	A	N	D	SD
1	The firm maintains a low level of current assets as a percentage of total assets					
2	The firm maintains a high level of current assets in relation to current liabilities					
3	The firm always maintains current ratio of 2:1					
4	The firm maintains a high level of current liabilities in relation to total liabilities					
5	The firm maintains a high level of current liabilities against total assets					
6	Current assets are financed by long term funds of the company					

APPENDIX 11 RECORD SURVEY SHEET

The record survey sheet was filled in by the researcher himself. All information required in the matrix came from the annual reports of the manufacturing firms for the period 2008 to 2012

	2008 KSHS Million	2009 KSHS Million	2010 KSHS Million	2011 KSHS Million	2012 KSHS Million
Sales					
Cost of Sales					
Gross Profit					
Profit before Tax & Int.					
Current Assets					
Current Liabilities					
Working Capital					
Non Current Assets					
Total Assets					
Accounts Payable					
Accounts Receivable					
Inventories					
Cash and Bank Balances					
Return on Assets (ROA) = Profit BIT / Total Assets					

APPENDIX III LETTER TO THE COMPANY CHIEF FINANCE OFFICER

Through the Company CEO

James Ndirangu Kungu

P. O. Box 1522-20300; Tel: 0722-285776;

Email address: ndirangukj@yahoo.com

Nyahururu

Dear Respondent,

I'm a student of Jomo Kenyatta University of Agriculture and Technology. I'm pursuing a doctor of philosophy degree in business administration, finance option. I'm researching on effects of working capital management on profitability of manufacturing firms in Kenya. My target population is 413 manufacturing firms in Nairobi industrial area and its surroundings which are registered with Kenya Association of Manufacturers (KAM).

I will use a questionnaire and record survey sheet to elicit information which will be useful in the above mentioned research as part of doctor of philosophy degree in business administration. Your company has been selected as one of the organizations where the researcher will collect the data required for the study. You are requested to fill in the attached questionnaire. The information supplied will be used strictly for academic purposes only and will be treated with utmost confidentiality.

Your co-operation will be highly appreciated.

Thank you.

Yours Faithfully,

James Ndirangu Kung'u

APPENDIX IV CREDIT POLICY RESULTS

Table 4.59: Credit Policy Results

Key: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

	Statement	1 %	2 %	3 %	4 %	5 %	Mean Likert
1	The firm extends credit facilities to their customers	0	5.6	5.6	43.7	45.1	4.28
2	The firm considers production cycle when setting credit standards	1.4	7.0	8.5	46.5	36.6	3.73
3	The credit period customers are allowed has an influence on sales	1.4	5.6	9.9	35.2	47.9	4.23
4	The firm frequently reviews levels of accounts receivables	0	1.4	2.8	49.3	46.5	4.41
5	The firm reviews the level of bad debts	1.4	1.4	9.9	47.9	39.4	4.23
6	The firm investigates the creditworthiness of customers	0	9.9	5.6	45.1	39.4	4.14
7	The firm regularly writes to customers reminding them to pay their debts	5.6	11.3	18.3	31.0	33.8	3.76
8	The firm sometimes writes off bad debts from customers who do not pay	4.2	16.9	22.5	45.1	11.3	3.42
9	The firm sometimes take legal action against customers who refuse to pay	5.6	9.9	12.7	53.5	18.3	3.69
10	The firm has set credit terms that stipulate credit period extension	18.2	9.9	8.5	43.7	19.7	3.37
11	The firm allows cash discounts to customers to induce them pay promptly	2.8	4.2	22.5	40.8	29.7	3.90
12	The firm stipulates the amount of discount allowed to customers	2.8	8.5	19.7	47.9	21.1	3.76

13	The discount allowed to your customers depend on the credit period allowed	2.8	7.0	23.9	43.8	22.5	3.76
14	The firm considers the production cycle when setting the credit collection period	4.2	7.0	15.5	45.1	28.2	3.86
15	The period between credit sales and cash collection is longer than 30 days	4.2	21.1	14.1	29.6	31.0	3.62
16	The firm has set lenient credit policy	8.4	15.5	19.7	43.7	12.7	3.37
17	The firm's overall credit policy has an ability to increase sales	1.4	4.2	12.7	39.4	42.3	4.17
	Average	**3.60**	**8.44**	**12.68**	**43.07**	**32.21**	**3.91**

