

**THE RELATIONSHIP BETWEEN WORKING CAPITAL MANAGEMENT AND
FINANCIAL PERFORMANCE OF AUTOMOTIVE COMPANIES IN KENYA**

BY

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DECLARATION

I declare that this management research project is my original work and has never been presented for examination in any other University.

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This management research proposal has been submitted for examination with my approval as the

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DEDICATION

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LIST OF ABBREVIATIONS

- AR - Average Collection Period
- AP - Average Payment Period
- CCC - Cash Conversion Cycle
- CDSC - Central Depository and Settlement Corporation
- CMA - Capital Markets Authority
- INV - Inventory Turnover Period
- NSE - Nairobi Securities Exchange
- WCM - Working Capital Management
- SPSS - Statistical Package for Social Sciences
- ROA - Return on Assets
- CR - Current Ratio
- LOS - Natural Logarithm of Sales
- LEV - Leverage
- FATA - Fixed Financial Asset ratio
- ANOVA - Analysis of Variance
- CMC - Cooper Motor Corporation
- GM - General Motors
- C&G - Car and General Ltd
- AVA - Associated Vehicle Assemblers
- PWC - PricewaterhouseCoopers
- KMI - Kenya Motor Industry Association
- KVM - Kenya Vehicle Manufacturers

ABSTRACT

A company policy on Working Capital Management has its effect on profitability as well as liquidity of the firm. This research study was to establish whether there is a relationship between working capital management and financial performance of automotive companies in Kenya. The study revealed that optimal levels of working capital that is current assets and current liabilities can result into increased profitability and consequently increase in shareholders' wealth. A population of 22 automotive companies was studied for a period of five years from 2009 to 2013 to determine the effect of different working capital management variables including average collection period, inventory turnover in days, average payment period and cash conversion cycle on the profitability. Control variables were also used in the analysis including Current ratio, size of the firm measured using natural logarithm of sales, fixed financial assets to total assets ratio and leverage. Descriptive statistics and quantitative analysis were used to present data. Statistical Package for Social Sciences (SPSS) version 20 software was used for analysis of the different variables in the study. The package helped in organizing and summarizing data by use of descriptive statistics like tables. Pearson's correlation and regression analysis were used in analyzing quantitative data, while descriptive statistics were used to show the mean and standard deviation of the different variables in this study as well as present the minimum and maximum values of the variables. The results show that there is a statistical significant negative relationship between variables of working capital management and the profitability of firms except for the average payment period which showed a positive relationship. This means that managers can create profits for their companies by handling correctly the cash conversion cycle and keeping each different component of working capital management (accounts receivables, accounts payables and inventory) at an optimal level.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Changing market conditions have led to costly and limited credits from lending institutions which have exposed firms to high business risks. On the other hand, the expectations of a majority of shareholders are that finance managers are supposed to increase the value of the investment. Firms also make decisions of changing their organization structures or downsizing whenever they record low returns (Weinraub and Visscher, 1998). To overcome these challenges, firms have to adopt strategies which include optimizing internal activities such as managing working capital (Burt and Abbate, 2009).

According to Shin and Soenen (1998) the term working capital refers to that part of firm's capital which is required for financing short term or current assets such as cash, marketable securities, debtors and inventories. They observed that management of working capital directly affects a firm's net worth majorly because of the significant influence it has on both the liquidity and profitability of a company. Gitman (1994) argued working capital management can be measured in the amount of credit extended to customers and the days taken to pay back.

Risk reduction in a firm will tend to lead to low levels of profitability and high levels of risk lead to increased profitability of a firm. Firms that undertake low risk tend to have low profitability levels while those that take high risks are able to fetch achieve high levels of profitability. Low profitability in firms is mostly due to funds being tied up in current assets in form of idle investments. On the other hand, the firm maintains high liquidity which is valuable for the firm. To increase its profitability, a firm has to ensure that fewer current assets are maintained in terms of idle funds (Lamberson, 1995).

According to (Weston and Copeland, 1988), a firm should be able to provide economic returns to the investor and for it to achieve this objective of being profitable; it has to maintain a healthy liquidity position. Insolvency in firms which leads to bankruptcy is as

a result of diminishing levels of liquidity where the liabilities exceed its assets. Liquidity ensures that a firm is able to meet its short-term obligations as and when they fall due. The main focus of a firm is to determine where the middle ground should be in terms of profitability, solvency liquidity and efficiency in order to maximize shareholders wealth (Brigham, et al., 2009). A well implemented working capital management strategy contributes significantly to the value of a firm and leads to increased profits.

Low liquidity levels lead to firms being unable to meet their obligations and profitability builds investor confidence and attracts loyalty of which the opposite is also true. Most often, firms fail in the long run because of working capital mismanagement. It follows that working capital management forms a significant part of corporate finance because it affects majorly on a firms liquidity, profitability, risk and value of a firm. Working capital mismanagement leads to financial distress which finally leads to bankruptcy (Emery 1998).

Corporate financial theory is essentially about three areas of financial management, that is capital budgeting, capital structure and working capital management.

The goal of working capital management therefore is to ensure that the firm is able to continue its operations and that it has sufficient cash flow to satisfy both maturing short-term debt and upcoming operational expenses. It deals with financing short term financial needs of business organizations. Depending on the industry and nature of a firm, different factors influence the working capital of a firm. The central concern of financial managers in contemporary business practices is trying to identify the drivers of working capital management (Lamberson, 1995).

Therefore, for a firm to produce optimally and gain high return on investment there is need to ensure a sufficient level of working capital is maintained. Working capital needs and profitability of firms could be studied to identify the causes of differences between policies adopted by firms and their profitability.

1.1.1 Working Capital Management Policies

According to Mathur (2003), many studies have analyzed the financial ratios as a part of working capital management, however very few of them have discussed the working capital policies in specific. He divides working capital policy into three categories; Conservative policy, Aggressive policy and Moderate policy. More aggressive working capital policies are associated with higher return and risk, while conservative working capital policies are associated with lower risk and return

1.1.1.1 A Conservative Working Capital Policy

Lazaridis and Dimitrios (2005) Conservative approach uses long-term finance to finance all fixed assets as well as some current assets. The approach also uses spontaneous short-term debt to finance the rest of the current assets. With a conservative working capital policy the company will hold large levels of inventories. To mitigate risk, firms in seasonal industries such as farming or tourism might adopt conservative working capital policies to cushion against risk. If a firm employs a conservative working capital policy, it therefore means there is plenty of cash at bank, high levels of inventory and the accounts payables are all up to date. Conservatively managed working capital will help lower risks of short-term cash shortages but might hurt long-term profitability, because there is excess cash which doesn't earn much of a return. Richards and Laughlin, (1980) argue that under the conservative policy, a firm holds heavy cash and bank balances in current accounts or investments in readily marketable securities. The companies also hold higher stocks of raw materials and finished goods, so as to reduce the risks of running out of the stock and loss of sales.

1.1.1.2 Aggressive Working Capital Policy

Brigham and Ehrhard (2004) posit that this working capital policy will be associated with higher return and risk. An aggressive working capital policy is one in which a firm tries to work with minimal investment in current assets and an extensive use of short-term credit. The goal is to put as much cash to work as possible to reduce the time needed to produce products, turn over inventory or deliver services. Hastening the business cycle leads to the growth in sales and revenues of a firm. The focus is to keep less money at

hand, cut slow-moving inventory and unnecessary supplies and stretch out the bill payments for as long as possible. In an aggressive or restrictive working capital policy all the non-current assets and part of permanent assets are financed by long term debt. The remaining permanent assets become temporary fluctuating assets by short term. Aggressive approach finances all current assets with short-term spontaneous debt and finances fixed assets with long-term, non-spontaneous funds. In order to minimize costs, a firm will hold minimum levels of inventory according to aggressive working capital policy may result in losses by risking stock outs, loss of production, losing sales and negatively affecting profitability levels of the company. According to Smith (1980), a firm may adopt an aggressive working capital management policy with a low level of current assets as a percentage of total assets, or it may also be used for the financing decisions of the firm in the form of high level of current liabilities as a percentage of total liabilities. An approach to aggressive working capital management policy of liquidity management results in a lower cash conversion cycle by reducing the inventory period and the accounts receivables period while stretching the accounts payables period. Aggressive asset management leads to the capital being minimized in current assets versus long-term investments. This would result in higher profitability but greater liquidity risk. As an alternative, a more conservative policy places a larger amount of capital invested in liquid assets, but at the sacrifice of some profitability (Weinraub and Visscher 1998).

