THE RELATIONSHIP BETWEEN WORKING CAPITAL MANAGEMENT AND PROFITABILITY OF STATE OWNED COMMERCIAL ENTERPRISES IN KENYA

BY

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A MANAGEMENT RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

NOVEMBER 2010

DECLARATION

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

SIGNED.....**DATE**16/11/10

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D61/P/8027/2002

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

SIGNED.....**DATE**16/11/10

Mr. BARASA J.L

Department of Finance and Accounting,

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DEDICATION

To my dear wife

Hellen

and

my beloved children

Kiptoo

Janice

Kibet

that you may excel tenfold this level.

ACKNOWLEDGEMENT

I would like to thank my supervisor Mr. Joseph Barasa for his support and guidance during the course of my project.

My appreciation goes to the staff of National Assembly Library at Parliament from where all the financial data was obtained.

Finally my gratitude goes to my colleagues at Kenya Pipeline Company for their support during the course of my studies.

ABSTRACT

The aim of this study was to determine the most prevailing working capital management practices among state owned commercial enterprise in Kenya and to identify their relationship with profitability. It was also intended to determine if there is any difference in working capital management practices amongst state owned commercial enterprises in the economic sectors they are operating.

The study was based on the review of financial statements of state owned commercial enterprises for five years from 2005 to 2009. This period represented the turning point for most of these organizations following increased competition and the demand by the government and other stakeholders for greater efficiency in the use of financial resources, hence greater focus on working capital management was inevitable.

The study which looked at the working capital from three perspectives namely aggressive, moderate and conservative management approaches revealed that profitability is dependent on these variables. Organisations in the same industry operating on shorter cash conversion cycles than their peers are able to report better returns. Those with lower current to total asset ratios earn relatively better returns because they manage to keep the quantity of idle resources at optimum levels. The different economic sectors in which state owned commercial enterprises are represented have varied working capital characteristics which also influence their average returns on assets. The findings of this study support past empirical studies and conclusions drawn by Deloof (2003), Nyakudi (2003) and Solano (2005) regarding working capital management and its relevance to profitability.

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ABBREVIATIONS

CCC	Cash Conversion Cycle
DSO	Days Sales Outstanding
DIO	Days Inventory Outstanding
ROA	Return on Assets
GOC	Gross Operating Cycle
IRP	Interest Rate Parity
NOC	Net Operating Cycle
NSE	Nairobi Stock Exchange
NTC	Net Trade Cycle
OLS	Ordinary Least Squares
PCE	Public Commercial Enterprises
PDP	Payable Deferral Period
PPP	Purchasing Power Parity
SOCE	State Owned Commercial Enterprises
WC	Working Capital
WCM	Working Capital management

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

1.1.1 Working Capital

Working capital is the life-blood and nerve centre of any business. It comprises cash, marketable securities, debtors and inventories. It is important to retain the right level of working capital as no business can run effectively without a sufficient quantity. An enterprise should have neither excess working capital nor inadequate working capital because both of these have adverse effects on profitability and liquidity positions. Firms with too few current assets may encounter shortages and face difficulties in maintaining smooth operations (Horne and Wachowicz, 2000).

1.1.2 Working Capital Management Practices

Enforcing an effective working capital management practice is an excellent way for many companies to improve their earnings. Working capital management revolves around analysis of key performance ratios and the management of individual components of working capital. Ratio analysis will lead management to identify areas of focus such as management of inventory, cash, accounts receivable and payables.

Smith (1980) suggests that working capital management is important because of its effects on a firm's profitability and risk, and consequently its value. A company's investment in working capital forms a substantial percentage of its total investment (Weston and Copeland, 1990).

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 the one hand and avoid excessive investment in these assets on the other hand (Eljelly, 2004).

Many surveys have indicated that managers spend considerable time on day-to-day problems that involve working capital decisions. One reason for this is that current assets are short-lived investments that are continually being converted into other asset forms (Rao, 1989). With regard to current liabilities, the firm is responsible for paying these obligations on a timely basis. Liquidity for the ongoing firm is not reliant on the liquidation value of its assets, but rather on the operating cash flows generated by those assets (Soenen, 1993). Taken together, decisions on the level of different working capital components become frequent, repetitive, and time consuming. Working Capital Management is a very sensitive area in the field of financial management (Joshi, 1994). It involves timely decisions on the amounts and composition of current assets and the financing of these assets. Current assets include all those assets that in the normal course of business return to the form of cash within a short period of time, ordinarily within a year and such temporary investment as may be readily converted into cash upon need. Because Working Capital affects enterprise profitability, the basic objective of managing working capital is to ensure the firm's current assets and current liabilities are satisfactorily maintained.

1.1.3 State Owned Commercial Enterprises

State Owned Commercial Enterprises (SOCE) is a section of State Corporations that are operating on commercial basis and generate their own revenue. State Corporations are majority

owned by the government (over 50% shareholding). These organizations are considered profitable and progressive if properly managed. To come under the category of ' state owned commercial enterprise ' these agencies should carry on trade on behalf of the government. The others are regulatory and are largely funded by the state. Present in both developed and developing economies, SOCE's are established to address market deficits & capital short-falls in sectors or regions where the private sector either shied away from or lacked the capacity to make heavy investments, promote economic development, provide employment and ensure there is a certain level of national control over the overall direction of economic growth. The success of these institutions in developing economies is however threatened by poor governance which has turned some of them into inefficient loss making entities limiting their viability and sustainability as vehicles for future development. (Muhammad, 1958)

1.1.4 Presence of State Owned Commercial Enterprises in Kenya

There are 148 state corporations in Kenya but according to a recent classification by the State Corporations Contracting and Performance Evaluation Unit, in the Prime Minister's Office, only 29 are commercially oriented. After Kenya achieved political independence in 1963 a comprehensive promotion of the State Corporations sub-sector was carried out resulting in the rapid growth of Government's participation in commercial activities. This was driven by a national desire to (i) accelerate economic social development; (ii) redress regional economic imbalances; (iii) increase Kenyan Citizen's participation in the economy; (iv) promote indigenous entrepreneurship; and (v) promote foreign investments (through joint ventures). This aspiration was expressed in the Sessional Paper No. 10 of 1965 on African Socialism and its application to planning in Kenya. By 1979, state enterprises were quite prevalent and even

enjoyed monopolistic privileges in certain sectors of the economy but signs of their inefficiency had began to emerge. This led to a comprehensive review of the public enterprises performance vide review reports titled 'Review of Statutory Boards (1979)' and 'Report of the Working Party on Government Expenditures (Ndegwa, 1982)

The Report on Review of Statutory Boards identified serious system inefficiencies and financial mismanagement while the Report on the Working Party on Government Expenditures concluded that although productivity of the state corporations was quite low they continued to absorb an excessive portion of budgetary support, thereby becoming the principal causes of long-term fiscal problems. It further noted that the resources diverted to finance activities of state corporations' could have contributed more to national development if their activities were left in the hands of the private sector. Parliament enacted a State Corporations Act (cap 446) to facilitate parastatal streamlining but that move did not yield much result as performance continued to deteriorate. Notwithstanding, the state corporations continued relying on public sector for funding using loans borrowed by the government and channeled to them, or loans borrowed by the enterprises on government guarantees which in most cases ended up being unpaid because huge overheads continued to impact negatively on working capital(Privatization Commission, 2005).

A Schedule of State Owned Commercial Enterprises in Kenya is given under Appendix 1

1.2 Statement of the Problem

The ultimate objective of any firm is to maximize profits at the same time preserve liquidity. A tradeoff between these two objectives is critical. Profitability guarantees survival while poor liquidity invites insolvency or bankruptcy. A study by Long, Maltiz et.al (1993) and Deloof and Jegers, (1996) found that if working capital management is not given proper consideration it will ultimately affect the profitability of the firm. Large inventory and a generous trade credit policy may lead to high sales. Larger inventory reduces the risk of a stock-out. Trade credit may stimulate sales because it allows customers to assess product quality before paying.