APPENDIX V COMPONENT MATRIX OF CREDIT POLICY

Table 4.60: Component Matrix of Credit Policy

Factors	Factor Loading
The firm stipulates the amount of discount allowed to a customer	0.873
The firm allows cash discounts to customers to induce them pay promptly	0.854
The firm has set credit terms that stipulate credit period extension	0.804
The firm considers production cycle when setting credit standards	0.802
The period between credit sales and cash collection is longer than 30 days	0.784
The firm frequently reviews levels of accounts receivables	0.769
The firm writes off bad debts from customers who do not pay	0.753
The firm reviews the levels of bad debts	0.750
The firm's overall credit policy has an ability to increase sales	0.701
The firm extends credit facilities to their customers	0.658
The firm has set lenient credit policy	0.629
The length of time customers are allowed has an influence on sales	0.602
The firm considers the production cycle when setting the collection period	0.598
The firm investigates the creditworthiness of customers	0.538
The firm takes legal action against customers who refuse to pay	0.347*
The discount allowed by your firm depends on credit period allowed	0.335*
The firm regularly writes to customers to remind them pay their debts	0.292*

* Items dropped

APPENDIX VI LIQUIDITY MANAGEMENT PRACTICES RESULTS

Table 4.61: Liquidity Management Practices Results

Key: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

	Statement	1 %	2 %	3 %	4 %	5 %	Likert Mean
1	The current assets are maintained at a higher level than the current liabilities	0	2.8	7.0	47.9	42.3	4.30
2	The inventories constitute a large portion of the total current assets	0	11.3	5.6	53.5	29.6	4.01
3	The cash and marketable securities are maintained at a higher level than the current liabilities	0	8.5	23.9	49.3	18.3	3.77
4	The liquidity ratios are maintained at optimal levels	1.4	7.0	12.7	56.3	22.5	3.92
5	The firm always prepares cash budgets	2.8	8.5	0	53.5	35.2	4.10
6	The firm is aided by cash flow projections in financial planning	0	1.4	12.7	57.7	28.2	4.13
7	The firm has an optimum cash balance policy	1.4	11.3	12.7	50.7	23.9	3.84
8	The firm regularly assesses the optimum and minimum levels of liquidity	1.4	4.2	11.3	64.8	18.3	3.94
	Average	**0.88**	**6.88**	**10.74**	**54.21**	**27.29**	**4.00**

APPENDIX VII CORRELATION MATRIX OF ALL VARIABLES

Table 4.62: Correlation Matrix of all Variables

		Firm Profitability	Credit Policy	Accounts Payable Practices	Inventory Control	Liquidity	Working Capital Levels
Firm Profitability	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	71					
Credit Policy	Pearson Correlation	.346**	1				
	Sig. (2-tailed)	.010					
	N	71	71				
Accounts Payable Practices	Pearson Correlation	.403**	.578**	1			
	Sig. (2-tailed)	.000	.000				
	N	71	71	71			
Inventory Control	Pearson Correlation	.601**	.297*	.491**	1		
	Sig. (2-tailed)	.000	.012	.000			
	N	71	71	71	71		
Liquidity	Pearson Correlation	.711**	.281*	.473**	.685**	1	
	Sig. (2-tailed)	.000	.018	.000	.000		
	N	71	71	71	71	71	

163

Working Capital Levels	Pearson Correlation	.538**	.357**	.581**	.488**	.619**	1
	Sig. (2-tailed)	.000	.002	.000	.000	.000	
	N	71	71	71	71	71	71

