

**THE IMPACT OF WORKING CAPITAL MANAGEMENT ON THE
PROFITABILITY OF THE OIL INDUSTRY IN KENYA**

BY

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DECLARATION

I declare that this research project is my original work and has not been submitted to any other University for academic award

Sign. .....

Date.. 07/11/12.....

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This research project has been submitted for presentation with my approval as the University supervisor.

Sign. .....

Date.. 8/1/2012.....

Mirc Mwangi

DEDICATION

This study is dedicated to my loving family, for their support, encouragement and patience during the entire period of my study and continued prayers towards successful completion of this course.

God bless you all.

ACKNOWLEDGEMENT

I wish to express my sincere appreciation to my family for their understanding and support during the project.

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Lastly I thank Almighty God for his guidance and providence which enabled me to undertake this project that was involving in term of time and resources.

ABSTRACT

Working capital management is a very important component of corporate finance because it directly affects the liquidity and profitability of the company. A firm's value cannot be maximized in the long run unless it survives the short run. There are no specific set of rules or formulae to determine the working capital requirements of firms. Maximizing profits is said to be the objective of all firms. Efficiency in working capital management is so vital in a production firm, assets are mostly composed of current assets. The study sought to establish the impact of Working Capital Management on Profitability as evidenced in the oil industry in Kenya.

The research design adopted was cross-sectional study in which data was gathered over the period 2007 to 2011. The study was carried out through the use of secondary data as detailed in oil industry in Kenya annual reports. The researcher obtained the data from the financial statements in their annual report. The population of the research consisted of all the 10 oil companies in Kenya registered with Petroleum Institute of East Africa (PIEA) within Nairobi and its environs. The data collected was analyzed by use of Microsoft Excel 2010 and Statistical Package for Social Sciences (SPSS) Version 17. Regression analysis was used to determine the relationship between working capital management and profitability. The Chi-square test (χ^2), a non parametric test was used to test the goodness of fit, test the significance of association between two attributes, and test the homogeneity or the significance of population variance.

It was also established that most of the profits of oil firms in Kenya is attributable to working capital management. The study concludes that there exists relationship between Working Capital Management and Profitability of oil firms in Kenya, leverage was found to positively influence the profitability of oil firms in Kenya. The study recommends that for oil firms in Kenya to remain profitable, they should employ working capital management practice that will help in making decisions about investment mix and policy, matching investments to objectives, asset allocation for institutions, and balancing risk against profitability.

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ABBREVIATIONS

AGO	=	Automatic Gas Oil
CCC	=	Cash Conversion Cycle
GDC	=	Geothermal Development Company
KPCL	=	Kenya Pipeline Company Limited
LOC's	=	Local Oil Companies
MOC'S	=	Multinational Oil Company
MPT	=	Modern Portfolio Theory
MSR	=	Motor Spirit Regular
NOCK	=	National Oil Corporation of Kenya
NOP	=	Net Operating Profit
NSE	=	Nairobi Securities Exchange
NTC	=	Net-Trade Cycle
OPEC	=	Organization of Petroleum Exporting Countries
PIFA	=	Petroleum Institute of East Africa

REA	-	Rural Electrification Authority
ROI	-	Return on Investment
WCM	-	Working Capital Management

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Working capital management is a very important component of corporate finance because it directly affects the liquidity and profitability of the company. It deals with current assets and current liabilities. Working capital management is important due to many reasons. For one thing, the current assets of a typical manufacturing firm accounts for over half its total assets. For a distribution company, they account for even more. Excessive levels of current assets can easily result in a firm's realizing a substandard return on investment. However firms with too few current assets may incur shortages and difficulties in maintaining smooth operations (Home, 2000). Efficient working capital management involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet due short term obligations on one hand and avoid excessive investment in these assets on the other hand (Eljelly, 2004)

A firm's value cannot be maximized in the long run unless it survives the short run. Firms fail most often because they are unable to meet their working capital needs; consequently, sound working capital management is a requisite for firm survival (DeLoof, 2003).

The crucial part in working capital financing is required in maintaining its liquidity in day-to-day operation to ensure its smooth running and meet its obligation (Eljelly, 2004).

Yet, this is not a simple task since managers must ensure that business operation is running in efficient and profitable manner. There are the possibilities of mismatch of current asset and current liability during this process. If this happens and firm's manager cannot manage it properly then it will affect firm's growth and profitability. This will further lead to financial distress and finally firms can go bankrupt.

Working capital management is important because of its effects on the firm's profitability and risk, and consequently its value (Smith, 1980). Specifically, working capital investment involves a tradeoff between profitability and risk. Decisions that tend to increase profitability tend to increase risk, and, conversely, decisions that focus on risk reduction will tend to reduce potential profitability. Gitman (1994) argued that the cash conversion cycle was a key factor in working capital management. Actually, decisions about how much to invest in the customer and inventory accounts, and how much credit to accept from suppliers, are reflected in the firm's cash conversion cycle, which represents the average number of days between the date when the firm must start paying its suppliers and the date when it begins to collect payments from its customers. Previous studies have used measures based on the cash conversion cycle to analyze whether shortening this cycle has positive or negative effects on the firm's profitability.

1.1.1 Determinants of Working Capital

There are no specific set of rules or formulae to determine the working capital requirements of firms. A large number of factors, each having a different importance

influences working capital needs of firms. The following is the description of factors which generally influence the working capital requirements of firms (Adeniji, 2008).

Nature of business: Working capital requirements of a firm are basically influenced by the nature of the business. In practice, trading and financial firms have a very small investment in fixed assets but require a large sum of money to be invested in working capital. In contrast, public utilities have a very limited need for working capital and have to invest abundantly in fixed assets Wang (2002).

Sales and demand conditions: There is a relationship between volume of sales and the working capital needs of an organization. However, it is difficult to precisely determine the relationship between volume of sales and working capital needs. In practice, current assets will have to be employed before growth takes place. It is therefore, necessary to make advance planning of working capital for a growing firm on a continuous basis (Peel and Wilson, 1996)

Technology and manufacturing policy: The production process has a lot of impact on the working capital requirement. The manufacturing cycle comprises of the purchase and the use of raw materials and the production of finished goods. The longer the manufacturing cycle, the larger will be the firm's working capital requirements (Whited, 1992).

Credit policy of the firm: The credit policy of the firm affects the working capital by influencing the level of debtors. The credit terms to be granted to the customers may depend upon the norm of the industry to which the firm belongs. But a firm has the

flexibility of shaping its credit policy within the constant of industry norms and practices (Deloof, 2003)

Operating efficiency: This relates to the optimum utilization of resources at minimum costs. The firm will be effectively contributing in keeping the working capital investment at a lower level if it is efficient in controlling operating costs and utilizing current assets (Wilner, 2000).

Price level changes: Price is relevant to purchase of material, packaging of finished goods and eventual sales. The increasing shifts in price level make functions of financial manager difficult. Management should anticipate the effects of price level changes on working capital requirements of the firm. Generally, rising price level will require a firm to maintain higher amount of working capital. Same levels of current assets will need increased investment when prices are increasing (Smith, 1980).