Another component of working capital is accounts payable. Delaying payments to suppliers allows a firm to assess the quality of bought products, and can be an inexpensive and flexible source of financing for the firm. On the other hand, late payment of invoices can be very costly if the firm is offered a discount for early payment. A popular measure of Working Capital Management (WCM) is the cash conversion cycle, i.e. the time lag between the expenditure for the purchases of raw materials and the collection of sales of finished goods. The longer this time lag, the larger the investment in working capital (Deloof, 2003). A longer cash conversion cycle might increase profitability because it leads to higher sales. However, corporate profitability might also decrease with the cash conversion cycle, if the costs of higher investment in working capital rise faster than the benefits of holding more inventories and/or granting more trade credit to customers.

Past research in working capital management by Kesseven (2006), Chowdhury (2007) among others focused on privately owned or quoted companies or on a wider scope of public enterprises. Nyakundi (2003) did a study on the survey of working capital management in public

enterprises in Kenya, focusing on the whole public enterprises both quoted and un-quoted. The aim of this survey is to identify the key management practices that influence working capital management in commercial parastatals sub-sector in Kenya and how such practices may have influenced their profitability.

This discussion of the importance of working capital management, its different components and its effects on profitability leads us to the research questions which form the key objective of this study: What are the key practices that influence working capital management in State Owned Commercial Enterprises? What is the relationship between working capital management practices and profitability among State Owned Commercial Enterprises?

1.3 Research Objective

To determine the most prevailing working capital practices among state owned commercial enterprise in Kenya.

To identify the relationship between working capital management practices and profitability of state owned commercial enterprises in Kenya.

To determine if there is any difference in working capital management practices amongst state owned commercial enterprises in different economic sectors.

1.4 Importance of the Study

The study seeks to benefit the following among others with its findings:

a) Management

Public sectors financial managers will be able foresee any financial challenges and opportunities and act appropriately and promptly. Poor working capital increases financial pressure resulting in late payments to creditors, poor credit rating and subsequently higher bank interest rates. Every manager aspires to avoid this problem.

b) Financial analyst

Provides them with quantitative and qualitative information not readily available in financial statements of companies so that they can be able to give better advice to users of financial information they provide.

c) Investors

With ongoing privatization of public institutions, potential investors will be able to assign more realistic values to their target firms by seeing through the underlying opportunities or threats.

d) Government

Since the study is directed at state owned commercial enterprise, the government stands to benefit immediately with critical information that can help improve or even reengineer performance contracting and evaluation criteria.

e) Scholars and Researchers

This study provides scholars and other researchers with useful information to critique financial management conceptual framework underlying working capital management theories and practices with a view to developing more robust financial models.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

To conceptualize the principles of working capital in view of the research problem and objective, this section looks at the various working capital concepts and the underlying theories and practices. Specifically the following will be discussed: definition of working capital, working capital management, need for working capital and strategies of working capital management.

2.2 Working Capital

Working capital is defined from two conceptual viewpoints either at Gross and Net terms. Gross Working Capital refers to the firm's investment in current assets. Current assets are the assets which can be converted into cash within an accounting year or operating cycle and include cash, short- term securities, debtors, bills receivable and inventory. Net Working Capital refers to the difference between current assets and current liabilities. Current liabilities are those claims of outsiders which are expected to mature for payment within an accounting year and include creditors, bills payable and outstanding expenses. A negative net working capital occurs when current liabilities exceed current assets. From managerial view point, the above two concepts are mutually inclusive and they cannot be independently evaluated in isolation. Current assets management focuses attention on how to optimize investment in current assets in addition to how they should be financed (Pandey, 1999).

When businesses make investment decisions, they must not only consider the finances required in acquiring the new machines , but also take account of the additional current assets that any expansion or activity will usually entail. Increased output tends to hold additional inventories of raw material and WIP. A general increase in the scale of operations tends to imply a need for greater levels of cash. Underlying challenges if not properly managed exposes the business to the risk of inadequate or surplus working capital (Mclaney, 2009). Working capital structure and size is determined by the nature of business, market demand, technology and manufacturing policy, credit policy, supplies' credit, operating efficiency and inflation (Pandey, 1999)

2.3 Working Capital Management Practices

Working Capital Management is the administration of all aspects of current assets namely cash, marketable securities, debtors and inventories and current liabilities. The financial manager must determine levels and composition of current assets. He must see that the right sources are tapped to finance current assets and that current liabilities are paid in time. Empirical observations show that financial managers have to spend much of their time on daily internal operations relating to current assets and current liabilities of the firms. Thus as the largest portion of their time is devoted to working capital problems, it is necessary to manage working capital in the best possible way to get maximum benefit (Weston and Brigham, 1975).

Firstly cash is held to cover transaction motives. Other reasons are either precautionary or compensatory. Cash balances are determined by the level of daily, weekly, and monthly inflows and outflows and although the generation process may be continuous, inflows are unpredictable and uneven. Managing this uncertainty requires combination of various strategies which include float management, mail system efficiency, EFT usage, lockbox operation and international

transfers via Swift where applicable and appropriate. A treasury manager has a virtual securities market from where to invest surplus cash but in doing so, he must consider the yield, maturity, safety and marketability of the instrument (Block and Hirt, 1992). To decide how much to invest, Miller and Orr cash inventory management models are useful. As per the Miller and Orr model of cash management, firms allow their cash balance to move within two limits - the upper limit and the lower limit. Companies buy or sell marketable securities only if their cash balances equal any one of these. When the cash balances touch the upper limit the signal is on to purchases a certain number of salable securities that helps them to come back to the desired level. If the cash balances drop to the lower level then the company trades its salable securities and gathers enough cash to raise the float. Other applicable models include Baumol which is similar to Economic Order Quantity (EOQ) Model and Stone Model is somewhat similar to the Miller-Orr Model (Meness and Zietlow, 1998).

Secondly, accounts receivable is an investment whose returns must at least equal or exceed the potential gains from other competing commitments. In making any decision, three key policy variables will have to be considered in line with profit objective namely credit standards (risk), terms of trade and collection policy. The collection policy embodies three important performance indicators; average collection period, ratio of bad debts to credit sales and aging of accounts receivable (Block and Hirt, 1992).

Thirdly, inventory is the least liquid working capital item; hence returns from it should be significantly higher than cash or receivables to justify investing in it. Inventory from a manufacturing enterprise perspective is divisible into three components, raw materials, work in progress and finished goods. These inventories require funding hence their efficient management

could significantly improve firm's profitability. It is not as easy to manage inventory as it is for liquid assets. This is because inventory management as in a typical manufacturing firm falls in more than one department. In addition control is influenced by other variables such as level versus seasonal production decision and inventory policy in inflationary or deflationary situations. Seasonal production eliminates inventory carrying cost but the cost of idle capacity must be absorbed. Alternatively, can savings from level production exceed inventory carrying costs? This scenario presents a typical financial analysis challenge which Economic Order Quantity (EOQ) inventory decision model has tried to resolve. The objective of the model is to ensure production inventory is optimized at minimum aggregated ordering and carrying cost. The model is expressed as: $EOQ = (2SO/C)^{1/2}$, where 'S' is sales, 'O' is ordering cost and 'C' is carrying cost per unit. To eliminate the risk of stock outs inherent in this model, minimum stock or safety stock is essential. It comes with additional carrying cost but that should be offset by gains from additional sales that arise due to avoidance of stock outs. Perhaps the most cost effective approach to inventory management is the Just-In-Time (JIT) policy. It allows minimum inventory to be maintained, reduces carrying costs and completely eliminates stock outs as new orders arrive just in time of need (Block and Hirt, 1992).

Fourthly, according to Block and Hirt(1992), approximately 40% of short term financing available to organizations is in the form of accounts payable or trade credit extending between 30 to 60 days. Many firms attempt to stretch this period in order to get additional short term financing but such actions could send negative credit rating signals. Other sources of funding that firms could exploit to boost their working capital positions include bank credit, commercial paper and foreign borrowing.