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

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

APPENDIX VIII LIST OF MANUFACTURING FIRMS UNDER KAM

Food & Beverages

1. Africa Spirit Limited

2. Agriner Agricultural Development Ltd.

3. Al-Mahra Industries Ltd

4. Alpha Fine Foods Ltd

5. Alphine Coolers Ltd

31. Europack Industries Ltd

32. Excel Chemicals Ltd

33. Farmers Choice Ltd

34. Frigoken Ltd

35. Giloil Company Ltd

61. Miritini Kenya Ltd.

62. Nairobi Bottles Ltd

63. Nairobi Flour ills Ltd.

64. NAS Airport Services Ltd.

65. Nestle Kenya Ltd

164

6. Aquamist Ltd

7. Bidco Oil Refineries Ltd

8. Bio Food Products Ltd

9. Blue Nile Wire Products Ltd

10. B. A.T. Kenya Ltd

11. Broadway Bakery Ltd

12. Brookside dairy Ltd

13. C. Dormans Ltd

14. C. Czarnikow Sugar (EA) Ltd

15. Cadbury Kenya Ltd

16. Candy Kenya Ltd

17. Carlton Products (EA) Ltd

18. Chirag Kenya Ltd

19. Coca –Cola East Africa Ltd

20. Corn Products Kenya Ltd

21. Crown Foods Ltd

22. Deepa Industries Ltd

23. Del Monte Kenya Ltd

24. E & A Industries Ltd

25. East African Breweries Ltd

36. Global Beverages Ltd

37. Global Fresh Ltd

38. Gonas Best Ltd

39. Green Forest Food Ltd

40. Highland Canners Ltd

41. Homeoil

42. Insta Products (EPZ) Ltd

43. Jambo Biscuits (K) Ltd

44. Kapa Oil Refineries Ltd

45. Karirana Estate Ltd

46. Kenafric Industries Ltd

47. Kenblest Ltd

48. Kenchik Ltd

49. Kenya Nut Company Ltd

50. Kenya Sweets Ltd

51. Kenya Tea Development Agency

52. Kevian Kenya Ltd

53. Koba Waters Ltd

54. Kwality Candles & Sweets Ltd

55. Lari Dairies Alliance Ltd

66. Patco Industries Ltd.

67. Pearl Industries Ltd.

68. Pembe Flour Mills Ltd.

69. Premier Flour Mills Ltd.

70. Premier Food Industries Ltd.

71. Proctor & Allan (E.A

72. Promasidor (Kenya) Ltd.

73. Rafiki Millers Ltd

74. Razco Ltd

75. Re-Suns Spices Ltd

76. Sigma Supplies Ltd.

77. Softa Bottling Co. Ltd.

78. Spice World Ltd.

79. Spin Knit Dairy Ltd

80. Super Bakery Ltd

81. Trufoods Ltd

82. Unga Group Ltd

83. Usafi Services Ltd

84. Uzuri Foods Ltd

85. Valuepak Foods Ltd

26. East African Seed Co. Ltd

27. East African Sea Foods Ltd

28. Eastern Produce Kenya Ltd (Kakuzi)

29. Edible Oil Products Ltd

30. Erdemann Co. (K) Ltd

56. London Distillers (K) Ltd

57. Maji Foods Industries Ltd

58. Mastermind Tobacco (K) Ltd.

59. Melvin Marsh International

60. Mini Bakeries (Nbi) Ltd

86. W.E Tilley (Muthaiga)

87. Wanji Food Industries Ltd

88. Wrigley Company (EA) Ltd

Plastic & Rubber

1. ACME Containers Ltd

2. Afro Plastics (K) Ltd

3. Betatrad (K) Ltd

4. Blowplast Ltd

5. Bobmil Indutries Ltd

6. Comlast Industries Ltd

7. Dune Packagings Ltd

8. Dynaplas Limited

9. Elgitrend (Kenya) Ltd

10. Elgonkenya Ltd

11. Eslon Plastics of Kenya

12. Five star Industries Ltd

19. Kenpoy Manufacturers Ltd

20. King Plastic Industries Ltd

21. Kingsway Tyres & Automart Ltd