1.1.1.3 Moderate Working Capital Policy

Maturity matching or self-liquidating approach matches asset and liability maturities. The moderate policy is somewhere in between the conservative and aggressive. A moderate policy, the level of working capital will be moderate, neither too high nor too low, but just right. All the non-current assets and permanent asset are financed by long-term finance while the temporary fluctuating assets are financed by short-term finance (Padachi, 2006). Financial managers therefore work to ensure day to day management of capital invested in different items of current assets needed for the business including, inventory, debtors, cash and other current assets such as loans and advances to third parties (Afza and Nazir, 2007). In modern day business financial managers are therefore

striving to find the basic drivers of working capital especially maintaining a near perfect mix between profitability and liquidity in order to maximize the value of a firm.

1.1.2 Relationship between WCM and Financial Performance

According to the mainstream economic theory, it is generally accepted that the main objective of any firm is to maximize profits. Managing working capital management is meant to increase the profitability of a company and to ensure that it has sufficient liquidity to meet short-term obligations as they fall due and so continue in business (Padachi, 2006). Investment in working capital components should neither be too little nor too much. Too little could lead to illiquidity, stock outs, and lost sales, whereas too much amounts to waste. Liquidity management involves both cash and credit management where cash shortages are avoided and credit to customers and suppliers credit period allowed and time taken to pay back (Poutziouris et al., 1999). The level of investment in working capital and the financing of this investment, at any particular level of output, involve a risk-return tradeoff (Madura and Veit, 1988).

Higher cash turnover ratios enable managers to minimize short-term investments whose rates of return are relatively lower compared to long-term investments and consequently increase profitability. Excess of investment in working capital casts a negative impact on the profitability of a firm and positive impact on the liquidity. Higher amount of working capital enables a firm to meet its short-term obligations easier. This results to an increase in borrowing capability and decrease in default risk and consequently a decrease in cost of capital and increase in the value of the firm (Shin and Soenen, 1998). According to Filbeck and Krueger (2005) success of a firm is dependent on the capability of finance directors to manage receivables, inventories and liabilities. A firm needs to make just enough investment in current assets that would guarantee maximum profitability. High investment in current assets would mean low rate of return on a firms investment leading to low profitability levels Lamberson (1992). He also observes a small investment in current assets leads to stock outs in sales which lead to inability to settle accounts payables as and when they fall due.

Van, (1977) indicate that the process of identifying the financial strengths and weaknesses of a firm can be achieved through financial analysis which is by properly establishing relationships between the items of the balance sheet and the profit & loss account. Financial analysis can be undertaken by management of the firm, Owners, creditors, investors and others. One of the powerful tools of financial analysis is ratio analysis which can be defined as the indicated quotient of two mathematical expressions or the relationship between two or more things. Ratios help to summarize large quantities of financial data and to make qualitative judgment about the firm's financial performance. The financial statements are used to work out various ratios which help us in better understanding the organizations working capital management. The key variables used in the analysis are inventories days, accounts receivables days, accounts payable days and cash conversion cycle. These ratios are then compared with industry standard to get an insight to understand the nuances of the working of the organization (Emery and Marques, 2011).

By analyzing the working capital management policies of non-financial industries in the US Filbeck and Krueger (2005) highlighted the importance of efficient working capital management. According to their study, there are significant differences among industries in working capital practices overtime. Additionally, these working capital practices change significantly within industries overtime.

Efficiency in working capital management therefore affects not only profitability which is the short-term financial performance but also firm value maximization which is the long-term financial performance of a company.

1.1.3 Motor vehicle industry in Kenya

Half of the Kenyan motor vehicle market is commercial, mainly made up of pick-ups, trucks and buses. However, the buses and trucks business is dominated by established players such as CMC, General Motors, Simba Colt and DT Dobie.

Kenyan car industry has been in existence since 1976 when the first car was assembled by Kenya Vehicle Manufacturers. Associated Vehicle Assemblers (AVA) was later incorporated and assembled its first car the following year. In 1986, the Kenyan

government started the Nyayo project to manufacture Kenyan Cars. The project was being headed by The University of Nairobi where prototypes were made, named Pioneer Nyayo Cars. The Nyayo Motor Corporation was established to mass-produce these cars but due to lack of funds, the car never entered into production. Hornsby, (2013). The Kenya Motor Industry Association (KMI) established in 1989, is the body that represents the corporate motor dealers in the country. The body coordinates commercial realities and national policies. Some of the measures that KMI has been advocating include: Implementation of strict criteria on importation of second hand vehicles, Incentives to promote local assembling of commercial vehicles and export incentives aimed at encouraging car manufacturers to expand operations in the region. (PWC 2013).

In Kenya, the automotive industry is majorly in the distribution and retail of motor vehicles. Some of the automotive dealers in the country including Toyota (East Africa), Cooper Motor Corporation (CMC), General Motors (GM), Simba Colt Motors Limited, Car and General (C&G) Ltd, Marshalls (E.A.) Ltd, Associated Vehicle Assemblers (AVA) and DT Dobie. Kenya has three major vehicle assembly plants which include Associated Vehicle Assemblers (AVA), General Motors East Africa (GM) and Kenya Vehicle Manufacturers (KVM). The Coast-based AVA is Kenya's largest vehicle assembler, and accounts for more than 40 per cent of total national output. It owned by auto dealers Marshalls East Africa and Simba Colt on a 50-50 percent shareholding.

Lieberman and Helper (2009) studied the determinants of inventory policies for automotive firms in the USA and found that both technological and managerial factors have a significant influence in determining levels of inventories. In addition, they found that technological factors, like longer setup and processing times increases the level of inventories. The study revealed that the average price per piece of inventory decreases the inventory levels. The study also exhibited that managerial factors, like training for employees and especially on problem solving have a reducing effect on the inventory levels.

Automotive dealers in the country face a lot of competition from vehicles imported from China, Japan and United Arab Emirates. Imported vehicles account for about 70% of the automobiles in the market. High competition from second hand vehicles and the

depressed economic environment lead to low sales of new cars sold in the country (PWC, 2013). Since it's difficult to reverse this trend and besides becoming more innovative in responding to customer needs, automotive industries need to optimize internal activities such as managing working capital to improve liquidity and profitability of the firm.

1.2 Research Problem

According to statistics from the Kenya Association of Manufacturers, over 30,000 new motor vehicles are registered annually in Kenya. The motor vehicle assembly and components sector altogether contribute an average of about 0.2 per cent of the country's GDP. Formal employment by the motor vehicle assembly sector averages at 3,000 (KAM, 2013). The established dealers in the country face intense competition from imported second-hand vehicles, mainly from Japan and United Arab Emirates. Another issue that arises is that there is more demand for second-hand vehicles rather than new ones due to the fact that Kenya is generally a low-income country. An estimated 30% of all vehicles operating in Kenya are more than 15 years old. Their ongoing use is sustained either by uneconomic levels of repair and replacement to ensure roadworthiness, or by tolerance (by owners and the state) of extreme levels of defect and operating inefficiency, (KMI, 2012).

Kenya's per capita GDP dictates that the overwhelming majority of the population will remain dependent on public transport for mobility, no matter how low the acquisition price of used imports becomes. Because the population is growing so rapidly - it is already above 40 million and is projected to nearly double in the next 20 years - with a parallel increase in construction, business and general supply activity, there will be massive increase in demand for automobiles (KMI, 2012).

For years, the automobile supply industry has been in a challenging position resulting from pricing pressures, intense competition, evolving products and industry globalization. Automobile supply industry working capital performance varies widely across regions. This reflects variations in country sales and local payment practices, customer base, as well as in-manufacturing, logistics and distribution strategies. Existing literature

characterized working capital management as an area largely lacking in theoretical perspective (Van, 1977).