Lastly, financial managers can determine the optimum level of current assets at which shareholders wealth is maximized. To support the same level of output, a firm can have different levels of current assets. The level of current assets can be calculated by dividing current assets by fixed assets to obtain a ratio CA/FA which defines the kind of policy the organization follows in managing current assets. A higher ratio indicates a conservative policy while a lower CA/TA ratio means an aggressive current asset policy is preferred assuming other factors are held constant. A conservative policy implies greater liquidity and lower risk, while an aggressive policy indicates less liquidity and higher risk. Current asset policy of most firms fall within these two extreme policies (Pandey, 2005).

2.4 Working Capital Performance Measurement

The foregoing reviews of various working capital management approaches are best practices designed to enable organisations maximise their value. To move firms closer to this objective, financial managers measure their performance in view of their compliance or noncompliance to these desirable administrative and operational practices. They do this by reviewing various key working capital ratios in comparison to policy declarations and budgetary frameworks. These performance ratios include Average Collection Period, Cash Conversion Efficiency, Days Inventory Outstanding, Days Payables Outstanding, Days Sales Outstanding and Working Capital Ratio (Block and Hirt, 1992)

A firm needs to continuously monitor and control its receivables to ensure the success of collection efforts. Two methods used in evaluating the management of receivables is Days sales outstanding (DSO) and Aging schedule. DSO= (Debtors x365)/Credit sales. The calculated DSO is compared with the firms stated credit period. An extended credit period impairs the

firm's liquidity position and increases the chances of bad debt losses. The DSO measures the quality of receivables since it indicates the speed of their collectability (Block and Hirt, 1992).

Days inventory outstanding (DIO), defined also as days sales of inventory, indicates how many days on average a company turns its inventory into sales. Value of DIO varies from industry and company. In general, a lower DIO is better. Day's inventory outstanding ratio, explained as an indicator of inventory turns, is an important financial ratio for any company with inventory. It shows how quickly management can turn inventories into cash. In general, a decrease in days inventory outstanding (DIO) is an improvement to working capital, and an increase is deterioration. The days inventory outstanding formula can be calculated using the equation: Days inventory outstanding = (average inventory / cost of goods sold) * 365 days. (Block and Hirt, 1992)

The days payable outstanding (DPO) calculates the total time it takes a business to pay back its creditors. The days payable outstanding formula is calculated by taking the accounts payable divided by the cost of sales and then multiply that number by the total number of days. It can be calculated on periodic basis. If it is calculated per year, the cost of sales would be the total purchases during the year and the number of days is 365 and the formula is given as:

Days Payables Outstanding (DPO) = {(Accounts Payable)/Cost of sales} x 365days

By displaying how long it takes to pay back their creditors, the days payable outstanding model also shows how long companies could earn interest on moneys set aside to pay vendors. This is because the larger the number of days , the more interest companies are able to earn by placing cash in short term or call deposit financial instruments. This is however only positive if the

firms enjoying this facility will at some point actually pay their creditors in full without compromising their own credit ratings (Block and Hirt, 1992)

Cash conversion cycle given by the formula CCC=D1O+DSO-DPO where DIO represents day's inventory outstanding, DSO represents day's sales outstanding and DPO represents days payable outstanding is a measure of the firms cash collection efficiency and involves the application of various strategies to accelerate cash collection and decelerate cash disbursement (Horne & Wachowicz 2000). This cycle is important because it represents the number of days a firm's cash remains tied up within the operations of the business. It is also a powerful tool for assessing how well a company is managing its working capital. The lower the cash conversion cycle, the more healthy a company generally is. If the results of the cycle are compared over time and a rising trend is evident, it is often a warning sign that the business may be facing a cash flow crunch (Schein, 2010).

By reviewing working capital ratio on periodic basis, a financial manager is able to ascertain if in practice the effective working capital ratio is in line with the desired working capital policy statement. Any significant deviation from the policy will require corrective action if the policy is still desirable (Pandey, 2005).

2.5 Theoretical Literature Review

Working capital is structured into two; Gross Working Capital and Net Working Capital. Gross Working Capital refers to the firm's investment in current assets. Current assets are the assets which can be converted into cash within an accounting year or operating cycle and include cash, short term securities, debtors, bills receivable and inventory. On the other hand, Net Working

Capital is the difference between the current asset and current liabilities. Current liabilities are those claims expected to mature for payment within an accounting year and includes creditors, bills payable and outstanding expenses. Net working capital can be positive or negative. A positive working capital will arise when current assets exceed current liabilities while negative working capital occurs when current liabilities exceed current assets. These two concepts are mutually inclusive and they attract management attention in equal measure in terms of how investment in current assets and current liabilities could be optimized (Pandey, 2005)

Investment in current assets and current liabilities should avoid two danger points, excessive or inadequate investment. Investment should just be adequate to meet the needs of the firm. Excessive investment in current assets should be avoided because it impairs the firm's profitability as idle investment earns nothing, while inadequate working capital can threaten the firm's solvency due to its inability to meet its current obligation. It is therefore important to arrange funds to finance current assets whenever a need for additional funding due to business growth. And if unexpectedly some surplus funds arise, it should be invested in short term securities. Net working capital is a qualitative concept which measures the liquidity position of the firm and signals the extent to which working capital needs may be finance by permanent sources. Current assets should therefore be sufficiently above the current liabilities to constitute a margin or buffer for maturing obligations within the ordinary operating cycle of a business. It is a conventional rule to maintain current assets twice the level of current liabilities (Pandey, 2005)

Net working capital concept also covers the question of judicious mix of long term and short term funds for financing current assets because for every firm there is a minimum amount of net working capital which is permanent. Thus a portion of working capital should be financed with

permanent sources of funds such as equity share capital, debentures, long-term debt, preference share capital or retained earnings. It is the responsibility of management therefore to decide what portion of current assets should be financed with equity or borrowed capital. There is however no precise general rule that can be used to determine the exact amount of working capital a firm may need as the unique situation of each firm should be analyzed to estimate the probable amount of working capital needs (Pandey, 2005).

Current assets are needed because sales do not convert into cash instantaneously. There is always an operating cycle. Investment in current assets such as accounts receivable and inventories is realized during a firms operating cycle which is usually less than one year. An operating cycle is therefore the duration it would take to convert sales into cash after production and it varies depending on the nature of business or industry the firm is operating. Cash inflows are not certain because sales and collections which give rise to cash inflows are difficult to forecast accurately (Moyer, 1984).

On the other hand, cash outflows are relatively certain. A firm needs to maintain liquidity to purchase raw materials and pay expenses such as wages and salaries, other manufacturing, administrative and selling expenses and taxes as there is hardly any matching between cash inflows and outflows. Cash is also held to meet any future exigencies. Stock of raw materials and work in progress are kept to ensure smooth production and to guard against stock outs so that a firm can continue meeting demands from customers through uninterrupted production, sales and debt collection as per the length of the operating cycle. The operating cycle of a manufacturing company is the sum of (i) inventory conversion period (ICP) and (ii) debtors conversion period (DCP). The inventory conversion period is the total time needed for producing and selling of the

product, while the debtor's conversion period is the time required to collect the outstanding amount from the customers. The total of inventory conversion period and debtor's conversion period is the gross operating cycle (GOC) (Richards and Laughlin 1980)