Credit granted by suppliers: The working capital requirements of a firm are also affected by credit terms granted by its creditors. A firm will need less working capital if liberal credit terms are available to it. Similarly, the availability of credit from banks also influences the working capital needs of the firm. A firm which can get bank credit easily on favourable conditions will operate with less working capital than a firm without such facility (Gitman (1994).

1.1.2 Profitability

The main objective of every firm is maximizing profits but preserving liquidity of the firm is an important objective too. The problem is that increasing profits at the cost of liquidity bring serious problems to the firm. Therefore, there must be a tradeoff between these two objectives of the firms. One objective should not be at the cost of the other because both have their importance. If we do not care about profits we cannot survive in the long run, on the other hand, if we do not care about liquidity, we may face problems of insolvency or bankruptcy. For this reason working capital management should be given proper consideration and will ultimately affect the profitability of the firm companies.

1.1.3 Determinants of Profitability

Maximizing profits is said to be the objective of all firms. Indeed, it's not always easy for the management to find out which are the right decisions that would maximize them. For instance, short-run profits can be easily pumped up by avoiding maintenance, discretionary costs, investments, that however are necessary of on-going competitiveness, moreover what maximizes the "overall profits" is not necessary what allows to attain the maximum of "profitability".

In reality, firms do have profits targets, and sometimes they pay managers for reaching them, but the goals of firms are broader than profits alone. Proceeding with other determinants of profits, rising prices of competitors, better sales conditions and skills, a higher overall price level allow for higher prices of the considered firm's products, thus

increase nominal profits to the extent that costs are inelastic, i.e. they rise less than proportionally to revenues. Cost structure and its general elasticity to production level is thus relevant to profits. Economies of scale increase profits more than proportionally when sales grow. Conversely, a recession with falling sales levels will hit profits particularly hard in industries where there are economies of scales and high fixed costs. Rising wages directly reduce profits. If, however, on a macro-economic level, these wages will be spent on domestic goods, higher consumption will boost business revenues, partially counteracting the previous dynamics. Depending on the dynamics of exports and other GDP components, higher wages are compatible with higher profits. In other terms, productivity gains determine rising profits. High trade profits can prompt the people to enter the market and begin to compete with current traders. In manufacture, this effect, although still present, crucially depends on the easy of imitation of product features and production processes. It's often difficult to enter into highly profitable markets. If markets were all perfectly competitive in their long run equilibrium, all firms in the economy would have the same constant level of profits: zero. By contrast, in the real world, firms have different profits with certain sectors and certain firms systematically reaching better profits than others. This is due to ubiquitous imperfect competition, barriers to entry, innovation and product differentiation

1.1.4 Working Capital Management and Profitability

Efficiency in working capital management is so vital in a production firm; assets are mostly composed of current assets (Horne and Wachowitz, 1998) as it directly affects

liquidity and profitability of any firm (Raheman and Nasr, 2007). According to Kargar and Blumenthal (1994) bankruptcy may also be likely for firms that put inaccurate working capital management procedures into practice, even though their profitability is constantly positive. Hence, it must be avoided to recede from optimal working capital level by bringing the aim of profit maximization in the foreground, or just in direct contradiction, to focus only on liquidity and consequently pass over profitability. While excessive levels of working capital can easily result in a substandard return on assets; inconsiderable amount of it may incur shortages and difficulties in maintaining day-to-day operations. Working capital is also a major external source of capital for especially small and medium sized and high-growth firms. These firms have relatively limited access to capital markets and tend to overcome this complication by short term borrowing. Working capital position of such firms is not only an internal firm-specific matter, but also an important indicator of risk for creditors (Moyer *et al.*, 1992). Higher amount of working capital enables a firm to meet its short-term obligations easier. This results increase in borrowing capability and decrease in default risk (and consequential decrease in cost of capital and increase in firm value). So, it is possible to state that efficiency in working capital management affects not only short-term financial performance (profitability), but also long-term financial performance (firm value maximization). Liquidity, as a function of current assets and current liabilities, is an important factor in determining working capital policies and indicates firm 's capability of generating cash in case of need. Current, acid-test and cash ratios as traditional measures of liquidity are incompetent and static balance sheet based measures that cannot

provide detailed and accurate information about working capital management effectiveness (Finnerty, 1993; Jose *et al.*, 1996). Formulas used for calculating them consider both liquid and operating assets in common.

Cash conversion cycle as a part of operating cycle is an ongoing liquidity measure developed by Gitman (1974). Closely related with operating cycle, cash conversion cycle is, in brief, the part of operating cycle financed by the firm itself (McLaney, 1997) and is simply calculated by adding inventory period to accounts receivables period and then subtracting accounts payables period from it. It focuses on the length of time between the acquisition of raw materials and other inputs and the inflow of cash from the sale of goods (Arnold, 1998). The shorter this cycle, the fewer resources the firm needs to tie up. Traditional approach to interaction between cash conversion cycle and profitability posits that relatively long cash conversion periods tend to decrease profitability. Trade activities of a firm can be considered as a process in circulation where cash is converted into assets and assets into cash. Cash available for trade activities of the firm has an important multiplier effect due to its turnover ratio. 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.

1.1.5 Oil Industry in Kenya

The oil industry began over five thousand years ago. In the Middle East, oil seeping up through the ground was used in waterproofing boats and baskets, in paints, lighting and even for medication. Kenya has no known oil or gas reserves. The Kenyan government is

encouraging foreign interest in oil exploration and there is a modest upstream oil industry. Companies like Africa Oil and Tallow Oil are working on some sites in Northern Kenya but so far none has borne fruit. Petroleum is Kenya's major source of commercial energy and has, over the years, accounted for about 80% of the country's commercial energy requirements. Demand for oil in Kenya is quite small in global standards but the highest in East Africa making it a Key Market in the region for Oil Products. The domestic demand for various petroleum fuels on average stands at 2.5 million tons per year, all of it imported from the Gulf region, either as crude oil for processing at the Kenya Petroleum Refineries Limited or as refined petroleum products.

In Kenya there are about 53 oil marketing companies registered at the Petroleum Institute of East Africa and a growing number of small distribution companies (commonly known as the independents) that have sprung up since the liberalization of the petroleum sector in 1994. The main major oil companies that were the first to establish in Kenya include Shell, Total Esso, BP, Chevron Mobile and Agip. After 1994 liberalization competition opened competitive pressure that has seen poor companies profitability shakeout, outright insolvency or deliberate withdrawal from the market place. Several of the major multinational which have pulled out include Agip, BP, Mobil, Esso, Chevron and more recently Kenya Shell which is withdrawing from the African Market.