Waithaka (2012) in her study of the relationship between working capital management practices and financial performance of agricultural companies listed at the Nairobi Securities exchange established that; It is without a doubt that the efficiency in working capital management practices as measured by efficiency in cash management, efficiency in receivables management and efficiency in inventory management has an influence on the growth rate of businesses sales, market share, profits and total assets and consequently plays a huge role in the financial performance of a company. Apuoyo (2010) in his study of the relationship between working capital management policies and profitability for companies quoted at the NSE found that the working capital needs of a firm change over times as does its internal cash generation rate. As such, the listed firms at the NSE should ensure a good synchronization of its assets and liabilities. His study further showed that the financial and investment sector has been able to achieve high scores on the various components of working capital and this has positively impact on its profitability. Kirui (2013) in his study on WCM practices and financial performance of sugar cane out grower companies in Kenya found that poor management of working capital means that funds are unnecessarily tied up in idle assets hence reducing liquidity and also reducing the ability to invest in productive assets such as plant and machinery, so affecting profitability.

Overall from this review it is evident that a lot of research work is available regarding working capital management and profitability. However, there is no research work available specifically on the automotive industry in Kenya. This study seeks to exclusively bridge the gap by undertaking a study on the same. The question that this study shall seek to answer is; is there a relationship between working capital management and financial performance of automotive companies in Kenya?

1.3 Research Objectives

The objective of this paper seeks to establish the relationship between working capital management and the profitability of automotive companies in Kenya.

1.4 Value of the Study

Regulator: The findings will assist regulatory bodies such as The Road Transport Department (RTD) which is a department under Kenya Revenue Authority (KRA) and the government through the ministry of transport to determine and formulate regulatory policies that should be implemented to control the automotive industry in the country. Regulatory bodies like KMI can as well use the findings to improve on the framework for regulatory of automotive marketers in Kenya.

Shareholders and firm Management of Motor vehicle industries: The research results based on analysis and tests applied on the data could be used in formulating some policy recommendations on how management working capital and profitability could be improved by automotive firms in Kenya.

Potential Investors: The study will give an in-depth understanding of the sector to investors enabling them to make informed decisions while committing their capital in the automotive sector

Scholars, academicians and Researchers: This study will form a basis for further studies by the researchers and academicians.

Management: The finance managers will better understand the relationship between working capital management and financial performance. These will therefore enable them to make appropriate financing decisions on the day to day running of the firms.

Society: Management of automotive firms will be able to better manage the working capital of the firms and therefore increasing profitability of the companies. The increase in profits will translate to better working terms for the employees who will be able to improve their social economic status.

Nairobi Securities Exchange (NSE): The study findings will assist bodies such as NSE, CMA and CDSC which are responsible for licensing, regulation and supervision of the market players to make informed decisions regarding policy formulation, monitoring and evaluation while executing their mandates.

Company advisors and consultants: From the findings of this study, consultants will be in a better position to advice automotive firms on better management of working capital that will lead to increased profitability of the firm.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers other scholars work related to theories and concepts of working capital management and how it relates to profitability of firms.

The chapter reviews literature which is associated and consistent with the objectives of the study including models and hypothesis relating to working capital management and profitability of companies. It also discusses empirical reviews of past studies, determinants of financial performance, measurement of WCM, factors affecting a firm's profitability and the relationship between firm's working capital and profitability.

According to Eljelly (2004), the major concern of managers and business owners is to formulate strategies of managing day to day operations in order to meet their obligations as and when they fall due as well as increase profitability and shareholder's wealth. A company should ensure that it has excess liquidity to meet its short-term compulsions (Bhunia, 2010).

2.2 Theoretical Review

There are four major working capital theories; The Operating Cycle Theory, the Cash Conversion Cycle Theory, theory of Transaction Cost Economics and the Net Trade Cycle Theory.

2.2.1 The Operating Cycle Theory

To approximate the length of a firm's operating cycle, a firm needs to calculate the cumulative days per turnover for inventory investments and accounts receivable. These will give a more realistic indicator of a firm's liquidity position for a given current asset conversion period (Weston and Eugene, 1979). According to Richards and Laughlin (1980) accounts receivable turnover shows the frequency with which a firm's average receivable is converted into cash. Granting more liberal terms to credit customers leads to less liquid investment in receivables. Lower receivable turnover and extended receivable collection period reflect deterioration in liquidity. On the other hand, they elaborate that

inventory turnovers show the frequency with which a firm converts its cumulative stock of raw material, work-in-progress and finished goods into product sales.

Weston and Eugene (1979) further argue that incorporating accounts receivable and inventory turnover measures into an operating cycle concept, provides a more appropriate view of liquidity management since they recognize that the life expectancies of some working capital components depend on the extent to which production, distribution, and collection are non-instantaneous and un-synchronized than does reliance on the current and acid-test ratio indicators of solvency. Richards and Laughlin, (1980) point out a deficiency in the operating cycle concept arguing that it fails to consider a firm's time dimension for its current liability commitments. They continue to argue that integrating the cash outflow pattern requirements imposed by a firm's current liabilities, is important for analyzing liquidity as is for evaluating the associated pattern of cash inflows generated by the transformation of its current asset investments.

2.2.2 The Cash Conversion Cycle Theory

The cash conversion cycle is used as a comprehensive measure of working capital as it shows the time lag between expenditure for the purchase of raw materials and the collection of sales of finished goods (Padachi, 2006). Cash conversion Cycle (CCC) focuses on the length of time between the acquisition of raw materials and other inputs and the inflow of cash from the sale of finished goods. The length of time it takes indicates the number of days of operation for which financing is needed. CCC is calculated by adding inventory period to accounts receivables period and then subtracting accounts payables from it. By approximating these three periods with the financial ratios of inventory days, trade receivables days and trade payables days, the length of the cash conversion cycle (CCC) is given by the formulae: $CCC = \text{Inventory days} + \text{Trade receivables days} - \text{Trade payables days}$ Gitman, (1974).

By shortening the CCC the company's cash flows will have a higher net present value (NPV) because cash is received quicker. A shorter CCC leads to lower investment in the working capital needed by the firm while a higher CCC on the other hand could mean higher profitability by increasing the sales cycle through longer accounts receivable

periods. These could however lead to investment rising faster than the benefits of higher Kirkman, (2006).

2.2.3 The Net Trade Cycle Theory

The net trade cycle theory builds on the cash conversion cycle where the components of the CCC are expressed as a percentage of sales. A further study by Shin and Soenen (1998) argued that the net trade cycle is a better working capital efficiency measure comparing with the cash conversion cycle and the weighted cash conversion cycle because it indicates the number of day sales the company has to finance its working capital. The working capital manager can easily estimate the financing needs of working capital expressed as a fraction of the expected sales growth.

2.2.4 Theory of Transaction Cost Economics

To be competitive, companies have to decrease their costs and this can be accomplished by keeping the costs of stocking inventory to a reasonable minimum. There are several motives for lower or higher levels of inventories and highly depends on what business a company operating. According to Emery and Marques (2011), the most widely and simple motive of managing inventories is the cost motive which is often based on the Transaction Cost Economics (TCE) theory. Costs of holding inventory include ordering and carrying costs. Ordering costs is associated with acquisition of inventory which includes costs of preparing a purchase order or requisition form, receiving, inspecting, and recording the goods received. However, carrying costs are involved in maintaining or carrying inventory and will arise due to the storing of inventory and opportunity costs.

2.3 Determinants of Financial Performance

Howorth and Westhead (2003) allude that the literature on working capital management practices identifies efficiency in management of cash, efficiency in management of receivables and efficiency in management of inventories as determinants of financial performance. Financial performance could therefore be improved if efficiency levels of receivables, cash, and inventory management practices are increased (Weinraub and Visscher, 1998). They further found that proper management of current liabilities and current assets is vital in creating value for shareholders. Charitou et al. (2010), revealed

that if a firm can minimize its investment tied up in current assets, the resulting funds can be invested in value-adding projects, which will increase the return on shareholders' investment and the firm's opportunity for growth. On the other hand, if capital invested in cash, trade receivables, or inventories is not sufficient, the firm may have difficulty in carrying out its daily business operations.