22. L.G Harris & Co. Ltd

23. Laneeb Plastics Industries

24. Metroplastics Kenya Ltd.

25. Nairobi Plastics Ltd

26. Ombi Rubber Roller Ltd.

27. Packaging Industries Ltd.

28. Packaging Masters Ltd.

29. Plastic Electricons

30. Plastic & Rubber

37. Raffia Bags (K) Ltd

38. Rubber Products Ltd.

39. Safepak Ltd.

40. Sameer Africa Ltd

41. Sanpac Africa Ltd.

42. Signode Packaging System Ltd

43. Silpack Industries Ltd.

44. Singh Retread Ltd.

45. Solvochem East Africa Ltd

46. Springbox Kenya Ltd

47. Styroplast Ltd.

48. Sumaria Industries

	Indusries Ltd	Ltd
13. General Plastics Ltd	31. Polyblend Ltd	49. Super Manuafacturers Ltd
14. Haco Industries Kenya Ltd	32. Polyflex Industries Ltd.	50. Techpak Industries Ltd
15. Hi-Plast Ltd	33. Polythene Industries Ltd	51.Threadsettrs Tyres Ltd
16. Jamlam Industries Ltd	34. Premier Industries Ltd.	52. Uni-Plastics Ltd
17.Kamba Manufacturing (1986) Ltd	35. Prosel Ltd.	53. Wonderpac Industries Ltd
18. Keci Rubber Industries Ltd	36. Qplast Industries Ltd.	

Leather & Foot Wear

1. Alpharama Ltd	3. Budget Shoes Ltd	5. Dogbones Ltd
2. Bata Shoes Co (K) Ltd	4. C & P Shoes Ltd	6.Leather Industries of Kenya Ltd

Pharmaceutical & Medical Equipment

1. African Cotton Industries Ltd	8. Dawa Ltd	15.Novelty Manufacturing Oasis Ltd.
2. Alpha medical Manufacturers Ltd	9. Elys Chemicals Industries Ltd	16. Oss.Chemie (K)
3. Beta Health care International Ltd	10. Gesto Pharmaceuticals Ltd	17. Pharm Access Africa Ltd.
4. Biodeal Laboratories Ltd	11. KAM Industries Ltd	18. Pharmaceutical Manufacturing Co. (K) Ltd.
5. Biopharma Ltd	12. Laboratory & Allied Ltd	19. Regal Pharmaceuticals Ltd.

| 6. Bulk Medicals Ltd | 13. Manhar Brothers (K) Ltd |
| 7. Cosmos Ltd | 14. Medivet Product Ltd. |

Paper & Board

1. Adpak International Ltd	19. Elite Offset Ltd	37. Paperbags Ltd.
2. Allpack Industries Ltd	20. Ellams Products Ltd	38. Pressmaster Ltd.
3. Associated Paper & Stationery Ltd.	21. Graphics & Allied Ltd	39. Printing Services Ltd.
4. Autolitho Ltd	22. Icons Printers Ltd	40.Printpak Multi Packaging Ltd.
5. Bag and Envelops Converters Ltd	23. Interlabels Africa Ltd	41. Printwell Industries Ltd.
6. Bags & Bailers Manufacturers Ltd	24. International Paper & Boards Supplies Ltd	42. Prudential Printers Ltd.
7. Brand Printers Ltd	25. Jomo Kenyatta Foundation	43. Ramco Printing Works Ltd.
8. Carton Manufacturers Ltd	26. Kartasi Industries Ltd	44. Stallion Stationery Manufacturers
9. Cempack Limited	27.Kenafric Diaries Manufactures Ltd	45. Standard Group Ltd
10. Chandaria Industries Ltd	28. Kenya Litho Ltd	46. Statpack Industries Ltd
11. Colour Labels Ltd	29. Kenya Stationers Ltd	47. Taws Ltd
12. Colour Packaging Ltd	30. Kim-Fay East Africa Ltd	48. Tetra Pak Ltd
13. Colourprint Ltd	31. Kul Graphics Ltd	49. The Regal Press Kenya Ltd
14. Creative Print House	32. Lables Converters Ltd	50. Twiga Stationeries & Printers