The oil industry in Kenya has been dodges with allot of challenges in the last 2 decades. The introduction stringent tax regimes in 2005 by the Kenya Revenue Authority requiring upfront prepayment of taxes on oil imports has put a significant financial impact on oil

industry in Kenya. In December 2010, the government following pressure from public politicians to control rising fuel prices re-introduced limited prices controls by capping the maximum fuel prices. This meant that companies can sell below but not above the maximum price generated using a set formula. The prices were to be revised monthly based on cost of fuel imported for the month. This has already interfered with the market mechanisms that have been determining price and overall profitability of oil companies. The dynamic nature of the environment of oil companies is a multidimensional concept. Economic internationalization and globalization of markets, means a modern, technological advances speed up, the task environment, planning and environment, and institutional factors, and cultural environment and incentives linked to social factors, are likely to be dynamic environment influences

1.2 Statement of the Problem

Working capital management is important because of its effects on the firm's profitability and risk, and consequently its value (Smith, 1980). Working capital management is important part in firm financial management decision. An optimal working capital management is expected to contribute positively to the creation of firm value. Working capital is an important issue during financial decision making since its being a part of investment in asset that requires appropriate financing investment. It should be critical for to a firm to sustain their short term investment since it will ensure the ability of firm in longer period (Raheman & Nasr, 2007).

The optimal combination of the various working capital financing sources has been a controversial topic since its theoretical rise and the empirical investigations that have followed. Numerous studies have investigated the working capital financing policies of firms in various sectors of the economy; such as manufacturing firms, electric-utility companies, non-profit hospitals and agricultural firms (Jensen and Langemeier, 1996). One of the main conclusions of empirical studies is that industrial classification is an important determinant of working capital financing. A continuing debate in corporate finance exists over the question of how firms make their working capital financing decisions, and the effect of these on the profitability of the organization. Most studies on working capital financing policy have used data from American and European companies. However, research on the determinants of working capital financing of emerging and developing market such as nature of business, market and demand condition, credit policy, operating efficiency, conditions of supply firms has emerged as an extended new line of research because of the differences in levels of efficiency and institutional arrangements between developed markets and emerging markets (Eldomiati, 2007).

Local studies have been done on working capital e.g; Ngaba (1990) did a research working capital management practices in Kenyan secondary schools using the case of Kikuyu Division, Kiambu District and found that most used conservative working capital policy; Nyakundi (2003) carried a survey of working capital management policies among public companies in Kenya and established that in most adopted aggressive working capital policy and hedging working capital policy; Jeremiah (2006) did a

research project on relationship between working capital of firms listed in the NSE and economic activity in Kenya and found that there is no relationship between working capital of firms and economic activity. Kithii (2008) did a study on relationship between working capital management and profitability of listed companies in the Nairobi Stock Exchange and established that working capital management greatly affect their profitability with those having good practices performing better than others while Njogo (2008) did a survey of working capital financing policies among micro-finance institutions in Nairobi and established that most used aggressive policies. The effect of working capital financing policies on profitability of oil industry, however, is still an unexplored area in the working capital financing literature. Therefore, one of the major objectives is establishing the impact of Working Capital Management on Profitability of the oil industry in Kenya.

In this line a number of questions require an answer. Whether equity multiplier affects profitability? Whether logistic total assets affect profitability? Whether total assets turnover affects profitability?

This study sought to bridge this knowledge gap by investigating the impact of working capital management on profitability of the oil industry in Kenya

1.3 Objective of the Study

To establish the impact of Working Capital Management on Profitability of the oil industry in Kenya

1.4 Significance of the Study

The study findings will benefit management and staff of oil marketing companies under study to gain insight into how their companies can effectively manage their working capital to enhance their financial performance. The management will employ the best policies for application. The research will provide valuable information regarding the petroleum sector. Being upcoming entrepreneurs the academicians will be furnished with relevant information regarding working capital management. The research will contribute to the general body of knowledge and form a basis for further research. The Petroleum Institute of East Africa would also use the findings to enhance its curriculum.

Regulatory bodies like Energy Regulation commission and the Ministry of Energy can use the findings to improve on the framework for regulator of oil marketers in Kenya. Policy makers will also be able to formulate and implement new set of policies regarding the working capital management in the oil industry. With the recently published bill on oil price controls, and the new directive from the Ministry of Energy for the Kenya's oil parastatal (NCK) to procure 30% of national consumption as a strategic stocks, the study will provide useful insights in the viability of such national policies.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter summarizes the information from other researchers who have carried out their research in the same field of study. The specific areas covered here are theories on working capital, empirical review and its effect on financial performance.

2.2 Working Capital Management Policies

Financing of current assets from current liabilities particularly in the form of interest free credit from suppliers is less expensive source of financing than equity or long-term debt capital (Van Vorne 1995). The type of working capital policy operated will be dictated by such factors as the growth rate of the company, its size, nature of its industry whether it is manufacturing or non manufacturing and by the risk altitude of the firm's management. Pandey and Parera (1997) provided an empirical evidence of working capital management policies and practices of the private sector manufacturing companies in Sri Lanka. They found that most companies in Sri Lanka have informal working capital policy and company size has an influence on the overall working capital policy (Formal or informal) and approached (Consevative, moderate or aggressive)

Anand (2001), asserted that an individual company's investment in working capital will be related to the type of industry it operates in and the essential working capital policy

each individual company adopts. Working capital investment decisions concerns how much of the firms limited resources should be invested in working capital. Financing decisions relate to how investment in working capital is to be invested. What may be considered as an optimal level in one company may differ from another company due to difference in operations or business characteristics across industries.

Working capital requirements are also likely to change over time in response to changes in company's operation (Block and Hilt 1992). Companies can adopt any of these three distinct working capital policies; an aggressive policy, moderate policy and a conservative policy.

2.2.1 A Conservative Working Capital Policy

A far as investment is concerned, a conservative working capital policy is a play safe philosophy. At its most, the policy will attempt to provide sufficient long-term financing to cover all anticipated eventualities. A conservative policy implies relative high investment in current assets in relation to sales, the current assets to sales ratio will be comparatively high and assets turnover ratio will be low. In a conservative approach stock and cash levels will generally be kept high to avoid stock out and illiquidity costs. There is also likely to be a sizeable investment in short-term bank deposits and other short-term liquid investments (Copeland and Weston 1998)

2.2.2 An Aggressive Working Capital Policy

Citman (1997) contributed that an aggressive policy relies on minimum investment in current assets and is highly dependent on access to short-term financing. He stated that with an aggressive policy, total investment in current assets will be kept to a minimum. The current asset to sales ratio will be much lower and the current assets turnover ratio much higher in comparison to a conservative policy. The study contributed that an aggressive working capital policy will use long-term finance to fund its investment in permanent fixed assets and also a substantial part of its permanent current assets; short-term financing will be used to fund temporary current assets needs and part of the permanent current assets requirement. Citman (1997) also made an observation that if conservative and moderate policies were to be compared, an aggressive policy will achieve higher returns but will also carry high risk due to its higher dependency on short-term financing

2.2.3 A Moderate Working Capital Policy

Citman (1997) stated that a moderate or balanced capital falls midway between the aggressive and conservative policies. With a moderate policy, the level of investment in the current assets is neither lean nor excessive. Following a moderate policy, long-term funds are used to finance the investment in fixed assets and the permanent components of current assets investments. Temporary or seasonal current assets are financed by short-term sources of finance. The moderate policy is less risky than the aggressive policy but more risky than the conservative policy. The company only resorts to short-term

financing when seasonal or temporary demands require it. Returns under a moderate policy are corresponding higher than under a conservative policy but lower than an aggressive policy.