2.3.1 Cash

According to Bort (2004) cash is the lifeblood of the business and can be a problem to the business organization. There are various factors that are key to successful cash management including; monitoring collections/disbursements, tabulating realistic projections, establishing effective billing/collection measures and adhering to budgetary parameters. From experience and observations, Gitman (2008) offers theoretical positions showing that the fact that a firm can improve its cash management efficiency by collecting accounts receivable as soon as possible.

The most obvious way of bringing forward cash inflows, would be to press debtors for earlier payment even though this eventually leads to problems with customers. Gitman (2008) also advocates for another cash management tool which is the cash budget. Firms use it to estimate their short term requirements especially for cash shortages and planning for surplus cash. Kirkman (2006) added by highlighting that a cash flow statement called a cash budget may be prepared as a component of implementing an effective cash management program.

Adeniji, (2008) posit that funds invested in current assets keep revolving fast and are being constantly converted in to cash and these cash flows out again in exchange for other current assets. One of the main principles of finance is to collect money as soon as possible and make payment as late as possible. It makes the most important part of working capital management, to plan and control cash. The ability of a firm to meet cash-flow commitments as they fall due both those included in the statement of financial position and those not included (Ross et al, 1988).

Management of cash is usually based on the cash conversion cycle (CCC). Cash conversion cycle is the length of time from the payment for the purchase of raw materials

to manufacture a product until the collection of accounts receivable associated with the sale of the product (Besley and Brigham, 2000). Long cash conversion cycle causes a reduction in the profitability of a company as longer cycle leads to blockage of funds and therefore less profitability (Moss and Stine, 1993). They further observed that one of the most efficient ways of gauging liquidity is through the cash conversion cycle (CCC). The time between cash purchase of inventories and collection of accounts receivables measures the cash conversion cycle. Compared to liquidity measures such as quick ratio and current ratio, CCC is more efficient since it is a measure of the day to day liquidity management.

2.3.2 Inventory

Traditionally, inventories of raw materials, work-in progress components, and finished goods were kept as a cushion against the chances of running out of required items. However, large buffer inventories consume valuable resources and generate hidden costs (Fullerton et al, 2003). Falope and Ajilore (2009), found that there is a negative effect on company's profitability if there are a high number of days inventories are kept in a firm. Mathuva (2010), however found a positive effect. He argued that this is because firm with higher inventory levels reduce costs by avoiding production stoppages with the high inventory level.

Chen et al., 2005, highlights that just-in-time (JIT) systems which is an inventory management system has led to inventory reduction in firms and has become the primary target of firms. The JIT system is where raw materials and parts are purchased or produced just in time to be used at each stage of the production process. By applying the JIT system to manage inventory, the management is able to cut on costs by ensuring that there is a minimum level of inventory at any given time. The approach has led to decreasing inventories in many firms. Fullerton et al. (2003) argued that firms that implement JIT system, have an upper hand compared to competitors who do not; he continues to say that a positive relationship exists between company profitability and the degree to which waste reducing production practices, such as reduced set-up times, uniform workloads and preventive maintenance programs are implemented.

2.3.3 Accounts Receivables

Credit collections constitute the carrying costs associated with granting a credit. The costs include cash discounts and costs of managing credit. The costs increase when the amount of receivables granted are increased. Lost sales resulting from not granting credit constitute the opportunity cost which decrease when the amounts of receivables are increased. Lazaridis and Dimitrios (2005) argue that for firms to increase their profitability, they have to increase in their accounts receivables to an optimum level. Accounts receivables lead to increased sales levels and wider market shares. Sushma and Bhupesh (2007) also affirm that, putting in place a sound policy on credit management ensures proper debt collection procedures and is essential in improving efficiency in receivables management and consequently the firm's performance.

2.3.4 Accounts Payables

According to Falope and Ajilore (2009) Accounts payables can be defined as Short-term liabilities owed to suppliers for purchases made on credit. Raheman and Nasr (2007) found that accounts payables have a negative effect on a firm's profitability. Deloof (2003) argues that this is, because less profitable firms pay their bills earlier, in this case profitability influences the account payables policy and not vice versa. He also argued a second reason, which is that firms pay their bills to late and therefore don't have the opportunity to get a discount when paying early. Yang (2011) also found evidence which implies that trade credit is a substitute of a bank loan, he also found a positive relation between accounts receivables and bank loan, which means that they are complementary to each other. He also found that accounts payables steadily increases during a crisis. The empirical evidence indicates that financially constrained firms are more likely to be negatively affected by a crisis, and are more likely to cut their accounts receivables and increase their use of trade credit.

2.4 Empirical Review

Many researchers have studied working capital management and financial performance from different views in different economies. Studies conducted both locally and internationally indicate varying and contradicting outcomes.

Raheman and Nasr (2007) carried out a study on the relationship between CCC and its components. The study took into consideration a sample of 93 listed firms on Karachi Stock Exchange over a period of six years from 1999-2004. The findings revealed that CCC is negatively related to Net Operating Profit (NOP) which is a measure of profitability. Besides CCC, the following were also found to bear similar relationship; inventory turnover in days, average collection period and average payment period.

By using correlation and regression analysis, Shin and Soenen (1998) examined the relationship by industry and working capital intensity for a sample of firms for a period covering 1975 ó 1994. The study suggested that one of the possible ways companies can create shareholder's value was by reducing firm's net ótrade cycle. The relationship was carried out using a sample of firm and in all cases they found a strong negative correlation between the length of the firm's net-trade cycle and its profitability.

Samiloglu and Demirgunes (2008) from a study of firms listed at Istanbul Stock Exchange, the effect of working capital management on the profitability was examined, it was established that there exist negative relationship between inventory period, account receivable period and profitability of the companies. The study used multiple regressions. Growth in sales was however found to affect firms positively.

Smith (1980) established that working capital management is important because of its effects on the firms' profitability and risk, and also its value. A higher investment in current assets, leads to a lower risk and consequently much lower profitability. On the other hand, Carpenter and Johnson (1983) carried out a study on a sample of US firms and empirically indicated that there is no linear relationship between the level of current assets and revenue systematic risk; however, there were some indications of nonlinear relationship which were not statistically significant.

Through a study by Lyroudi and Lazaridis (2000) on companies in Greece, it was established that there exists a significant positive relationship between the cash conversion cycle and the traditional liquidity measures of current and quick ratios. The study considered cash conversion cycle as a measure of liquidity for the food industry

firms in Greece. The relationship between CCC and the quick ratio was examined through the implications of the cash conversion cycle in terms of profitability, indebtedness, and firm size.

Using cross-sectional data for the period 1998-2003, Afza and Nazir (2007) carried out a study on the relationship between aggressive and conservative working capital policies for 17 industrial groups and 263 firms listed on Karachi Stock Exchange. The data was analyzed using Analysis of Variance (ANOVA) and Least Significant Difference test. The results indicated that there was a significant difference among the working capital investment and the financing policies across various industries.

Filbeck, G. et al. (2005) investigated the data of 26 industries by taking the data of 970 companies during 1996 to 1999. They found out that firms are able to decrease financing cost and increase the funds obtainable for development by reducing the amount of funds attached to the current assets. It is concluded that negative relationship was also found out between profitability and liquidity of companies of United Kingdom

Terual and Martínez Solano (2007) chose the small and medium sized Spanish firms, a sample of about 8872 small to medium sized enterprises for 1996 to 2002. After an in depth view it was found out that the negative relationship between the profitability of SMEs and the number of days account receivable and days of Inventory.

Ganesan (2007) selected telecommunication equipment industry to study the effectiveness of working capital management. The sample for his research paper included 443 annual financial statements of 349 telecommunication equipment companies covering the period 2001 to 2007. The statistical tests used included correlation, regression analyses and Analysis of variance (ANOVA). The results showed that days of the working capital negatively affects the profitability of these firms.