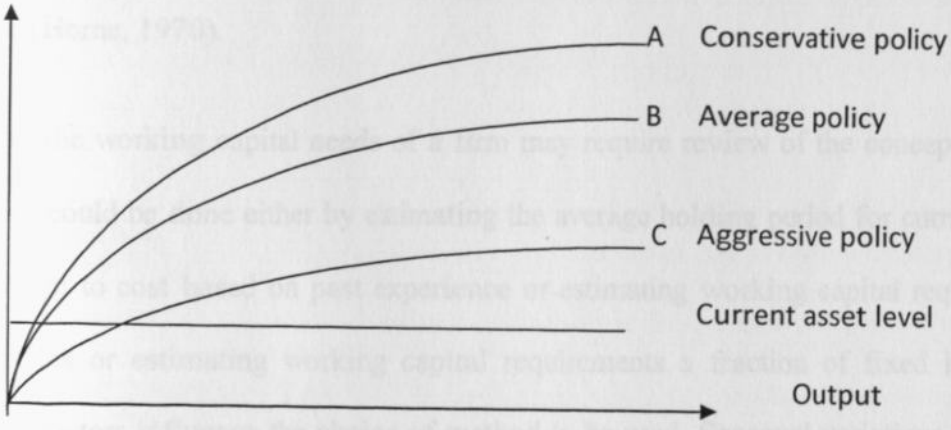
Practically, a firm could acquire materials on credit but temporarily postpone payment. Deferment of payment is a spontaneous source of capital to finance investment in current assets. The payable deferral period (PDP) is the length of time the firm is able to defer payments on various resources purchased. The difference between the gross operating cycle (GOC) and payable deferral period (PDP) is the net operating cycle (NOC) (Richards and Laughlin 1980)

The minimum level of working capital continuously required by the firm is referred to as permanent or fixed working capital. The extra level of capital required to insulate the firm from market dynamics is called variable working capital. Excessive working capital refers to idle funds which earn no profit for the firm. Scarcity of working capital not only impairs the firm's profitability but also results in production interruption and inefficiencies. Thus an enlightened financial manager should maintain the right amount of working capital on a continues basis (Ramamoorthy, 1976)

The level of investment in working capital for a typical firm should not be less than 50%. It is over 50% for a manufacturing company and even much higher for a distribution or retail company (Horne and Wachowicz, 2000). Working capital composition and management efficiency affects a firm's capital risk, return and share price (Mathur, 2002). A firm needs fixed assets and current assets to support a given level of output, but to support the same output level, the firm can have varied levels of current assets. Generally speaking, current assets do not

increase in direct proportion to output. It takes a greater proportional investment in current assets when only a few units are produced than when more units are produced.

Working capital can be measured by obtaining a relationship between current assets and fixed assets where the later is assumed to be constant. This is done by dividing current assets by fixed assets that is CA/FA ratio. A higher ratio indicates a conservative policy while a lower ratio reflects an aggressive current asset policy (Horne, 1975). The alternative current asset policies are shown in the following graphical representation.



The most conservative policy is indicated by alternative A, where CA/FA ratio is greatest at every level of output. Alternative C is the most aggressive policy, as the CA/FA ratio is lowest at all levels of output. Alternative B lies between the conservative and aggressive policies and is an average policy (Horne, 1975)

Companies could make just the right investment in current assets if they were able to estimate with certainty the desirable working capital needs. Under conditions of certainty, large investments in current assets will earn fewer returns while lower investment would result in interruption of production schedules due to frequent stock outs and inability to pay creditors as

their claims fall due. Notwithstanding these challenges, firms nevertheless decide on the level of current assets to be carried based on their working capital policies which may either be conservative, aggressive or moderate. These policies are founded on the risk return trade-off frameworks which mean that for any given policy decision, there is an opportunity cost. A conservative policy results in lower return due to lower risk while an aggressive policy promises higher returns because of the increased associated risk. Thus profitability and solvency is critical in working capital management. To record higher profits, a firm will have to sacrifice solvency and maintain a relatively lower level of current assets. Profits will improve as lesser funds are tied up in current assets, but this action exposes the firm to insolvency due to cash shortages and stock outs (Horne, 1970).

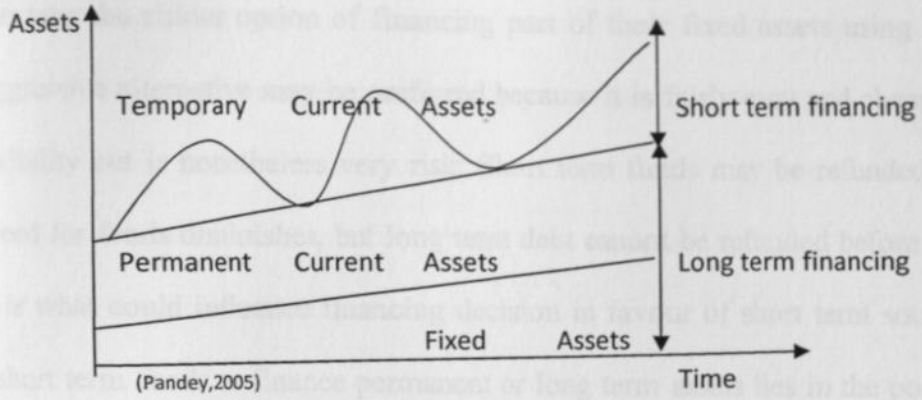
Estimating the working capital needs of a firm may require review of the concept of operating cycle. This could be done either by estimating the average holding period for current assets and relating them to cost based on past experience or estimating working capital requirement as a ratio of sales or estimating working capital requirements a fraction of fixed investment. A number of factors influence the choice of method to be used. Seasonal variations in operations, accuracy of sales forecast, variability in sales price and investment cost would also be considered. Production cycle, credit and collection policies of the firm are likely to impact on working capital needs. These variables should therefore be given appropriate weight in projecting working capital requirements (Pandey, 2005)

The level of fixed asset requirement is not static. It increases with time but there is always a minimum which is continuously needed to support the operations. This minimum is called

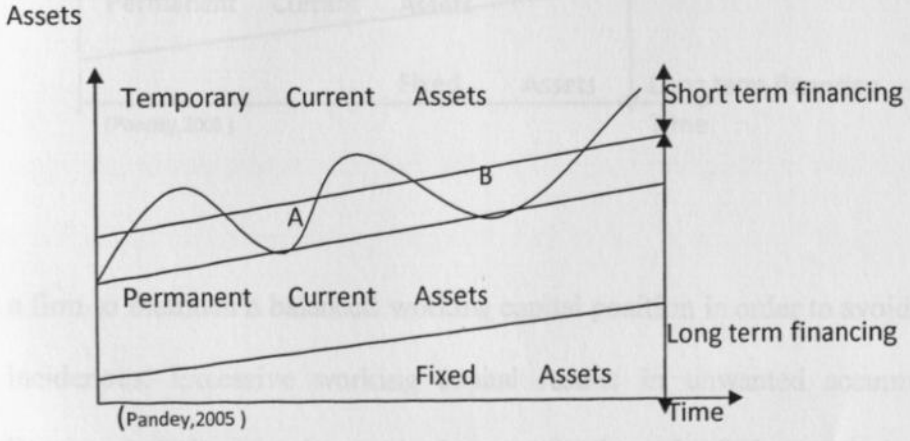
Permanent or fixed working capital. It is the needs over and above this level that is variable and is also defined as fluctuating or temporary working capital (Ramamoorthy, 1976).

Financing current assets can be done by adopting three policy principles. The first and the least risk is long term financing approach whose sources include ordinary share capital, preference share capital, debentures and long term debts from banks and retain earnings. Secondly is the short term financing and comes in such packages as bank overdrafts, commercial paper, factoring of receivables, pubic deposits etc. The third source of funding is the spontaneous trade credit finance from suppliers of goods and services. It is the choice of mix between long term and short term sources of working capital financing that would categorize the company's policy approach to working capital management as conservative, aggressive or matching (Weston and Brigham, 1975).

Matching approach to financing assets also known as hedging approach can be adopted by firms to align the expected life of assets with the expected life of the sources of funds raised to finance them. Long term financing will be used to fund fixed assets and permanent current assets, while short term financing can only be used for temporary or variable assets. However this arrangement does not make a perfect match because the economic life of some assets cannot be accurately estimated. The graph below illustrates the matching plan concept over time. The firms fixed assets and permanent current assets are financed with long term funds. As the level of these assets grow, the long term financing level also increases. Temporary or variable current assets are financed with short term funds and as their level increase, the level of short term funding also increases (Pandey, 2005).