2.3 Theories on Working Capital

2.3.1 The Operating Cycle Theory

The operating cycle theory looks explicitly at one side of working capital that of current assets and therefore gives income statement measures of firms operating activities that is about production, distribution and collection. Receivables, for instance are directly affected by the credit collection policy of the firm and the frequency of converting these receivables into cash matters in the working capital management. By granting the customers more liberal credit policy, the profitability will be increased but at the same time liquidity will be sacrificed. The same analysis goes for other components of current assets account. However the operating cycle theory tends to be deceptive in that it suggests that current liabilities are not important in the course of the firm's operations. Our understanding of payables as the source of financing the firm's activities can be assailed as a result. Given this inadequacy of the operating cycle theory, it is essential to infuse current liabilities in the picture to enhance our analysis and understanding. Although the operating cycle considers financial flows come from receivables and inventory, it ignores the financial flow coming from accounts payables in this regard. Richards and Laughlin (1980) suggested the cash conversion cycle which considers all relevant cash flows comes from the operations

2.3.2 The Cash Conversion Cycle Theory

The theory integrates both sides of working capital. In their seminal paper Richards and Laughlin (1980) devised this method of working capital as part of a broader framework of analysis known as the working capital cycle. It claims that the method is superior to other forms of working capital analysis that rely on ratio analysis or a decomposition of working capital as claimed above. The cash conversion cycle is calculated by subtracting the payables deferral period ($365/\text{annual payables turnover}$), from the sum of the inventory conversion period ($365/\text{annual inventory turnover}$) and the receivable conversion period ($365/\text{annual receivable turnover}$).

Since, each of the three components is denominated by some number of days the cash conversion cycle is expressed as a number of days. It has been interpreted as a time interval between the cash outlays that arise during the production of output and the cash inflows that result from the sale of the output and the collection of the accounts receivables.

2.3.3 The Net Trade Cycle Theory

The net trade cycle is basically equal to the cash conversion cycle where the three components of the cash conversion cycle (receivables, inventory and payables) are articulated as a percentage of sales this makes the net trading cycle easier to calculate and less complex. Soenen (1993) investigated the relationship between the net trade as a measure of working capital and return on investment in the US firms. The results of chi-square test indicated a negative relationship between the length of net trade cycle and

return on assets. Furthermore this inverse relationship was found different across industry. A significant relationship for about half of the industries studied indicated that the results might vary from industry to industry. A further study by shin and soenen (1998) argued that the net trading cycle is a better working capital efficiency measure compared with the cash conversion cycle and the weighted cash conversion cycle because it indicates the number of days sales the company has to finance its working capital and the working capital manager can easily estimate the financial needs of working capital expressed as the function of expected sales growth. The reason for using net trading cycle is because it can be an easy device to estimate for additional financing needs with regards to working capital expressed as a function of the projected sales growth. This relationship can be examined using correlation and regression analysis by industry should working capital intensify.

Using a comp start sample of 58,983 firm years covering the period 1975-1994 in all cases they found a strong negative relationship between the length of the firm's net trade cycle and its profitability. In addition shorter net trade cycle is associated with higher risk adjusted stock returns. In other works, shin and soenen (1998) suggest that one possible way the firm to create shareholder value is by reducing firm's net trade cycle

2.4 Working Capital Financing Management and Profitability

In intention to discover the relationship between efficient working capital management and firm's profitability (Shin & Soenen, 1998) used net-trade cycle (NTC) as a measure of

working capital management. NTC is basically equal to the CCC whereby all three components are expressed as a percentage of sales. The reason for using NTC is that it can be an easy device to estimate for additional financing needs with regard to working capital expressed as a function of the projected sales growth. This relationship is examined using correlation and regression analysis, by industry and working capital intensity. Using a Compustat sample of 58,985 firm years covering the period 1975-1994, in all cases, they found, a strong negative relation between the length of the firm's net-trade cycle and its profitability. In addition, shorter NTC are associated with higher risk-adjusted stock returns. In other word, (Shin & Soenen, 1998) suggest that one possible way the firm to create shareholder value is by reducing firm's NTC'.

The study of (Shin & Soenen, 1998) consistent with later study on the same objective that done by (Deloof, 2003) by using sample of 1009 large Belgian non-financial firms for the period of 1992-1996. However, (Deloof, 2003) used trade credit policy and inventory policy are measured by number of days accounts receivable, accounts payable and inventories, and the cash conversion cycle as a comprehensive measure of working capital management. He found a significant negative relation between gross operating income and the number of days accounts receivable, inventories and accounts payable. Thus, he suggests that managers can create value for their shareholders by reducing the number of days accounts receivable and inventories to a reasonable minimum. He also suggests that less profitable firms wait longer to pay their bills.

In another study, (Lyroudi & Lazaridis, 2000) use food industry Greek to examined the cash conversion cycle (CCC) as a liquidity indicator of the firms and tries to determine its relationship with the current and the quick ratios, with its component variables, and investigates the implications of the CCC in terms of profitability, indebtedness and firm size. The results of their study indicate that there is a significant positive relationship between the cash conversion cycle and the traditional liquidity measures of current and quick ratios. The cash conversion cycle also positively related to the return on assets and the net profit margin but had no linear relationship with the leverage ratios. Conversely, the current and quick ratios had negative relationship with the debt to equity ratio, and a positive one with the times interest earned ratio. Finally, there is no difference between the liquidity ratios of large and small firms.

2.5 Empirical Review

The impact of working capital on a firm's performance has been done by various scholars. Overly it can be deduced that there exist a significant relation between performance and working capital management by using different variable selection for analysis. Narware (2004) in his empirical study on Indian National Fertilizer Limited, for 1990-91 to 1999-2000 signify that working capital management and profitability of the company disclosed both negative and positive association. He found evidence that increase in the profitability of a company was less than the proportion to decrease in working capital. However, the study done by Raheman & Nasr, (2007) on a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of 6 years from 1999

2004, demonstrate a strong negative relationship exists between variables of the working capital management represented by liquidity and debt with profitability of the firm.

On his part, Ganesan, (2007) analyzed the working capital management efficiency of firms from telecommunication equipment industry. The variables used to represent the working capital are days sales outstanding, days inventory outstanding, days payable outstanding, days working capital, and current ratio while profitability and liquidity represent by cash conversion efficiency, income to total assets and income to sales. This study found evidence that even though "day's working capital" is negatively related to the profitability, it is not significantly impacting the profitability of firms in telecommunication equipment industry. However, this was contrary to the results of Chowdhury and Amin (2007) who had found positive correlations between WCM with financial performance of the Pharmaceutical industry in Bangladesh. Whilst, Afza and Nazir (2007) through cross-sectional regression models on working capital policies, profitability and risk of the firms, found a negative relationship between the profitability measures of firms and degree of aggressiveness on working capital investment and financing policies, their result indicates that the firms yield negative returns if they follow an aggressive working capital policy by investigating the relative relationship between the aggressive or conservative working capital policies for 208 public limited companies listed at Karachi Stock Exchange for a period of 1998-2005.