In Saudi Arabia, empirical studies were carried out on the relationship between liquidity and profitability for a sample companies in Saudi Arabia. Researcher considered CCC and current ratio as a measure of liquidity. Correlation and regression analysis were used to investigate the negative relationship between liquidity and profitability. Current ratio was taken as measure of liquidity. It was observed that at company level, CCC is a more

important measure of liquidity that affects profitability than the current ratio. However at industry level, size was observed to have much more significant effect on profitability Eljelly, (2004).

Runyora (2012) in her study on the impact of working capital management on the profitability of the oil industry in Kenya found that for oil companies to remain profitable they should have working capital management which will help in making decisions about investment mix and policy, matching investments to objectives, asset allocation for institutions, and balancing risk against profitability. Working capital management techniques in oil companies should focus more on strategic issues for profitability and the ability to achieve strategic objectives.

Ouma (2001) sampled 27 companies quoted at the NSE and studied the cash management approaches that are applied by the companies. He found that the companies plan and apply specific policies in managing their cash balances. The firms had several planning periods but the weekly one was the most popular.

Mathuva (2009) studied the impact of working capital management on the performance. He took almost 30 listed firms as a sample and all these companies were listed in Nairobi stock exchange and the data was taken from 1993 to 2008. There were certain findings of his research by analyzing the fixed effects regression models. Firstly, there is a negative relationship between the time when the cash is collected from the customers and the firm's productivity. This depicts, firms that are profitable enjoys less time period for the collection of cash from the customers as compare to ones which are less profitable.

Kithii (2008) in his study to establish how efficient the firms are managing their working capital, undertook a study on the relationship between working capital management and profitability of quoted firms at the NSE. The study was carried out for the period 2001 ó 2006. The study results revealed that besides the average payment period which showed a positive relationship, there was a statistical negative relationship between a firm's components of working capital management and profitability.

2.5 Summary of Literature Review

From the theoretical and empirical review, there is a clear indication that in the past a lot of research work has been conducted to investigate the relationship between working capital management and profitability of the firm in different environments. Notably, however, there were no empirically proven functions or formulas that could assist companies to calculate an optimum operating WCM for a specific output in financial performance. Adequate working capital was explained by Donnel et al, (1964) where he mentioned that to avoid interruption in the production schedule and maintain sales, a firm requires funds to finance inventories, payables and receivables but the requirements were not quantified. It is evident that working capital management practices influence corporate profitability in variant proportions depending on the sector the companies operate as well as their sizes however the extent of the effect is not clearly indicated. The management of working capital may have both negative and positive impact of the firms profitability, which in turn, has negative and positive impact on the shareholders wealth. This study seeks to explore in detail these effects.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

Henning (2004) describes methodology as coherent group of methods that complement one another and that have the ability to fit to deliver data and findings that will reflect the research question and suit the researcher purpose. This chapter describes the methodology that was used in carrying out this study. It provides the research design, the sample size and the sampling methods, target population, data collection procedures and data analysis model in the study. It provides a description of the research design, model specification, study area, target population, sample size and sampling techniques, data collection procedure and data analysis techniques.

3.2. Research Design

Research design is a blue print which facilitates the smooth sailing of the various research operations, thereby making research as efficient as possible hence yielding maximum information with minimal expenditure of effort, time and money, Kothari (2004).

The design used for the study was therefore the descriptive research designs. Descriptive statistical analysis focuses on the exhaustive measurement of population characteristics descriptive research design focuses on providing accurate description of the problem. Descriptive studies are fact finding investigations with adequate interpretation. It focuses on particular aspects of the study. It is designed to gather descriptive information and provides information for formulating more sophisticated studies, (Aliaga and Gunderson, 2000). The design selected as it enabled the researcher to meet the objectives of the study.

This study seeks to empirically assess the relationship between working capital management practices and financial performance of automotive companies in Kenya, a descriptive research design was used to establish the relationship between independent variable (working capital management) and its effects on the dependent variable (financial performance) in the automotive firms in Kenya.

3.3. Population

Welman and Kruger (2001) the research design is the strategy or plan which is used to acquire participants or subjects, and how to collect what type of data from them, in order to arrive at conclusions about the initial research question. The population of the study was based on registered automotive companies in Kenya which totals twenty two. A list of the registered firms is provided in Appendix 1.

3.4. Sample Design

Bryman and Bell (2007) define sample design as the fragment or section of the population that is selected for the research process. Sampling is also defined as a process of selecting a number of individuals for a study in such a way that the individual selected represents the large group from which they are selected (Mugenda and Mugenda, 2003). The study attempted to undertake a census of the twenty two automotive firms in the population by analyzing their financial statements.

3.5. Data Collection

The research study used secondary source of data which was collected from readily available balance sheets and profit and loss accounts as contained in annual financial statements maintained at the respective firms, the NSE, Regulators and the Capital Markets Authority (CMA). Data on working capital policy and profitability was extracted from the audited financial statements of the automotive companies and from data collection sheets from the companies not listed at the NSE. Data for the study was collected for the period 2009 to 2013 which was considered by the researcher to be resent and adequate for establishing a relationship. The specific data collected was in form of fixed assets, accounts receivable, annual profit after tax, sales turnover, current assets, inventory, accounts payable, current liabilities, as well as equity and long term debt for each financial year of the firms.

Quantitative data collection method will be used for the study. According to Aliaga and Gunderson (2000), quantitative research is explaining phenomena by collecting numerical data that are analyzed using mathematically based methods (in particular statistics). This research study used secondary sources of data which will help the

researcher measure both aspects of the variables. According to Saunders, Lewis and Thornhill (1997) one of the advantages of using secondary data is the enormous savings in resources specially researchers time and money.

The Reliability (consistency) and validity (accuracy) of the data was guaranteed since the data was gathered from audited financial statements which reduced chances of misrepresentation of information contained. According to Allen and Yen (1979), validity of an assessment is the degree to which it measures what it is supposed to measure while reliability is the extent to which a measurement gives results that are consistent.

Variables: Anol (2012) defines it as a specific characteristic of a subject that assumes one or more different values or a measurable representation of an abstract construct.

Dependent variables: The dependent variable was Return on Assets (ROA), which is measured by dividing net income with total assets. ROA is a measure of profit per asset value (1-year average).

Independent variables: The average collection period (AR); the inventory conversion period (INV); the average payment period (AP); and the Cash Conversion Cycle (CCC) were used as the independent variables and were considered for measuring working capital management. AR is the time taken to collect cash from customers; INV refers to the time taken to convert inventory held in the firm into sales; AP is the time taken to pay the firm's suppliers while CCC is used as a comprehensive measure of working capital as it shows the time-lag between payment for the purchase of raw material and the collection of sales of finished goods.

Control variables: Four control variables were used in the model of the study as follows; Current Ratio (CR): It's a measure of the degree to which current assets cover current liabilities. A high ratio indicates a good probability the enterprise can retire current debts. A ratio of 2.0 or higher is a comfortable financial position for most enterprises. Firms with more liquidity have more profitability and therefore current ratio was used as a control variable. Natural logarithm of sales (LOS): To show the firm size, firms which have more sales naturally have more profitability and therefore the natural logarithm of sales was used as a control variable for the company's size. Fixed Assets to Total Assets

(FATA): It's a measure of the extent to which fixed assets are financed with owners' equity (capital). A high ratio, .5 or higher, indicates an inefficient use of working capital which reduces the enterprise's ability to carry accounts receivable and maintain inventory and usually means a low cash reserve. This will often limit a firm's ability to respond to increased demand for its products or services. Leverage (LEV): Total debt to total assets is a leverage ratio that defines the total amount of debt relative to assets. This enables comparisons of leverage to be made across different companies. The higher the ratio, the higher the degree of leverage and consequently the higher the financial risk. This is a broad ratio that includes long-term and short-term debt as well as all assets ó tangible and intangible.

3.6. Data Analysis

Levine, (1996) defined data analysis a body of methods that help to describe facts, detect patterns, develop explanations, and test hypothesis. The data in this study was analyzed with the aim of determining the impact of working capital policy on profitability among automotive companies in Kenya.

The research study used secondary sources of data where quantitative data was collected and analyzed for the study. The analysis aimed at estimating the relationships between financial performance and the chosen working capital component variables.