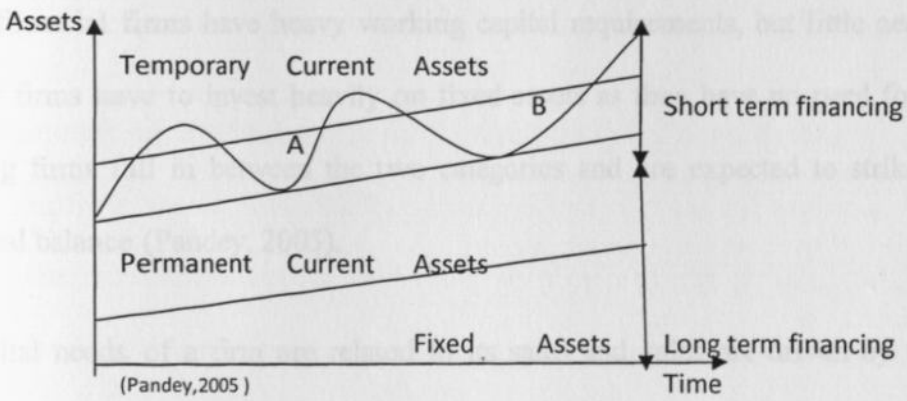


In reality, a firm may adopt a conservative approach to financing fixed and current assets. It becomes conservative if the firm relies on long term funding to finance some of its current assets alongside permanent assets. With this approach, the firm relies heavily on long term sources and is unlikely to be exposed fund shortages. The conservative financing policy illustrated below shows that when the firm has no temporary current assets, the long term funds consequently released as indicated at points A and B can be invested in marketable securities to expand the firm's liquidity position (Pandey, 2005).



Under aggressive working capital financing, a firm applies part of its short term working capital finances to pay for permanent current assets and in certain cases some extremely aggressive

companies can take the riskier option of financing part of their fixed assets using short term funds. This aggressive alternative may be preferred because it is fairly easy and cheap to access due to its flexibility but is nonetheless very risk. Short term funds may be refunded relatively easily if the need for funds diminishes, but long term debt cannot be refunded before time. This consideration is what could influence financing decision in favour of short term sources. The risk of using short term funds to finance permanent or long term assets lies in the possibility of renewing the loan time after time because of mismatch in inflow and outflow. Aggressive financing is illustrated below (Pandey, 2005).



It is critical for a firm to maintain a balanced working capital position in order to avoid excessive or deficiency incidences. Excessive working capital results in unwanted accumulation of inventories leading to escalating carrying costs. It is a reflection of a faulty credit policy and a sluggish collection effort resulting in to bad debts thus adversely affecting profits. It distracts management focus resulting to managerial inefficiency. Profit growth becomes more speculative than realistic and dividend policy becomes uncertain. On the other hand, inadequate working

capital stifles growth, and profits. It makes operations inefficient as daily commitments may not be easily met. Profitability is suppressed because permanent assets not fully utilized for lack of working capital resources. Inability to honour short term credits also dampens the organizations credit rating further compromising on growth potential. Firms should therefore maintain the right amount and mix of working capital at all times (Ramamoorthy, 1976).

To ensure that the right amount and mix of working capital is attained, several factors ought to be considered. These include the nature of business, sales and demand conditions, technology and manufacturing policy, credit policy, availability of credit, operating efficiency and price level changes (Pandey, 2005).

Trading and financial firms have heavy working capital requirements, but little need for fixed assets. Utility firms have to invest heavily on fixed assets as they have no need for inventory. Manufacturing firms fall in between the two categories and are expected to strike a delicate working capital balance (Pandey, 2005).

Working capital needs of a firm are related to its sales and sales are driven by the level of growth. A growing firm should invest on fixed assets to support demand and working capital to support operations. Sales are influenced by demand conditions. In times of booming demand, firms invest additional funds on fixed assets to increase productivity and that drives inventory and debtors upwards justifying the need to borrow for capital investment. However in times of depression, sales will fall and along with it all other working capital variables except permanent working capital. This seasonality in demand conditions affects working capital management decisions. Some firms may prefer to counter this challenge by adopting a level production policy

in order to exploit capacity to the fullest and sell off the excess production at peak season and hope it will be more than adequate to cover the carrying cost (Pandey, 2005).

Technology and manufacturing policy may affect working capital in the sense that an alternative advanced fast production plant can shorten the inventory conversion cycle by reducing the production cycle (Pandey, 2005).

The credit policy of a firm affects its level of working capital by determining the level of debtors. A liberal credit policy may increase the level of debtors but is detrimental as it increases the likelihood of bad debts. A too strict policy could undermine sales and reduce working capital. Thus to ensure funds are unnecessarily tied up in debtors, a firm should follow a rational credit policy in which each customer's credit worthiness is carefully rated (Pandey, 2005).

Access to cheap bank credit reduces a firms the need for large working capital requirements. Efficiency in operation translates to a shorter cash conversion cycle and improved profitability. Rising price levels promote uncertainty forcing management to invest in more working capital at current prices for fear of price escalation. It also makes financial sense to immediately revise product prices upwards to minimize pressure on working capital (Pandey, 2005).

2.6 Strategies of Working Capital Management

According to Soenen (1993), concentration banking is the acceleration of cash collections from customers by having funds sent to several geographically situated regional banks and transferred to a main concentration account in another bank. The transfer of funds can be accomplished through the use of depository transfer cheques or electronic transfers. The net effect is to reduce

significantly the time the cheque is in the mail, be more efficient and gain maximum returns from multiple operations.

A centralized cash disbursement structure is advocated because it provides a better view of the company's cash position than divisional branches. Such an arrangement facilitates short term investment or liquidation decisions in the most appropriate and timely manner while ensuring that disbursement account is adequately funded. It is a more accurate and swift cash forecasting method enabling treasury manager to advice on whether or not to accept discounts. A centralized payment system also reduces the likelihood of fraud through duplicate payments while at the same time reducing banking costs (Solomon and Pringle, 1977).

Marcia and Robinson (1990) define money market instruments as debt instruments issued by private organizations, governments, and government agencies, generally with maturities of one year or less. They are highly liquid investments, and include Treasury bills, bankers' acceptances, commercial paper and short-term tax-exempt municipal securities, and negotiable bank Certificates of Deposits. Elton (2009) puts financial instruments into two categories namely direct and indirect investments. Direct investments have a time horizon of less than one year and they are commonly referred to as money market instruments in the form of debt or equity or derivatives if their payoff depends on maturity of other assets. Indirect investments are investments in shares of investment companies (mutual funds) and they are either closed or open ended.

Bort and Warren (1990) define cash flow forecast as "an estimate of the timing and amounts of cash inflows and outflows over a specific period (usually one year). A cash flow forecast shows

if a firm needs to borrow, how much, when, and how it will repay the loan. It is also called cash flow budget or cash flow projection''.

The Online Encyclopedia defines stretching of payables as "Postponing payment of the amount due to suppliers beyond the end of the net (credit) period; also called leaning on the trade". Companies can improve reported operating cash flow by slowing down the rate of payments to their vendors. In other words, reported operating cash flows can be improved due solely to a change in policy to slow the payment rate to vendors. If analysts or investors expect the current period improvement to continue, they may be mistaken; vendors will eventually put increasing pressure on the company to pay more timely. According to Horne & Wachowicz (2000), if a firm stretches it payables excessively so that payables are significantly delinquent, its credit rating will suffer. Suppliers will view the firm with apprehension and may insist on strict terms of sale if, indeed, they sell at all. Therefore, any benefit may be unsustainable or, at minimum, any year-over-year improvement in operating cash flow may be unsustainable. The extension of payables can be identified by monitoring day's sales in payables (DSP). This is calculated as the end-of-period accounts-payable balance divided by the cost of goods sold and multiplied by the number of days in the period. As DSP grow, operating cash flows are boosted.