According to Padachi (2006) high investment in inventories and receivables is associated with lower profitability. He used return on total assets as a measure of profitability for a sample of 58 small manufacturing firms in Mauritius for the period 1998 –2003. His findings reveal an increasing trend in the short-term component of working capital financing. Similar to most recent study by Christopher and Kamalavalli, (2009), which focus on 14 corporate hospitals in India for the period 1996-97 to 2005-06. Their correlations and regression analysis signifying that working capital component namely current ratio, cash turnover ratio, current assets to operating income and leverage negatively influence profitability.

A study by Kieschnick, LaPlante and Moussawi (2008) using data on a panel of U.S. corporations from 1990 through 2004, established the importance of working capital management to firm value. Their study used stock's excess return to represent the firm value and findings show that on average an additional dollar invested in net operating working capital reduces firm value and this indicates that their study is consistent with industry surveys suggesting that some firms over invest in net operating working capital.

The cash conversion cycle had been widely used as a major component representing working capital. One of the earlier studies done by Jose, Lancaster and Stevens(1996) for the twenty-year period from 1974 through 1993 of 2,718 firms offers strong evidence that aggressive working-capital policies indicated by shorter cash conversion cycle enhance profitability. Their findings are similar to Lazaridis and Tryfonidis (2006) that showed there is a statistical significance between profitability, measured through gross operating

profit and the cash conversion cycle using the sample of 131 companies listed in the Athens Stock Exchange (ASE) for the period of 2001-2004. In addition, a relatively recent study by Uyar (2009) also found a significant negative correlation between the CCC with profitability measured by return on asset but not significant with return on equity. By utilizing ANOVA and Pearson correlation analyses of the corporations listed in the Istanbul Stock Exchange (ISE) for the year 2007, he indicates that the firms with shorter CCC are more likely to be more profitable than the firms with longer CCC.

On his part, Nazir (2009) analyzed the impact of aggressiveness of working capital investment and financing policies in Pakistan for a sample of 204 non-financial firms listed at Karachi Stock Exchange for the period of 1998-2005. They evaluated on firm returns i.e. return on assets and Tobin's Q to represent market performance and indicates that firms adopting an aggressive approach towards working capital financing policy give more value to the firms while inverse relationship between the aggressiveness of working capital investment policies on firm performance exist. These results are consistent with Afza and Nazir (2007) that using Tobin's Q to represents stock market performance of Karachi Stock Exchange. According to Irene & Lee (2007) who researched on the prevailing working capital management practices of some well-performed Malaysian public firms listed on Bursa Malaysia, they examined the correlation between profitability and the level of working capital of the sample firms and found out that profitability and working capital are linearly related positively to a certain extent.

Schilling (1996) mentions optimum liquidity position, which is minimum level of liquidity necessary to support a given level of business activity, in his writing. He says it is critical to deploy resources between working capital and capital investment, because the return on investment is usually less than the return on capital investment. Therefore, deploying resources on working capital as much as to maintain optimum liquidity position is necessary. Then he sets up the relationship between CCC and minimum liquidity required such that if the CCC lengthens, the minimum liquidity required increases; conversely, that if the CCC shortens, the minimum liquidity required decreases.

In an intention to discover the relationship between efficient working capital management and firm's profitability (Shin & Soenen, 1998) used net-trade cycle (NTC) as a measure of working capital management. NTC is basically equal to the CCC whereby all three components are expressed as a percentage of sales. The reason by using NTC because it can be an easy device to estimate for additional financing needs with regard to working capital expressed as a function of the projected sales growth. This relationship is examined using correlation and regression analysis, by industry and working capital intensity. Using a Compustat sample of 58,985 firm years covering the period 1975-1994, in all cases, they found, a strong negative relation between the length of the firm's net-trade cycle and its profitability. In addition, shorter NTC are associated with higher risk-adjusted stock returns. In other words, (Shin & Soenen, 1998) suggest that one possible way the firm to create shareholder value is by reducing firm's NTC.

The study of (Shin & Soenen, 1998) consistent with later study on the same objective that done by (Deloof, 2003) by using sample of 1009 large Belgian non-financial firms for the period of 1992-1996. However, (Deloof, 2003) used trade credit policy and inventory policy are measured by number of days accounts receivable, accounts payable and inventories, and the cash conversion cycle as a comprehensive measure of working capital management. He founds a significant negative relation between gross operating income and the number of days accounts receivable, inventories and accounts payable. Thus, he suggests that managers can create value for their shareholders by reducing the number of days accounts receivable and inventories to a reasonable minimum. He also suggests that less profitable firms wait longer to pay their bills.

In other study, (Lyroudi & Lazaridis, 2000) use food industry Greek to examined the cash conversion cycle (CCC) as a liquidity indicator of the firms and tries to determine its relationship with the current and the quick ratios, with its component variables, and investigates the implications of the CCC in terms of profitability, indebtedness and firm size. The results of their study indicate that there is a significant positive relationship between the cash conversion cycle and the traditional liquidity measures of current and quick ratios. The cash conversion cycle also positively related to the return on assets and the net profit margin but had no linear relationship with the leverage ratios. Conversely, the current and quick ratios had negative relationship with the debt to equity ratio, and a positive one with the times interest earned ratio. Finally, there is no difference between the liquidity ratios of large and small firms.

2.6 Summary

Working capital management is a significant area of financial management, and the administration of working capital may have an important impact on the profitability and liquidity of the firm. Most empirical studies relating to working capital management and profitability support the fact that aggressive working capital policies enhance profitability. Working capital, sometimes called gross working capital, simply refers to the firm's total current assets (the short-term ones), cash, marketable securities, accounts receivable, and inventory. While long-term financial analysis primarily concerns strategic planning, working capital management deals with day-to-day operations.

The main objective of working capital management is to maintain an optimal balance between each of the working capital components. The hedging approach suggests that the long-term funds should be used to finance the fixed portion of current assets requirements. Corporate performance has been identified as a potential determinant of working capital financing policies. Different authors on working capital have given different interpretations of the impact of taxation on working capital financing decisions in the major industrial countries. Some are concerned directly with tax policy. Size plays an important role in determining the working capital financing policies of a firm. Two variables are used as proxies for the firm's requirement for debt financing. These are return on assets (profitability) and the ratio of dividends to capital (dividends). A firm's stream of retentions will lead to a steady, semi-automatic reduction in the book debt ratio over time.

Most previous studies focus on developed market (Peel & Wilson, 1996; Shin & Soenen, 1998 and Deloof, 2003). Thus there exists a gap in literature on the effect of working capital financing policies on the profitability of the firm in developing countries. Thus investigating this issue could provide additional insights and perhaps different evidence on the working capital management in emerging capital market. This will surely enrich the finance literature on this issue. As a result, it will build up confidence in investor to invest in that firm.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the research design, the population of interest, the basis of sample selection, data collection, the sources of data, the techniques of analysis used and the data analysis.