To determine the relationship between the variables, the data was analyzed through the use of a multivariate regression model. Multiple linear regression is a method used to model the linear relationship between a dependent variable and one or more independent variables (Ostrom, 1990). Regression models are used to predict the behavior of one variable from one or more variables (Saunders et. al., 1997).

Regression was applied to find out whether the independent variable (working capital management) predicted a given movement in the dependent variable (profitability).

The regression model equations below were used to analyze the relationship between financial performance and the components of working capital of the firms. According to

(Ostrom, 1990), a model equation expresses the value of a dependent variable as a linear function of one or more independent variables and an error term:

The First Model: The relation between Average collection period, Inventory Turnover in Days, Average Payment Period, Current Ratio, Natural logarithm of sales, Degree of Financial Leverage, Fixed Financial Asset ratio and profitability:

$$ROA_{it} = \beta_0 + \beta_1 (AR_{it}) + \beta_2 (INV_{it}) + \beta_3 (AP_{it}) + \beta_4 (CR_{it}) + \beta_5 (LN_{it}) + \beta_6 (LEV_{it}) + \beta_7 (FATA_{it}) +$$

The Second Model: The relation between Cash Conversion Cycle, Current Ratio, Natural logarithm of sales, Degree of Financial Leverage, Fixed Financial Asset ratio and profitability:

$$ROA_{it} = \beta_0 + \beta_1 (CCC_{it}) + \beta_2 (CR_{it}) + \beta_3 (LN_{it}) + \beta_4 (LEV_{it}) + \beta_5 (FATA_{it}) +$$

Where:

ROA_{it} : Return on Assets of a firm = net income / total assets

AR: Number of days account receivables = Account Receivables/ [Net Sales/365]

INV: Number of days inventory = Inventories/ [Cost of Goods Sold/365]

AP: Number of days account payables = Account Payables/ [Cost of Goods Sold/365]

CCC: Cash Conversion Cycle = AR + INV - AP

CR: Current Ratio = Current Assets / Current Liabilities

LOS: Size = Natural Logarithm of Sales

LEV: Leverage = Financial Debt / Total Assets

FATA: Fixed Financial Asset ratio = Fixed Financial Assets / Total Assets

β_0 : The intercepts of equation. It is a constant that represents an estimated unit change in value of ROA when all the other variables are zero.

β_1 , β_2 , and β_3 : Coefficients of variables. Shows by how much ROA varies with a unit change in value of independent variables.

t: Time 1, 2, 3, 4, 5 years.

ϵ : The error term.

Correlation Coefficient (r) was determined and used to measure the strength and direction of the relationship between the dependent variable and each of the independent variables.

Coefficient of determination (R^2) was used to measure the proportion of variance in the dependent variable that can be explained by independent variables. It is used to measure how well the regression equation fits the data or the proportion of variability in a data set that is accounted for by a statistical model. It is the sum of squares explained by the model i.e.

Coefficient of determination (R^2) = Regression sum of squares / Total sum of squares

It helps to decide whether the line obtained is useful for estimation and prediction. The value ranges from 0 to 1. The better the fit the closer the sum of squares explained by the model is to 1.

T-test was used to test for the significance of the relationship between financial performance and each of the independent variables. This test helped to determine whether any predictor variable had any influence on the response variable over and above the other predictor variables. It is a more accurate test as it has a wider spread.

The research study used 95 percent significance level. At 95 percent, a significance of $p=0.05$ was used since it is the generally accepted conventional level in social sciences research. This indicates that 95 times out of 100, we can be sure that there is a true or significant correlation between the two variables, and there is only a 5% chance that the relationship does not truly exist.

Pearson's correlation coefficient was used as a statistical measure of the strength of a linear relationship between paired data.

Analysis of Variance (ANOVA) ó Was used to measure the variability of the independent variables and hence show whether the model accounts for most of the variation on the dependent variable.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1. Introduction

This chapter focused on data analysis, interpretation and presentation of the findings. Data for this study was collected from twenty two automotive firms registered in Kenya for the period 2009 to 2013. This was then used to compute the various values which constituted variables in this study. Descriptive statistics and quantitative analysis were used to present data. The annual averages of the firms were first calculated from the key statistics of the twenty two companies for the period under study. The averages then enabled the researcher to study the trends of the variables. The annual averages for the twenty two companies were then used in descriptive, correlation and regression analysis models. The Statistical Package for Social Sciences (SPSS) version 20 was used in analysis. The findings were presented using tables. The chapter sets off with the descriptive statistics then quantitative analysis follows. Under quantitative analysis, correlation analysis is undertaken then follows regression analysis which latter lead into a discussion of each of the variables. The chapter concludes with a summary and interpretation of the findings.

4.2. Descriptive analysis

Besides showing the mean and standard deviation of the different variables in this study, descriptive statistics also presents the minimum and maximum values of the variables. Descriptive statistics were computed for both metrics measuring profitability and that measuring working capital management.

Table 4.1 indicates the descriptive statistics of the variables used in this study. The data reveals that the companies receive payment from debtors after an average of 71 days, the standard deviation for receivables collection period was 43 days. Here, maximum time taken by a company was 167 days, while minimum time was only 10 days. The variations could be as a result of differences in commercial policies, competitive pressure or inefficient management among the sampled companies. The average Payable Conversion period was 101 days with a standard deviation of 46 days. The maximum Payable

Conversion Period used by a company was 187 days. The minimum level of the Payable Conversion period was 31 days. This could be as a result of the firm's payment policies.

Table 4.1: Descriptive Statistics for the Averages of Variables

	N	Minimum	Maximum	Mean	Std. Deviation
AR	22	10.8941	167.3938	71.152241	43.3299340
AP	22	31.5000	187.4649	101.345841	46.2400315
INV	22	15.6689	212.8288	85.663682	60.4989573
CCC	22	-187.4454	9.3652	-77.638277	57.8954860
LEV	22	.1260	.5846	.300595	.1266839
LN	22	8.8700	24.2350	16.349041	3.6150115
FATA	22	.0244	.5700	.284518	.1517347
CR	22	1.3732	9.4250	3.757677	2.4980878
ROA	22	.0219	.5750	.243541	.1530757

The inventory conversion period of the firms was averagely 86 times with standard deviation of 60 times, a maximum of 212 times and minimum conversion period of 15 times. The variations could be as a result of product diffusion, automation and technology levels used in production processes. Cash Conversion Cycle was on average -77 days and standard deviation was about 57 days. CCC which is used to check the effectiveness in working capital management had a maximum conversion period of 9 days and a minimum conversion period of -187 days. The mean value of return on total assets was 24.35% with standard deviation of 15.31%. It means that the profitability can deviate from mean to both sides by 15.31%. The maximum value for return on assets was 57.50% while the minimum was 2.19%.

4.3. Quantitative analysis

Pearson correlation coefficients for all variables were calculated followed by regression analysis.

4.3.1 Correlations analysis between the Variables

The coefficient gives an insight into the nature and extent of the relationship. Pearson correlation analysis was used to determine the degree of association between the firm's profitability and working capital management elements, the results below were obtained.

Table 4.2: Pearson Bivariate Correlation Coefficients

Variable	AR	AP	INV	CCC	LEV	LN	FATA	CR	ROA
AR	1	-0.011	0.266	0.211	-0.327	-0.238	0.054	-0.035	-0.336
		0.962	0.232	0.346	0.137	0.287	0.813	0.877	0.126
AP	-0.011	1	-0.285	-.561**	-0.228	0.288	0.111	-0.002	.528*
	0.962		0.198	0.007	0.307	0.193	0.623	0.995	0.012
INV	0.266	-0.285	1	0.332	0.048	-.515*	-0.053	0.084	-.595**
	0.232	0.198		0.131	0.832	0.014	0.815	0.710	0.004
CCC	0.211	-.561**	0.332	1	0.068	-0.373	0.124	0.082	-.436*
	0.346	0.007	0.131		0.763	0.087	0.583	0.718	0.043
LEV	-0.327	-0.228	0.048	0.068	1	-0.281	0.058	-0.270	-0.344
	0.137	0.307	0.832	0.763		0.205	0.796	0.224	0.117
LN	-0.238	0.288	-.515*	-0.373	-0.281	1	-0.189	0.295	.722**
	0.287	0.193	0.014	0.087	0.205		0.401	0.182	0.000
FATA	0.054	0.111	-0.053	0.124	0.058	-0.189	1	-.502*	-0.146
	0.813	0.623	0.815	0.583	0.796	0.401		0.017	0.516
CR	-0.035	-0.002	0.084	0.082	-0.270	0.295	-.502*	1	.432*
	0.877	0.995	0.710	0.718	0.224	0.182	0.017		0.045
ROA	-0.336	.528*	-.595**	-.436*	-0.344	.722**	-0.146	.432*	1
	0.126	0.012	0.004	0.043	0.117	0.000	0.516	0.045	

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

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

From the correlation statistics we can see that ROA positively correlates highly with size having a coefficient of 0.722 which would be explained by the fact that growth in sales

has a direct impact on profitability. It is evident that size is significant in determining ROA since the p-value is 0.000 which is less than the significance level at 0.05.