Business finance.com defines Account receivables factoring as "the selling of accounts receivable or invoices in order to secure immediate, working capital (cash)". This allows a business to sell on credit without running short of cash. Factoring is a unique financial innovation. It is a method of converting a non productive, inactive asset into a productive asset. According Westerfield and Firer (2004) factoring is a secured short term loan involving the sale of accounts receivable to a factor

The foreign exchange risk is founded on the theory of purchasing power parity (PPP) formulated in the 17th century but its major pronouncement featured prominently in the early 20th century (Gustav, 1916). They embodied International Parity Relations (IPR) in their writings which to date underlie the foreign exchange rate management and constitutes a powerful theoretical framework towards understanding and explaining the dynamics of working capital management. Treasury managers use PPP theory in forecasting exchange rates or for determining the currency composition of their portfolios.

In the absence of a single world currency, the market for foreign exchange determines the value of one country's currency in relation to another on the basis of demand and supply. The Concise Encyclopedia of Economics defines the foreign exchange market as a market where international currency is traded for a domestic currency.

It is with this background that competent treasury managers often take positions regarding the movement of foreign currency rates by, obtaining quotes from more than one bank, confiding with the treasury dealer at the bank on the position he wishes to cover so that the banker can work towards it, having standing instructions to cover exposure when away from office, stop loss order if the trend threatens to go beyond a comfort zone. In a very volatile market, a treasury manager should be able to make very quick decisions to lock in a position before it shifts. When in doubt, partial hedge is the answer. There is no auspicious day for booking foreign exchange exposure and if one feels that the rate offered is reasonable, one should at least book a part of the exposure rather than leaving the entire exposure to be covered on a single day in the future. A good average rate for a series of transactions is more important than a very good rate for one transaction.

Spot rates and forward rates in the foreign exchange market are critical. Forward rates are quoted at either premium or discount depending upon whether the currency is at premium or discount and it is, therefore, important that a corporate treasurer informs the appropriate period to the corporate dealer to enable him to give an accurate rate.

A corporate treasurer can efficiently manage his foreign exchange risk with help by a bank which has a well equipped dealing room with the necessary infrastructure facilities and trained dealers who have the support of over-seas dealing centers.

Keynes (1930) Organizations with international networks exploit the principle of Interest Rate Parity (IRP) to create value on monetary deposits by moving funds from a lower to a higher interest rate market. This arbitraging process founded on IRP theory development just like the PPP theory is driven by the law of one price.

Most firms borrow to address unanticipated cash needs, either directly from banks or through the commercial paper market such as issuance of a bond, debenture, or other debt security. In exchange for lending the money, bond holders and others become creditors of the business and are entitled to the payment of interest and to have their loan redeemed at the end of a given period. Long-term debt financing usually involves a business' need to buy the basic necessities for its business, such as facilities and major assets, while short-term debt financing includes debt securities with shorter redemption periods and is used to provide day-to-day necessities such as inventory and/or payroll (Scott, 2003)

According to Horne & Wachowicz (2000), cash conversion cycle is ''a metric that expresses the length of time, in days, that it takes for a company to convert resource inputs into cash

flows. The cash conversion cycle attempts to measure the amount of time each net input dollar is tied up in the production and sales process before it is converted into cash through sales to customers. This metric looks at the amount of time needed to sell inventory, the amount of time needed to collect receivables and the length of time the company is afforded to pay its bills without incurring penalties.

It is calculated as: CCC=D1O+DSO-DPO

Where:

DIO represents days inventory outstanding

DSO represents days sales outstanding

DPO represents days payable outstanding

2.7 Empirical Literature

The foregoing conceptual framework of working capital management set the stage for researchers to study working capital concepts, strategies and policies in view of the need for efficiency and improved returns. For decades they have often arrived at concurrent or conflicting findings.

2.7.1 Factors of Working Capital Management

To speed up cash collection, a study by Gitman (1986) showed that virtually all-large firms in the United Kingdom (UK) used lockbox systems to accelerate the collection process, but more than 50% of small firms avoided it due to associated high operating cost. This survey further reveals that to collate funds together for use, over one-half of all large firms use concentration

banking, with wire transfers and depository transfer cheques being the primary means of moving funds from one bank to another. Their study also notes the key tool for managing cash disbursement is the zero-balance accounts which are centrally controlled. It was used by about 70% of large firms in the UK.

As a strategy for managing cash, an organization can skip discount offers and instead stretch accounts payable. A Survey on "Size and Industry Effects," paper presented at the Financial Management Association's 1983 Annual Meeting by Hill et.al (1983) notes that in deciding whether to take the discount, the primary criterion of most firms is the amount of the discount. This makes good financial sense, since the amount of discount along with the delay period from the discount date to the due date determines the cost of skipping as a source of financing. They revealed three important factors that are considered by firms in deciding whether to use this strategy; the value of using the funds (that is the cost of the funds relative to other funding sources), the effects on relationships with supplies and the impact on the firm's credit rating.

To manage surplus funds, a survey conducted by Kamath, et.al (1985) indicates that most large firms invest surplus cash in money market instruments. Commercial papers, certificates of deposit, repurchase agreements, treasury securities, and banker's acceptances are the most popular instruments.

Factoring Accounts Receivables to boost working capital has been traditionally used for many years. A survey by Farragher (1986) on 33 firms showed that most of them use this traditional form of financing. The researcher also found that there is a growing interest among the firm in using Factoring as an alternative means of financing.

2.7.2 Relationship between Working Capital Management and Profitability

Shin & Soenen (1998) studied the Net-Trade Cycle (NTC) to discover the relationship between efficient working capital management and firm's profitability. NTC simply expressed as Cash Conversion Cycle (CCC) divided by sales was calculated on a sample of 58,985 firm years from 1975-1994 and by application of statistical tools of correlation and regression analysis, they found a strong negative relationship between the length of the firm's Net-Trade Cycle and its profitability. As working capital intensity was fairly estimated, and they concluded that it is possible for a firm to enhance shareholders value by reducing the NTC.

Deloof (2003) studied the effect of trade credit and inventory policies on profitability by using a sample of 1009 large Belgian non-financial firms spread from 1992-1996. The study found a significant negative relationship exists between gross operating income and the number of accounts receivable days and inventory levels. He concluded that managers can add value to shareholders by minimizing inventories and the number of accounts receivable days.

In another study Lyroudi & Lazaridis (2000) examined the cash conversion cycle of the food industry and compared the results with the respective underlying current and quick ratios and their significance on profitability, indeptness and firm size. They found a positive relationship between the cash conversion cycle and current and quick ratio liquidity parameters. In addition the cash conversion cycle, return on assets, the net profit margin and times interest earned ratios were found to be positively related. However, the current and quick ratios were inversely related to debt equity ratio. Overall, the study also found no difference between large and small firms in terms of their liquidity ratios.

Gupta and Huefner (1972) found average profitability, activity, liquidity and leverage ratios varying with industry groups, but according to Johnson (1979) a cross-sectional stability of these ratios existed among retailers and primary manufacturing groups. A five year review of the financial ratios between hospitality and industrial sector firms by Chu D.K.W (1991) also found a material difference in them inspite of the relative stability within the sectors themselves.

Filbeck and Krueger (2005) analyzed the working capital management policies of 32 non-financial industries in USA and elaborated on the significance of efficient working capital management. They noted significant differences in working capital management practices existed between industries over time. These findings concurred with those of Gombola and Ketz (1983), Soenen (1993) and Long, et al. (1993).

Pandey and Parera (1997) studied working capital management policies and practices among private sector manufacturing companies in Sri Lanka. They collected information through questionnaires and direct interviews with chief financial officers of a sample of manufacturing companies listed on the Colombo Stock Exchange. The study concludes that most companies in Sri Lanka follow informal working capital policies whose nature and approach is affected by the size and profitability of the company.

The nature of working capital management policies in terms of their aggressiveness or otherwise were studied by Weinraub and Visscher (1998) using quarterly data obtained from ten diverse US industry group firms from 1984 to 1993. They noted significantly different policies were applied in different industries and that a negative correlation exists between industry asset and liability policies. In addition, the study also found that when relatively aggressive working

capital asset policies are followed they are moderated by relatively conservative working capital financial policies.