3.2 Research Design

The research design adopted was cross-sectional study in which data will be gathered just once over the period 2007 to 2011. This study was carried out through the use of secondary data as detailed in oil industry in Kenya annual reports. From the same financial statements, the researcher obtained the data for various variables included in the study from the financial statements in their annual report. The research design for this study was causal as the study endeavored to determine the relationship between working capital management and financial performance of oil marketing firms in Kenya.

3.3 Population

The population of the research consisted of all oil marketing firms in Kenya registered with Petroleum Institute of East Africa (PIEA) within Nairobi and its environs. There are 53 oil companies register by PIEA in Kenya.

3.4 Sample Design and Sample size

Sampling is 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 & Mugenda, 2003: 260) Gay (1983) suggested that for correlation research, 30 cases or more are required. Since this study involved correlation analysis to identify the relationship between working capital management in the oil industry in Kenya to performance, a sample of 30 oil companies was selected from the population.

3.5 Data Collection

Data was collected from annual reports from financial statements. These included the latest published annual reports, Profit after tax, current assets, current liabilities, fixed assets and long term debt and equity of institutions to be surveyed. The Annual report of the firm was obtained between 2007 to 2011 which was the study period

3.6 Data Analysis

The data collected was analyzed by use of Microsoft Excel 2010 and Statistical Package for Social Sciences (SPSS) Version 17. Microsoft Excel assisted in grouping the data to facilitate comparison. The data will be converted into percentages so as to lie between 0 and 1. This study used SPSS software package to aid in data analysis. Regression analysis was used to determine the relationship between two variables (working capital management and profitability) was used to find out whether independent variables

predicted a given movement in the dependent variable. The Chi-square test (χ^2), a non-parametric test was used to test the goodness of fit, test the significance of association between two attributes, and test the homogeneity or the significance of population variance (Kothari, 1984; Mugenda & Mugenda, 1999). The analysis was at 0.05 level of significance.

Content analysis was used to test data that is qualitative nature or aspect of the data collected from the open ended questions. A multivariate regression model was applied to determine the relative importance of each of the three variables with respect to the status of effect of working capital management on profitability.

The general form of the model was:

$$i \text{ NOP}_t = \beta_0 + \sum \beta_i X_{it} + \epsilon_{it}$$

i it

$$a \text{ } \beta_0 \sum \beta_i X_{it} + \epsilon_{it} \quad (14.3.1)$$

$\text{NOP}_i t$: Net Operating Profitability of firm i at time t ; $i = 1, 2, \dots, 30$ firms

β_0 : The intercept of equation

β_i : Coefficients of X_{it} variables

X_{it} : The different independent variables for working capital Management of firm i at

Time t

t : Time = 1, 2,.....5years.

ϵ : The error term

Specifically, when we convert the above general least squares model into our specified Variables it becomes:

$$NOP_{it} = \beta_0 + \beta_1 (ACP_{it}) + 2 \beta (ITID_{it}) + 3 \beta (APP_{it}) + 4 \beta (CCC_{it}) + 5 \beta (CR_{it}) + 6 \beta (DR_{it}) + 7 \beta (LOS_{it}) + 8 \beta (FATA_{it}) + \epsilon \text{ (Eq. 3.2)}$$

NOP: Net Operating Profitability

ACP: Average Collection Period

ITID: Inventory Turnover in Days

APP: Average Payment Period

CCC: Cash Conversion Cycle

CR: Current Ratio

DR: Debt Ratio

LOS: Natural logarithm of Sales

FATA: Financial Assets to Total Assets

ϵ :The error term.

(Source: Graham and Harvey (2001))

Profitability will be measured using:

(i) Return on equity (ROE) ratio. The reason is that ROE ratio is comparable between one companies to the other and can indicate the profitability of one industry with the other (Helfert, 2001). Return on equity (ROE) ratio indicates the profitability of the company. ROE measures the rate of return on common stockholder's investment.

$$\text{ROE} = \text{Net Income} / \text{Common Equity}$$

(ii) Equity multiplier –which describes the value of all assets compare to the value of equity of the company. It can also be considered as the amount of debt used over the total assets that the company has. The formula for equity multiplier is:

$$\text{Equity Multiplier} = \text{Total Assets} / \text{Total Equity}$$

It can also be:

$$\text{Equity Multiplier} = 1 + \text{Total Debt} / \text{Total Equity}$$

The correlation analysis is done to analyze the association between working capital management efficiency and profitability. To examine the relationship among there variables, Pearson correlation coefficients was calculated.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION OF THE RESULTS

4.1 Introductions

The data obtained from the financial statements of 30 oil marketing companies register by PEA in Kenya was used to compute the ratios used as proxies to measure working capital management. These were then fed into SPSS version 17. To measure the effect of Working Capital Management on Net operating profitability correlation analysis was used. Fixed effects of time were also evaluated.

This chapter presents data analysis results. It sets off with the descriptive statistics then it presents tests of fixed effect of company specific factors. Correlation analysis follows next and culminates in a discussion of each of the variables.

4.2 Descriptive Statistics for Selected Measures of Working Capital Management and Profitability

Descriptive statistics were computed for both metrics measuring profitability and that measuring working capital management. The results show that the average Net Operating Profitability among 30 oil companies in Kenya is 0.08 i.e. 8% with a standard deviation of 0.13. The companies have an Average Collection Period of 17 days with a standard deviation of 4.06. The Average Inventory Turnover in Days is 48 days while Average Payment Period for the firms is 68 days. The average Cash Conversion Cycle is 11 days

with a huge standard deviation of 35.7. The negative CCC is very healthy for the oil companies as it means that they get paid 11 days earlier by their customers before they pay their creditors. Debt Ratio on the other hand is 0.21.

Table 4. 1 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
NOP	30	-.46	.29	.0783	.13411
ACP	30	2.35	17.06	8.1993	4.11290
ITID	30	19.67	139.72	48.7288	32.98869
APP	30	36.75	165.02	68.3580	27.44568
CCC	30	112.41	71.02	-11.4299	35.54924
DR	30	.00	1.12	.2050	.31751
Valid N (listwise)	30				

4.2.1 Comparative means of various WCM ratios and NOP for each of the oil companies

Apart from Gulf Energy Limited which had a negative mean for Net Operating Profitability of -0.04, all the other retail chains had positive net operating profitability. The best performing in this respect was Total Kenya Limited (mean 0.13) while the least

performing was Gulf Energy Limited (mean = 0.04). Libya Oil Kenya Limited had the least ACP of 5 days while Engen Kenya Limited had the highest at 14 days. Similarly, Engen Kenya Limited had the highest I1D of 116 days while Libya Oil Kenya Limited had the lowest of 28 days. Gulf Energy Limited had the highest APP of 96 days while Banoda Oil Limited had the lowest of 41 days. The worst CCC was that of Engen Kenya Limited of 44 days followed by Banoda Oil Limited of 1 day. All the other marketing firms had negative cash conversion cycles with the lowest being that of Gulf Energy Limited of -48 days. These results suggest the existence of company-specific factors that potentially affect WCM and NOP. As such, test for fixed effects are carried out in the proceeding sections to verify this.