CCC correlates negatively with ROA with a coefficient of -0.436. This is due to the fact that the longer the cash conversion cycle the lower the profitability and at 0.05 significance level, the relationship is significant since the P-value is (sig. 0.043)

INV correlates highly with leverage, which can be explained by the fact that, given that INV is measured by the number of days it takes to convert inventory into sales, the lower the period, the higher the ROA. The relationship was found to be significant since the p-value (0.004) is less than the 0.05 significance level.

AR, LEV and FATA have a positive correlation with ROA however, the relationship is insignificant since with the significance level pegged at 0.05, AR, LEV and FATA have significance levels of (sig. 0.126), (sig. 0.117) and (sig. 0.516) respectively.

CR has a positive correlation with ROA having a coefficient value of 0.432 which is significant since the p-value (0.045) is less than the significant level of (0.05). This can be explained by the fact that a high ratio indicates a good probability that an enterprise can retire current debts.

4.3.2 Regression analysis

To avoid multicollinearity problem in the regression analysis, two multivariate regression models were used in regression analysis conducted to determine whether there is significant relationship between working capital management and profitability. This was to ensure that some of those variables which are highly correlated are removed from the model. On the first model, regression analysis was conducted where the researcher used AP, AR and INV as explanatory variable while keeping control variables constant. On the second model, the researcher regressed CCC as a control variable keeping control variables constant. This enabled the researcher to determine the effect of working capital management on firm's profitability through finding the influence of working capital management elements.

4.3.2.1 Regression Results for the Effect of AP, AR, INV on Profitability

Table 4.3 presents the ANOVA results of the first regression model

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.409	7	.058	9.807	.000 ^b
Residual	.083	14	.006		
Total	.492	21			

a. Dependent Variable: ROA

b. Predictors: (Constant), CR, AP, AR, INV, LEV, FATA, LN

Source: Research Findings

The table shows that the independent variables statistically predict the dependent variables $(7, 95) = 9.807, p < 0.05$. This means that the regression model is a good fit for the data. The results in the ANOVA table above reveal that the model is significant since it has a significance level less than the Alpha set at 0.05. The model explains the deviations in the dependent variable (ROA).

Table 4.4: summary of the first regression model

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.911 ^a	.831	.746	.0771602

a. Predictors: (Constant), CR, AP, AR, INV, LEV, FATA, LN

Source: Research Findings

Table 4.4 which is a summary of the first regression model shows the value of R^2 as 0.831. R^2 is the coefficient of determination that tells us how the profitability of Automotive firms in Kenya varied with working capital management. The data implies that up to 83.1% of variations in profitability of the firms are due to changes in working capital management. The rest of the percentage that is 16.9% of variations in profitability

is due to other factors. The coefficient of correlation ($R = 0.911$) shows that there was a strong relationship between profitability of automotive firms and various elements of working capital management. R-squared is therefore the fraction of the variation in dependent variable (ROA) that can be predicted by independent variables. In this case 83.1% of variations in ROA can be explained by AP, AR and INV. It also means that there are other factors that influence the ROA of the automotive industry.

Table 4.5: Coefficients of the first regression model

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.042	.166		.256	.802
AR	-.001	.000	-.226	-1.785	.096
AP	.001	.000	.312	2.605	.021
INV	-.001	.000	-.326	-2.365	.033
LEV	-.197	.159	-.163	-1.236	.237
LN	.011	.006	.269	1.811	.092
FATA	.053	.130	.052	.403	.693
CR	.022	.008	.354	2.564	.023

a. Dependent Variable: ROA

Source: Research Findings

From the table 4.5, the general form of the first regression model is given by;

$$ROA_{it} = 0.042 - 0.001 (AR_{it}) - 0.001 (INV_{it}) + 0.001 (AP_{it}) + 0.022 (CR_{it}) + 0.011 (LN_{it}) - 0.197 (LEV_{it}) + 0.053 (FATA_{it}) +$$

AP is significantly (sig. 0.21) and positively correlated with ROA implying that when the firm takes longer to pay its creditors, the company records higher profits. AR is negatively correlated with ROA but at an insignificant level of (sig 0.096). This implies

that if a firm takes long to collect from its debtors, there is lower profitability recorded by the firm. The coefficient estimate for INV is negative (-0.001) which is statistically significant (sig 0.033). This implies that if a firm takes longer to convert its inventory into sales revenue, then the firm will have lower profitability. The coefficient estimate for LEV is negative (-0.197) which is not significant (sig 0.237). This implies that there is less relationship between debt and profitability. Size has a positive coefficient of (0.011) although not statistically significant (sig.0.092). Meaning that as sales increase, profitability of automotive firms also increases. FATA has a positive correlation with ROA having (0.053) coefficient value but at an insignificant level (sig. 0.693) meaning that an increase in fixed assets ratio will lead to an increase in profitability of the firm. CR on the other hand has a positive correlation with ROA and at a significant level of (sig. 0.023). The positive relationship means that as current ratio increases, the more the likelihood of higher profitability.

4.3.2.2 Regression Results for the Effect of CCC on Profitability

Table 4.6 presents the ANOVA results of the second regression model

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.325	5	.065	6.228	.002 ^b
Residual	.167	16	.010		
Total	.492	21			

a. Dependent Variable: ROA

b. Predictors: (Constant), CR, CCC, LEV, LN , FATA

The table shows that the independent variables statistically predicts the dependent variable (5, 95) =6.228, p<0.05. This means that the regression model is a good fit for the data. Table 4.6 shows statistical significance (Sig. 0.002) and with the Alpha being 0.05 the model as a whole is significant. The model explains the deviations in dependent variable (ROA).

Table 4.6: Summary of the second regression model

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.813 ^a	.661	.555	.1021673

a. Predictors: (Constant), CR, CCC, LEV, LN , FATA

Source: Research Findings

Table 4.6 which is a summary of the second regression model shows the value of R² as 0.661. R² is the coefficient of determination that tells us how the profitability of automotive firms in Kenya varied with working capital management. The data implies that up to 66.1% of variations in profitability of the firms are due to changes in working capital management. The rest of the percentage that is 33.9% of variations in profitability is due to other factors. The coefficient of correlation (R = 0.813) shows that there was a strong relationship between profitability of automotive firms and various elements of working capital management. R-squared is therefore the fraction of the variation in dependent variable (ROA) that can be predicted by independent variables. In this case 81.3% of variations in ROA can be explained by CCC. It also means that there are other factors that influence the ROA of the automotive industry.

Coefficients of the second regression model

From the table 4.7, the general form of the second regression model is given by;

$$ROA_{it} = -0.273 + 0.001 (CCC_{it}) + 0.023 (CR_{it}) + 0.22 (LN_{it}) - 0.110 (LEV_{it}) + 0.178 (FATA_{it}) +$$

Cash collection cycle was found to be statistically insignificant at (sig 0.095) and negatively correlated with ROA implying that a long cash conversion cycle leads to lower profitability in automotive companies in Kenya. One of the effective ways for shortening CCC is to shorten the period of receivable accounts, delaying the payment of payable accounts and inventories. By shortening CCC, firm profitability improves. The longer the cash conversion cycle, the more the firm must invest in working capital, while the shorter cash conversion cycle, the lesser the funds are tied up in the working capital.