15. D. L. Patel Press (Kenya) Ltd

16. Dodhia Packaging Ltd

17. East Africa Packaging Industries Ltd

18. East African Paper Converters Ltd

33. Modern Lithographic(K) Ltd.

34. Mufindi Paper Ltd

35. Nation Group Ltd.

36. Paper House of Kenya Ltd.

51. Uchumi Quick Supplies Ltd

52. United Bags Manufactures

Timber & Furniture

1. Economic Housing Group Ltd

2. Eldema (Kenya) Ltd

3. Fine woodworks Ltd

4. Furniture International Ltd

5. Kenya Wood Ltd

6. Newline Ltd.

7. Panesar's Kenya Ltd.

8. PG Bison Ltd

9. Rosewood Office Systems Ltd.

10. Shah Timber Mart Ltd

11. Shamco Industries Ltd.

12. Timsales Ltd

13. Woodmakers Kenya Ltd

14. Woodtex Kenya Ltd

Metal & Allied

1. Alloy Steel Casting Ltd

2. Apex Steel Limited – Rolling Mill Division

3. ASL Ltd.

4. ASP Company Ltd

5. Athi River Steel Plant Ltd

6. Booth Extrusions Ltd

16. General Aluminum Fabricator

17. Gopitech (Kenya) Ltd

18. Heavy engineering Ltd

19. Insteel Ltd

20. J.F mccloy Ltd

21. Kens Metal Industries

31. Rolmil Kenya Ltd.

32. Sandstorm Africa Limited

33. Sheffied Steel Systems Ltd.

34. Specialised Engineering Co. (EA) Ltd

35. Steel Structures Ltd

36. Steelmakers Ltd

Ltd

7. City Engineering Works Ltd

8. Chrystal Industries Ltd

9. Crystal Industries Ltd

10. Davis & Shirtliff Ltd

11. Devki Steel Mills Ltd

12. East Africa Spectre Ltd

13. East African Foundry Works (K) Ltd

14. Elite Tools Ltd

15. Friendship Container Manufacturers Ltd

22. Khetshi Dharamishi & Co. Ltd

23. Mabati Rolling Mills Ltd

24. Manufacturers & Supplier (K) Ltd.

25. Mecol Limited

26. Metal Crown Ltd.

27. Nails & Steel Products Ltd.

28. Nampak Kenya Ltd.

29. Napro Industries Ltd

30. Orbit Engineering Ltd.

37. Steelwool (Africa) Ltd

38. Steel Structures Ltd

39. Steelmakers Ltd

40. Steelwool (Africa) Ltd

41. Tononoka Steels Ltd

42. Viking Industries Ltd

43. Warren Enterprises Ltd

44. Welding Alloys Ltd

45. Wire Products Ltd

Building & Construction

1. Athi River Mining Ltd

2. Bamburi Cement Ltd

3. Bamburi Special Products Ltd

4. Central Glass Industries Ltd

5. E. A. Portland Cement Co. Ltd

6. Karsan Murji & Company Ltd

7. Kenya Builders & Concrete Ltd

8. Manson Hart Kenya Ltd

9. Orbit Enterprises Ltd

10. Saj Ceramics Ltd.

Chemicals & Allied

1. Anffi Kenya Ltd

2. Basco Products (K) Ltd

22. Faaso Exporters Ltd.

23. Galaxy Paints &

43. Proctor & Gamble (E.A) Ltd

44. PZ Cussons &

	Coating C. Ltd	Company
3. Bayer East Africa Ltd	24. Grand Paints Ltd	45. Reckitt Benkiser (E.A) Ltd.
4. Beiersdorf East Africa Ltd	25. Henkel Kenya Ltd	46. Revolution Chemicals Ltd.
5. Blue Ring Products Ltd	26. Interconsumer Products Ltd	47. Rumorth EA Ltd.
6. BOC Kenya Ltd	27. Johnson Diversey East Africa Ltd	48. Sara Lee Kenya Ltd
7. Buyline Industries Ltd	28. Kel Chemicals Limited	49. Sarok Ltd.
8. Carbacid (CO2) Ltd	29. Kemia International Ltd	50. Seweco Paints Ltd.