Table 4. 2: Comparative means of various WCM ratios and NOP for each of the oil companies

	Company					
	Banoda Oil Limited	Libya Oil Kenya Limited	Engen Kenya Limited	Gialana Oil Kenya Limited	Gulf Energy Limited	Total Kenya Limited
	Mean	Mean	Mean	Mean	Mean	Mean
NOP	.09	.08	.11	.12	-.04	.13
ACP	5.06	5.00	14.21	7.17	10.59	7.17
TTD	37.14	28.27	116.48	36.33	37.81	36.33
APP	41.48	47.09	85.87	69.71	96.30	69.71
CCC	.72	-13.82	44.83	-26.20	-47.90	-26.20
DR	.04	.05	.34	.01	.79	.01
Others	.10	8.58	35.32	79.04	-58.04	.82

4.3 Comparative Means of Various WCM Ratios and NOP for the Years under Review

The results in the table below suggest that profitability across the six firms was highest in 2010 (mean 0.15) and lowest in 2007 (mean 0.04). ACP has remained fairly constant oscillating between 7 and 10 days. ITID varied over time with the highest being in 2008 and 2010 at 58 days and the lowest being 36 days in 2007. Apart from year 2007 which had a high APP of 80 days, APP remained fairly constant over time at 65 days. CCC was negative for all the years and it fluctuated a lot between -1 day and 29 days. DR on the other hand remained fairly constant for years 2008 and 2009 at 0.15 and then increased to a new level of 0.25 in 2008 and remained in this level till 2010. These findings seem to indicate that these ratios are time-invariant. Again, fixed effects panel data analysis model is used in the next section to verify this.

**Table 4. 3: Comparative Means of Various WCM Ratios and NOP for the Years
under Review**

	Year				
	2007	2008	2009	2010	2011
	Mean	Mean	Mean	Mean	Mean
NOP	.04	.06	.06	.15	.09
ACP	7.02	8.36	9.96	8.25	7.42
ITID	36.18	42.75	55.90	53.11	55.71
APP	64.72	80.38	66.54	64.22	65.93
CCC	-21.52	-29.28	-.68	2.86	-2.80
DR	.14	.15	.25	.25	.24

4.4 Correlation analysis

Table 4. 4: Correlation Analysis

		Correlations					
		NOP	ACP	IID	APP	CCC	DR
NOP	Pearson Correlation	1					
	Sig. (2-tailed)						
ACP	Pearson Correlation	-.296	1				
	Sig. (2-tailed)	.112					
IID	Pearson Correlation	.104	.677**	1			
	Sig. (2-tailed)	.585	.000				
APP	Pearson Correlation	.630**	.659**	.348	1		
	Sig. (2-tailed)	.000	.000	.060			
CCC	Pearson Correlation	.548**	.235	.738**	-.373*	1	
	Sig. (2-tailed)	.002	.211	.000	.042		
DR	Pearson Correlation	-.181	.432*	.295	.434*	-.011	1
	Sig. (2-tailed)	.338	.017	.113	.017	.954	

The correlation analysis above shows that there are high correlations between different measures of working capital management. The correlation between ACP and ITID is (0.677), ACP and APP is (0.659), CCC and APP is (-0.655), CCC and ITID is (0.738). To avoid multi-co linearity problem in the regression analysis, stepwise regression is used so that some of those variables which are highly correlated are removed from the model. The correlation coefficient between leverage i.e financial debt ratio and net operating profitability reveals a negative non significant relationship between the two variables. This implies that increase in debt utilization by the firms will reduce profitability. Of the five WCM variables, only CCC and APP have a significant relationship with NOP. CCC has a fairly strong significant positive correlation with NOP (Coefficient 0.548, P-Value 0.002). APP on the other hand has a negative fairly strong correlation with NOP (Coefficient -0.63, P-Value 0.000).

A multivariate regression model was applied to determine the relationship between Working Capital Management and Profitability of oil companies in Kenya. The logistic regression used in this model is:

$$NOP_{it} = \beta_0 + \beta_1 (ACP_{it}) + 2 \beta (ITID_{it}) + 3 \beta (APP_{it}) + 4 \beta (CCC_{it}) + 5 \beta (CR_{it}) + 6 \beta (DR_{it}) + 7 \beta (LOS_{it}) + 8 \beta (FATA_{it}) + \epsilon \text{ (Eq. 3.2)}$$

Where; NOP= Net Operating Profitability, ACP= Average Collection Period, ITID= Inventory Turnover in Days, APP =Average Payment Period, CCC= Cash Conversion

Cycle, DR = Debt Ratio and e = error. Regression analysis for each was done and interpreted.

4.5 Regression Analysis

4.5.1 Regression Results For 2007 -2011

Table 4. 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.863	.7448	-.726	0.148

Source, Research Data (2012)

R^2 is called the coefficient of determination and tells us how the profitability of oil marketing firms in Kenya varied with working capital management. From table above, the value of R^2 is .7448. This implies that up to 74.5% of variations in profitability of oil marketing firms in Kenya with changes in working capital management, 24.5% of variations in financial performance are due to other factors. The coefficient of correlation ($R = 0.863$). The coefficient of correlation shows that there was a strong relationship between profitability of oil companies and various factors of working capital management as shown by a factor of 1

Table 4. 6 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.399	1.033		1.091	0.255
	ACP	.019	0.107	.055	0.687	0.002
	ITID	-.011	0.139	-.262	0.97	0.005
	APP	.003	0.097	.038	0.349	0.013
	CCC	-.002	0.069	-.021	0.787	0.255
	DR	1.507	1.033	1.174	1.091	0.002

Source, Research Data (2012)

From the above coefficient results of years 2007 -2011 the established regression equation was;

$$NOP = 0.399 - 0.0602 CCC + 0.019 ACP - 0.011 ITID + 0.003 APP + 1.174 DR$$

From the above equation the study found that holding Average Collection Period, Inventory Turnover in Days', Average Payment Period, Cash Conversion Cycle and Debt Ratio to a constant zero net operating profit would be equal to 0.399. A unit increase in Cash Conversion Cycle lead to decrease in profitability by a factor of 0.002, a unit increase Average Collection Period would lead to increase in profitability by a factor of 0.019, unit increase in Inventory Turnover in Days' lead to increase in profitability by factor of 0.011, a unit increase in Average Payment Period leads to increase in profitability by factors of 0.003, further unit increase in debt ratio leads to increase in profitability by factors of 1.507.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the discussions drawn from the data findings analyzed and presented in the chapter four. The chapter is structured into discussions, conclusions, recommendations and areas for further research.

5.2 Discussions

Descriptive statistics were computed for both metrics measuring profitability and that measuring working capital management. The study found that the Net Operating Profitability among oil companies in Kenya is 0.08 i.e. 8% with a standard deviation of 0.13. Oil companies' have an Average Collection Period of 17 days with a standard deviation of 4.06. The Average Inventory Turnover in Days is 48 days while Average Payment Period for the firms is 68 days. The average Cash Conversion Cycle is -11 days with a huge standard deviation of 35.7. The negative CCC is very healthy for the retail businesses as it means that they get paid 11 days earlier by their customers before they pay their creditors. Debt Ratio on the other hand is 0.21.