Table 4.7: Coefficients of the second regression model

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.273	.158		-1.721	.104
CCC	-.001	.000	-.290	-1.773	.095
LEV	-.110	.188	-.091	-.585	.566
LN	.022	.007	.512	2.993	.009
FATA	.178	.174	.176	1.021	.323
CR	.023	.011	.368	1.987	.064

a. Dependent Variable: ROA

Source: Research Findings

The study found Size to be positively correlated and statistically significant (sig 0.009) with ROA. This implies that as the sales increase, profitability of automotive firms also increases. Leverage was found to be insignificantly and negatively correlated with ROA. The coefficient recorded is (-0.110). This indicates that as debt increases, profitability of automotive industry decreases. FATA and CA have a positive but insignificant correlation with ROA with coefficients of (0.178) and (0.023) respectively. This infers that as fixed financial asset ratio and current ratio increase, the profitability of a company also increases.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

The chapter summarizes the findings of the analysis of the relationship between working capital management policy measured by Accounts Receivables Period (AR), Accounts Payables Period (AP), inventory turnover in days (INV), Cash Conversion Cycle and profitability of the firm measured by return on assets (ROA). The chapter also draws conclusions and gives recommendations based on the findings. It highlights the limitations of the study and makes suggestions of further research in future. Data collected was from financial statistics which enabled the calculations of the variables used. Data was analyzed using SPSS version 20. Regression and correlation analysis models were used to determine the nature and strength of the relationship between the dependent and independent variables.

5.2. Summary of findings

The objective of this research was to find out the relationship between working capital financing policy and ROA of the automotive firms in Kenya. In order to achieve this objective, data was collected and both quantitative and qualitative analysis was conducted where the ROA was used as the dependent variable for each of the 21 firms to measure profitability. The accounts receivables, accounts payables, inventory and cash conversion cycle was computed as independent variables. Alongside the dependent and independent variables were also control variables such as natural logarithm of sales, current ratio, fixed asset turnover ratio and leverage which were used as proxy for size, liquidity, and debt.

The choice to undertake a census of the automotive companies was preferred because the firms in the industry are few. For the automotive firms that are listed on the NSE, information about the measurement of working capital policies and ROA was readily available. For the firms not listed at the NSE, data had to be obtained from the respective companies. A descriptive statistics analysis was conducted on all the variables to give the general behavior of the automotive firms with respect to working capital elements and

ROA. Pearson correlation coefficient analysis was also conducted to establish the relationship among the variables. The relationship between the dependent variable (ROA) and the other variables was conducted using a general regression model. To establish whether the working capital elements had any significant relationship with the dependent variable (ROA), two regression models were conducted separately between the dependent variable and the independent variables alongside the control variables.

With a 0.05 significance level, the Pearson correlation coefficient analysis revealed that ROA had a significant relationship with AP, INV, CCC and LN. There are however other variables such as AR and Leverage where even if there was slightly higher correlation, the relationship was not as strong hence not significant. In correlating working capital variables (AP, AR and INV) in the first model it was observed that the whole relationship had a high coefficient of determination measuring 88.3% indicated by R square and 66.1% from the second model where working capital element was CCC. This means that the independent variables in both models statistically predict the dependent variables (ROA).

5.3. Conclusion

The study established that efficient working capital management results to increased profitability in the automotive industry in Kenya. The research investigated the relationship between the working capital and its impact on profitability of 21 automotive firms for the period 2009-2013. From the study, it is evident that effective monitoring and controlling of working capital is important since it enables a company to manage its financial policy and operate efficiently. Without good working capital management, firm cannot achieve efficiency and profit maximization. Firms are therefore expected to maintain an optimal level of working capital to remain competitive and profitable.

5.4. Recommendations

There exist a negative relationship between average collection period and firm's profitability. This therefore means that an increase in the period results to a decrease in profitability and thus firms should try as much as possible to reduce the period for collecting receivables from clients.

The relationship between average payables period and firm's profitability is positive, this implies that an increase in average payables period results to increased profitability. Average payables period is the number of days which the firm is able to delay payment on raw materials to its suppliers. The delay in payment is seen as an internal financing that helps a company to save costs associated with external financing such as bank loan.

Due to the fact that working capital variables are strongly related with profitability, firms should use more aggressive way of financing such as trade credit and short term bank loan for their working capital requirements.

By increasing the rate of inventory turnover, it is possible to maximize the profitability of firms the finance managers of the automotive firms should speed up the inventory turnover rate, so as to reduce the inventory holding period. At the same time, sufficient level of inventory should be maintained to ensure the sales don't dip due to lack of inventory.

The accounts receivable period of the firms is relatively long. Therefore, firms could administer different mechanisms to reduce their accounts receivable period to the minimum as possible.

The relationship between inventory turnover period and firm's profitability is also negative; this implies that a decrease in inventory turnover days results to increased profitability. The inventory turnover period is the number of days required to order raw materials, produce and sell product. Merits of companies reducing inventories includes reduced warehouse space, reduced obsolescence of products, low depreciation and low deadweight costs associated with inventories such as cash tied up in raw materials or work-in-progress which could be profitably used elsewhere.

Companies should engage in relationship with those suppliers who allow long credit time period and those customers who allow short payment period.

Management should ensure that there is a trade-off between liquidity and profitability together with improving efficiency of management of working capital investment and financing policies. It is also expected that finance managers will get a clear understanding

of the relationship between individual working capital management components and profitability.

5.5. Limitations of the study

For some of the companies, the study relied on secondary data which were collected from Annual audited financial statements from the NSC while for other firms data was collected using a data collection form. Considering the various firms use different accounting policies reliability and quality of data was not 100%.

Some companies in the population are not listed at the NSE the firms shared the financial information verbally and were not ready to provide hard copies of their financial accounts to the researcher for verification. This implies that information from these companies was not very reliable.

The period of study was five years which was also too short to observe changes in variables overtime. Some of changes could not be observed then.

This research focusses solely on firms from Kenya; to truly understand the impact of working capital management on profitability of automotive firms a much broader scope is needed. The research should include multiple countries or at least relatively bigger countries.

5.6. Suggestions for further research

The study showed in some company's profitability is not limited to working capital financing alone as there were no correlations between some variables. An avenue of further research will be finding out other factors that affect profitability of the automotive industry.

Similar study should be conducted in future on how automotive firms in Kenya make decisions around working capital management and how it affects their profitability.

A study should be done that focuses on only companies in one sector of the automotive industry, for example the companies in the motor vehicle sector should be analyzed at separately for efficient working capital management so it can be understood which

factors affects the working capital management more and how can working capital be managed to increase profitability.

Further limitations are caused by the fact that the analyses are done with annual data. Future research can be more precise when using data based on quarterly data. It would be even more precise when average quarterly data is used for the number of days accounts receivables, accounts payables and inventories.

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APPENDIX I

- i. DT Dobie Kenya Limited
- ii. General Motors Kenya Limited
- iii. Simba Colt Motors Limited
- iv. Toyota Kenya Limited
- v. Car and General (K) Ltd
- vi. CMC Holdings Ltd
- vii. Sameer Africa Ltd
- viii. Marshalls (E.A.) Ltd
- ix. RMA Motors (Kenya) Limited
- x. Cooper Motor Corporation,
- xi. Tata Motors
- xii. Mobius Motors
- xiii. CMC Motors Group Ltd.
- xiv. CMC Engineering Ltd.
- xv. CMC Management Services Ltd.
- xvi. Dobie Cooper Motors Ltd.
- xvii. Abacus Data Ltd.
- xviii. CMC Aircharters Ltd.
- xix. All Makes Parts & Accessories Ltd.
- xx. VW Rent-A-Car Ltd.
- xxi. Cooper Davis Air Ltd.
- xxii. Mac Gregor Gates Motors Ltd.
- xxiii. Hughes Ltd./Eastern Motors Ltd.
- xxiv. Kenya Vehicle Manufacturers Ltd.
- xxv. Leyland Albion (East Africa) Ltd.