9. Chemicals and Solvents (EA) Ltd	30. Ken Nat Ink & Chemicals Ltd	51. Shreeji Chemicals Limited
10. Chrysal Africa Ltd	31. Kridha Ltd	52. Soilex Chemicals Ltd.
11. Coates Brothers (EA) Ltd	32. Magadi Soda Company Ltd	53. Strategic Industries Ltd
12. Colgate Palmolive (EA) Ltd	33. Maroo Polymers Ltd.	54. Supa Brite Ltd
13. Continental Products Ltd	34. Match Masters Ltd.	55. Super Foam Ltd
14. Cooper K – Brands Ltd	35. Metroxide Africa Ltd.	56. Syngenta East Africa Ltd
15. Crown Berger Kenya Ltd	36. Murphy Chemicals E. A.Ltd	57. Synresins Ltd
16. Crown Gases Ltd	37. Odex Chemicals Ltd.	58. Tri-Clover Industries Ltd
17. Decase Chemicals Ltd	38. Oasis Limited	59. Twiga Chemical Industries Ltd
18. Deluxe Inks Ltd	39. Orbit Chemicals Industries Ltd.	60. Uniliver Kenya Ltd

19. Desbro Kenya Ltd	40. Osho Chemicals Industries	61. Vitafoam Products Ltd
20. Elex Products Ltd	41. Pan African Paper Mills (E.A) Ltd	
21. European Perfumes & Cosmetics Co. Ltd	42. Polychem East Africa Ltd.	

Textiles & Apparels

1. Africa Apparels EPZ Ltd	10. Fulchand Manek & Bros Ltd	19. Silver Star Manufacturers Ltd
2. Ajit Clothing Factory Ltd	11. Image Apparels Ltd	20. Spinners & Spinners Ltd
3. Alltex EPZ Ltd	12. Kema E.A Ltd	21. Straight-line Enterprises Ltd
4. Alpha Knits Ltd	13. Kikoy Co. Ltd	22. Sunflag Textile & Knitwear
5. Amedo Centre Kenya Ltd	14. Le-Stud Ltd	23. Teita Estate Ltd
6. Apex Apparels (EPZ) Ltd	15. Midco Textiles (EA) Ltd	24. Thika Cloth Mills Ltd
7. Bogan Industries Ltd	16. Mirrage Fashionwear EPZ	25. United Aryan (EPZ) Ltd
8. Dharamshi & Co. Ltd	17. Ngecha Industries Ltd.	26. Vaja Manufacturers Ltd
9. Establishments Ltd	18. Protex Kenya (EPZ) Ltd.	27. Yoohan Kenya EPZ Ltd.

Motor Vehicles & Accessories

1. Associated Battery Manufacturers (EA) Ltd	8. General Motors East Africa Ltd	15. Pipe Manufacturers Ltd
2. Auto Ancilliaries Ltd	9. Impala Glass Industries	16. Sohansons Ltd

Ltd

3. Auto Springs Manufacturers Ltd

10. Kenya Grange Vehicle Industries Ltd

17. Theevan Enterprises Ltd

4. Automotive & Industrial Battery Manufacturers (K) Ltd.

11. Labh Singh Harman Singh Ltd

18. Toyota East Africa Ltd

5. Banbros Ltd

12. Mann Manufacturing Co Ltd

19. Unifilters Kenya Ltd

6. Bhachu Industries Ltd

13. Megh Cushion Industries Ltd.

20. Varsani Brakelinings Ltd

7. Chui Auto Spring Industries Ltd

14. Mutsimoto Motor Kenya Ltd

Electrical & Electronics

1. Assa Abloy East Africa Ltd

7. Eveready East Africa Ltd

13. Metsec Ltd.

2. Aucma Digital Technology Africa Ltd.

8. Holman Brothers (E.A) Ltd

14.Modulec Engineering Systems Ltd.

3. Avery (East Africa) Ltd

9. Iberaafrica Power (EA) Ltd

15. Mustek East Africa Ltd.

4. Baumann Engineering Ltd

10. International Energy Technik

16.nationwideelectrical Industries

5. Centurion Systems Ltd

11. Ken West Cables Ltd

17. Optimum Lubricants Ltd

6. East African Cables Ltd

12. Metrex International Ltd

18. PCTL Automation Ltd.