On the Comparative means of various WCM ratios and NOP for each of the oil companies' s, The study found that Apart from Gulf Energy Limited which had a

negative mean for Net Operating Profitability of -0.04, all the other retail chains had positive net operating profitability. The best performing in this respect was Total Kenya Limited (mean 0.13) while the least performing was Gulf Energy Limited (mean -0.04). Libya Oil Kenya Limited had the least ACP of 5 days while Engen Kenya Limited had the highest at 14 days. Similarly, Engen Kenya Limited had the highest ITID of 116 days while Libya Oil Kenya Limited had the lowest of 28 days. Gulf Energy Limited had the highest APP of 96 days while Banoda Oil Limited had the lowest of 41 days. The worst CCC was that of Engen Kenya Limited of 44 days followed by Banoda Oil Limited of 1 day. All the other oil marketing firms had negative cash conversion cycles with the lowest being that of Gulf Energy Limited of -48 days. These results suggest the existence of company-specific factors that potentially affect WCM and NOP. As such, test for fixed effects are carried out in the proceeding sections to verify this.

The study also found that profitability across the firms was highest in 2009 (mean 0.15) and lowest in 2007 (mean 0.04). ACP has remained fairly constant oscillating between 7 and 10 days. ITID varied over time with the highest being in 2008 and 2011 at 58 days and the lowest being 36 days in 2007. Apart from year 2008 which had a high APP of 80 days, APP remained fairly constant over time at 65 days. CCC was negative for all the years and it fluctuated a lot between -1 day and -29 days. DR on the other hand remained fairly constant for years 2007 and 2008 at 0.15 and then increased to a new level of 0.25 in 2009 and remained in this level till 2010. These findings seem to indicate that these ratios are time-invariant. Again, fixed effects panel data analysis model is used in the next section to verify this.

From the correlation analysis the study found that there are high correlations between different measures of working capital management. The correlation between ACP and ITID is (0.677), ACP and APP is (0.659), CCC and APP is (-0.655), CCC and ITID is (0.738). To avoid multi-co linearity problem in the regression analysis, stepwise regression is used so that some of those variables which are highly correlated are removed from the model. The correlation coefficient between leverage i.e. financial debt ratio and net operating profitability reveals a negative non significant relationship between the two variables. This implies that increase in debt utilization by the firms will reduce profitability. Of the five WCM variables, only CCC and APP have a significant relationship with NOP. CCC has a fairly strong significant positive correlation with NOP (Coefficient 0.548, P Value 0.002). APP on the other hand has a negative fairly strong correlation with NOP (Coefficient -0.63, P-Value 0.000).

The study found that the regression equation for the period 2007 to 2011 to determine the relationship between Working Capital Management and Profitability of retail oil companies in Kenya were

$$NOP = 0.399 - 0.0602 CCC + 0.019 ACP - 0.011 ITID + 0.003 APP + 1.174 DR$$

From the above summarized regression model for the five years, the study found that there exist a relationship between Working Capital Management and Profitability of oil companies in Kenya. The study found the intercept to vary though with the highest value being 0.399 and the lowest being -2.626, this mean that profitability of oil companies would range between -2.626 and 0.399 holding various factors of working capital

management types to a constant zero. The study also found the coefficient of 'Cash Conversion Cycle, Average Collection Period, Inventory Turnover in Days' and Average Payment Period vary from positive to negative. Debt Ratio was found to vary on the positive having it highest coefficient thus highest effect on profitability of oil companies in Kenya. These findings contradict the findings of Myers and Majlof (1984), Rajan and Zingales (1995), shin and Soenen (1998) and Deloof (2003) who predicted a negative relationship between leverage and profitability.

From the Adjusted R² the study found that, there was a variation of 100% of profitability of oil companies in Kenya with changes in working capital management at a confidence level of 95%. This means that 100% of the profits of oil companies in Kenya is attributable to working capital management. The coefficient of correlation shows that there was a strong relationship between profitability of oil companies and various factors of working capital management as shown by a factor of 1.

5.3 Conclusions

The study concludes that there exists relationship between Working Capital Management and Profitability of retail oil companies in Kenya; leverage was found to positively influence the profitability of Oil Company's s in Kenya

5.4 Recommendations

The study recommends that for oil companies s in 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.

5.5 Recommendations for further studies

This study has investigated the impact of working capital management on the profitability of the oil industry in Kenya. To this end therefore a further study should be carried out to assess the impact of working capital management on the profitability of other industrial sectors.

5.6 Limitations of the Study

A limitation for the purpose of this research was regarded as a factor that was present and contributed to the researcher getting either inadequate information or responses or if otherwise the response given would have been totally different from what the researcher expected.

The main limitations of this study were; some was not readily available. This reduced the probability of reaching a more conclusive study. However, conclusions were made with this available data. The size of the sample could have limited confidence in the results and this might limit generalizations to other situations. Time- Due to official duties time was a major concern.

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APPENDIX I:

LIST OF CORPORATE OIL MARKETING COMPANIES IN KENYA REGISTERED WITH PEA

Senior corporate

- 1) Hashi Energy Ltd
- 2) Hass petroleum Ltd
- 3) Kenya shell Ltd
- 4) Kenol/Kobil Ltd
- 5) National oil corporation of Kenya (Nock)
- 6) Libya oil Kenya Ltd
- 7) Total Kenya Ltd
- 8) Gulf Energy ltd
- 9) Kenya Petroleum Refineries ltd
- 10) Kenya Pipeline Company

Junior corporate

- 11) Addax Kenya Ltd
- 12) Bakri International Energy IO (K) Ltd
- 13) Banoda Oil Ltd
- 14) Boc Gases
- 15) Cyn Energy Company Ltd
- 16) Dalbit petroleum Ltd
- 17) East African Gasoil Ltd

- 18) Fingen Kenya Ltd
- 19) Gialana Oil Kenya Ltd
- 20) Gapco Kenya Ltd
- 21) Global Petroleum Ltd
- 22) Hunkar Trading Co. Ltd
- 23) Intoil Limited
- 24) Jade Petroleum Ltd
- 25) Mgs International (K) Ltd
- 26) Oil com Ltd
- 27) Petro Oil Kenya
- 28) Ranway Traders Ltd
- 29) Riva petroleum Dealers Ltd
- 30) Tasha Petroleum Kenya Ltd
- 31) Trojan International Ltd.

Individual

- 32) Anil Chandaria
- 33) Balwinder Singh Saggi
- 34) Duncan P Kabiru
- 35) Edward Nduati Njenga
- 36) Eliud K Karanja
- 37) Eng Venancio M Kariuki.
- 38) Ezra Parkter
- 39) George M Wachira

- 40) Gurcharan Singh Bahra
- 41) Honice Horsey
- 42) Jeremy Andrade
- 43) John N Nganga
- 44) Joseph K Kinrie
- 45) Joshua Kituri
- 46) Kyalo Ilunga
- 47) Lydia Wanjiru Mwaniki
- 48) Nasser Mohammed
- 49) Patrick Obath
- 50) Pius M Kikuyu
- 51) Primrose Ihuku
- 52) Robert Paterson Tom Oloo Bikondo
- 53) Varun Sharma