Gardner, et al. (1986), Weinraub and Visscher (1998) concluded that higher return and higher risk are associated with more aggressive working capital policies while lower risk and return are associated with less conservative working capital policies. They concurred with Smith (1980) whose earlier studies suggested that working capital management is important because of its effects on the firm's profitability and risk, and consequently its value.

An investigation by Soenen (1993) on the relationship between the net trade cycle and the return on investment among U.S firms using the results of chi-square test showed a negative connection between the length of net trade cycle and return on assets. This negative relationship was also consistent among firms in deferent industries.

Lamberson (1995) analysed how small firms changed their working capital structure in response to changing economic activities. He found little or no relationship in them. Working capital was measured using current ratio, current assets to total assets ratio and inventory to total assets ratio, while economic activity was measured using annual average economic indicator index.

The results of Soenen (1993) were put to test by Jose, et al. (1996) who moved on to test the connection between aggressive working capital management and profitability of US firms by using Cash Conversion Cycle (CCC) to measure working capital management in which a shorter CCC represented the aggressiveness of working capital management while a longer CCC stood for otherwise. The results confirmed and reinforced the position that there exists a significant negative relationship between the cash conversion cycle and profitability. More aggressive

working capital practices are associated with higher profits while passive ones attract lower returns. Soon after studying a sample of large Belgian firms from 1992-1996 Deloof (2003), concluded profitability could be improved by lowering inventories and the number of days debtors are outstanding. This position was also supported closely by Teruel and Solano (2005) whose studies alluded to the fact that reduced inventories and accounts receivable days would drive a firm's value upwards.

In the Kenyan context, a study of the influence of working capital management components on corporate profitability among Kenyan listed firms by Mathuva, (2010) reinforced the same findings by others. From a sample of 30 firms listed at Nairobi stock exchange (NSE) from 1993-2008 using both the pooled OLS and fixed effects regression models, it was found that a notable negative relationship existed between the time firms take to collect cash from their customers and profitability implying strongly that profitable firms take a very short time to collect cash. Similarly a pronounced positive relationship between inventory conversion period and profitability was also observed. Profitability was noted to be affected by the average payment period (the time it takes the firm to settle her creditors). Firms that take a longer period to pay creditors are more profitable.

Similarly, the findings of Nyakundi, (2003) on survey of working capital management policies among quoted companies in Kenya, concurred with those of Soenen,(1993) ,Solano (2005) and Mathuva,(2010).

2.8 Conclusion

Working capital management is critical for the survival and prosperity of all businesses. Underlying theories define how financial actors should behave if they hope to effectively manage this volatile resource. Empirical studies reviewed so far have confirmed that companies that are more aggressive in managing their working capital are generally more profitable compared to their counterparts who adopt less aggressive policies and practices. Given that the purpose of this study is to examine the nature of working capital in public commercial enterprises in Kenya, and the impact of their composition and management efficiency on performance in view of the known sound management practices and standards referred to under the theoretical framework and tested in the empirical studies, it is hoped the study will provide answers to the questions and objectives of this survey.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

The methodology adopted for this study hopes to address the underlying research problem and respond satisfactorily to the stated research objective. The research design takes into account the size of the population and specifies the scope of study. To maintain consistency with the study, data collection approach specifies the source and nature of research data. Finally data analysis seeks to generate key statistical inferences supported by relevant theory and related past empirical studies to establish the relationship between working capital management practices and profitability among state owned commercial enterprises in Kenya.

3.2 Research Design

This research is a survey of the relationship between working capital management practices and profitability of state owned commercial enterprises in Kenya. These are the firms classified by the Department of Performance Contracting in the Office of Prime Minister as Commercial Enterprises because they are expected by the government to report profits in their financial statements. The survey research is designed to cover this entire population as provided in appendix I. This mode of research is chosen because the target population is small and all the research data is readily available in secondary formats. The survey design selection is expected to be helpful in inferring the findings of working capital management practices on the target population.

3.3 Population

The population of interest is the State Owned Commercial Enterprises in Kenya consisting of 29 companies in various sectors of the economy as per appendix I.

3.4 Data Collection

This study is based on secondary data only. Data will be obtained from Published Annual Financial Reports of Commercial State Corporations (the population) for the past five years from 2005 to 2009 and various studies made available through library work. The specific data required for the study will be Profit after Tax (PAT), Revenue, Current Assets, Current Liabilities, Fixed Assets, Long Term Debt and Equity of the firms surveyed. The data will further be grouped into the related sectors. The firms fall into ten economic sectors (industries).

3.5 Data Analysis

This survey aims to establish the working capital management practices in the state owned commercial enterprises in Kenya and how those practices affect profitability of those firms. To achieve this, individual company working capital management practice (policy) and profitability statistical measures will have to be computed. Data will be analyzed to determine the most prevailing working capital practices among state owned commercial enterprises in Kenya. This will require the determination of working capital policy for each company in the population by calculating the requisite key working capital ratios for a spread of five years. The applicable ones are current ratio, current assets to total assets, days sales outstanding, days inventory outstanding, days payables outstanding and cash conversion cycle. They are expressed as:

Current ratio = Current assets/Current liabilities

Current assets to total assets =Current assets/Total assets

Days Sales Outstanding (DSO) = (Debtors/Credit sales) x 365days

Days Inventory Outstanding (DIO) = (Average inventory / cost of goods sold) x 365 days.

Days Payables Outstanding (DPO) = (Accounts payable/Cost of sales) x 365days

Cash Conversion Cycle (CCC) = DSO+DIO-DPO

Consequently, a simple arithmetic mean would be calculated for each firm's working capital management policy metric for the 5 years. The results would then be grouped further into three levels namely conservative, moderate and aggressive working capital management policy perceptions. Extreme lower ratios would imply that the firms in this category are aggressive in their approach to working capital management and use current assets to fund long term assets. Extreme higher ratios on the other hand will give an impression of a conservative working capital management philosophy in which the firms use long term debt to fund some of their current assets. A moderate position would be attained with average level ratios reflecting a cautious approach to working capital management. The profitability of each firm is to be computed as a ratio of profit after tax to total assets, given as:

Return on Assets (ROA) = Profit after Tax/Total Assets

It would therefore be possible to identify the most prevailing working capital management practices among state owned commercial enterprises, and the relationship if any between the working capital policy framework adopted by each firm and its profitability, thus helping to address the first two research objectives.

Further the survey population will be classified into their industry sectors thus necessitating computation of each sector's average working capital policy profile and profitability level. The outcome would facilitate cross-industry comparative analysis to establish if there is any difference in working capital management practices in the economic sectors represented by the firms, hence responding to objective three of the study.

To confirm the relationship between each working capital management policy and profitability over 5 years, a simple linear regression analysis model is applicable.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

The study targeted 29 State Owned Commercial Enterprises but only 23 representing 79% of the population were responsive. To pursue the research objectives, the relationships between various working capital variables and profitability ratio measured by return on assets (ROA) are analysed in two folds. Firstly, a five year arithmetic mean for each company's working capital ratio and return on assets is calculated and analysed. Secondly, the firms are organised into industry groups and the arithmetic mean of each industry's working capital ratio and return on assets is also calculated and analysed. Thirdly regression equations modelling the relationships between each working capital variable and return on assets are generated for individual firms and industry groups including their respective correlation coefficients defining the degree of cohesiveness or disparity of variables from the regression lines. Finally, the working capital variables and asset returns for the firms and industries have been arranged in sequential order and further classified into three distinguishable subgroups namely aggressive, moderate and conservative working capital classes. The interpretations are given at the end of every analysis.

4.2 Assumptions

Sales are made on credit and accrued on timely basis.

Direct cost fairly represents the cost of goods or services sold.

Debtors are fairly represented by trade debtors and other receivables which are classified in the accounts under current assets.

Payables are fairly represented by trade and other payables which are classified in the accounts under current liabilities

Inventory is fairly represented by stock or materials, work in progress and finished goods classified in the accounts under current assets.

The working capital ratios are fairly constant throughout the year.

4.3 Individual Company Working Capital and Profitability Analysis

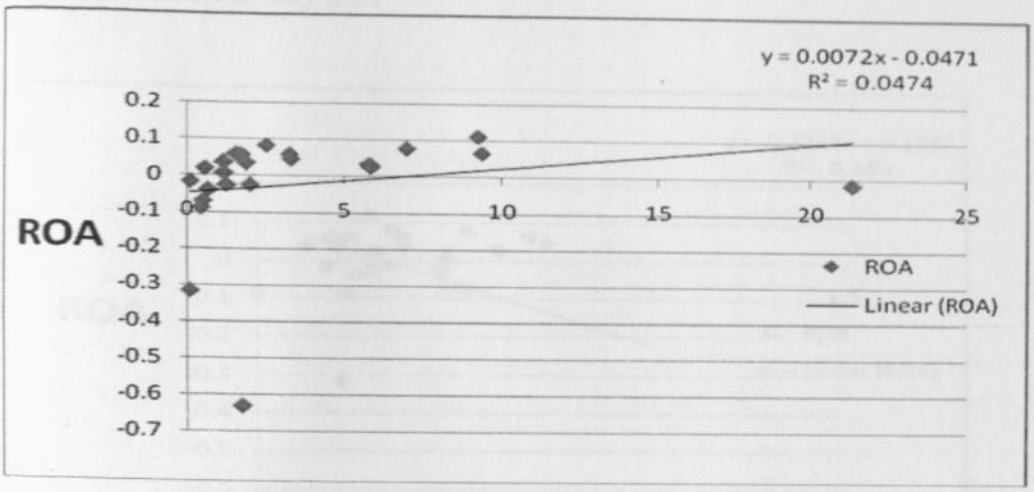
For each firm, a five year arithmetic mean, Pearson correlation coefficients and standard deviations are calculated for the required working capital ratios and return on assets and regression equations for each variable in relation to return on assets is estimated and its fitness examined using coefficients of determination (R^2). The working capital ratios and returns on assets are generated from appendix II and presented in appendix III for further analysis to determine the impact of each ratio on assets returns (ROA).

4.3.1 Current Ratio and Return on Assets

17 out of 23 firms (74%) have current ratios above 1 and a return on assets of 0.24% as given in appendix III. The other 6 firms with a ratio below 1 have an average return on asset of negative 8.7%. This group also accounts for 56% of all the firms with negative returns. The other 44% with negative returns have an average current ratio of 6.5.

Using regression concept to define the relationship between the current ratios and return on assets, the equation Y = 0.0072X -0.0471 is generated, where 'Y' is a dependent variable

representing ROA, 'X' is an independent variable representing the current ratio (CA/CL) and the slope of the regression line is 0.0072, implying that ROA increases gently with increase in the current ratio and declines with a drop in current ratio. The equation is as plotted below.

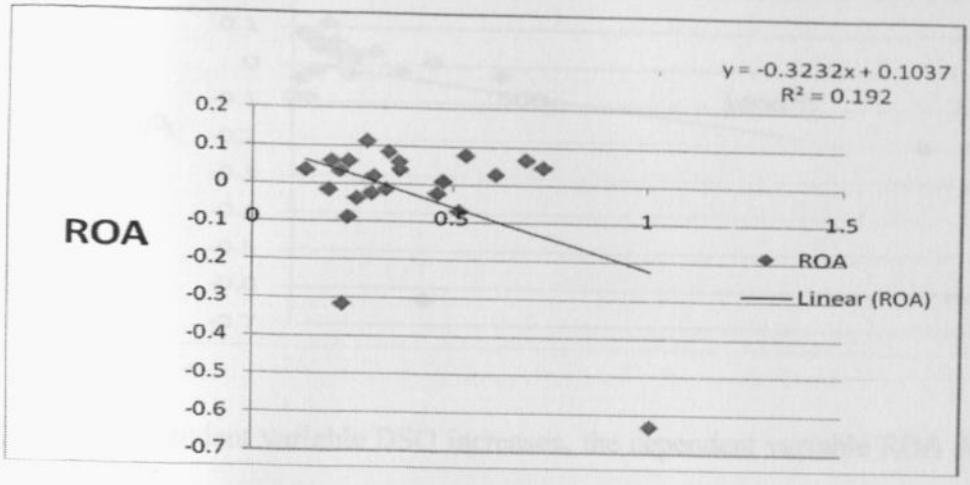


As the current ratio increases, the return on assets also increases. However the strength of the regression line to give an accurate value of return on assets (ROA) is nevertheless weak. The coefficient of determination (R^2) is 0.0474. This limitation is as a result of the wide dispersion of the independent variable leading to a large standard deviation of 4.77 around a mean ratio of 3.55.

4.3.2 Current Assets/ Total Assets Ratio and Return on Assets

The ratio of current assets to total assets (CA/TA) ranges from 0.12 to 1.00. 48% of the firms maintain an aggressive CA/TA ratio less than 0.3 and their average return on assets is negative 1%. Those with a moderate ratio above 0.3 and less than 0.6 account for 35% and have a mean return of 2%. The least aggressive (holding the largest portfolio of current assets) make up only 17% of the population studied with a return of negative 12%. This relationship is defined by the

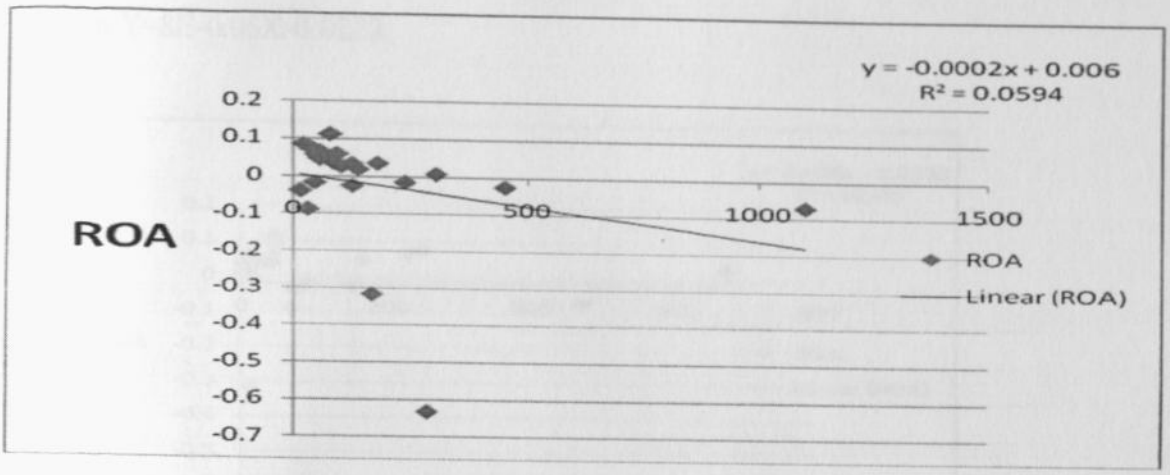
regression line Y=-0.3232X+0.1037 showing ROA declining with increase in the CA/TA ratio. The correlation coefficient of the ratio CA/TA to ROA of negative 0.44 is fairly strong depicting a closely distributed data around its own mean. CA/TA standard deviation around the mean of 0.39 is also small at only 0.21



Profitability reduces with increase in CA/TA ratio. This relationship supports Horne (1975) conclusion that profitability and solvency is critical in working capital management. To record higher profits, a firm will have to sacrifice solvency and maintain a relatively lower level of current assets.

4.3.3 Days Sales Outstanding (DSO) and Return on Assets

Firms that realize their debts within 30days account for 13% of the population and their return on assets is negative 1%. Those with a DSO of 30 to 60 days make up 26% and their average return is 5%. The remaining 61% have an average DSO of 245days and a return of negative 5%. This trend is consistent with the character of regression equation Y = -0.0002X + 0.006 as drawn in the next scatter plot

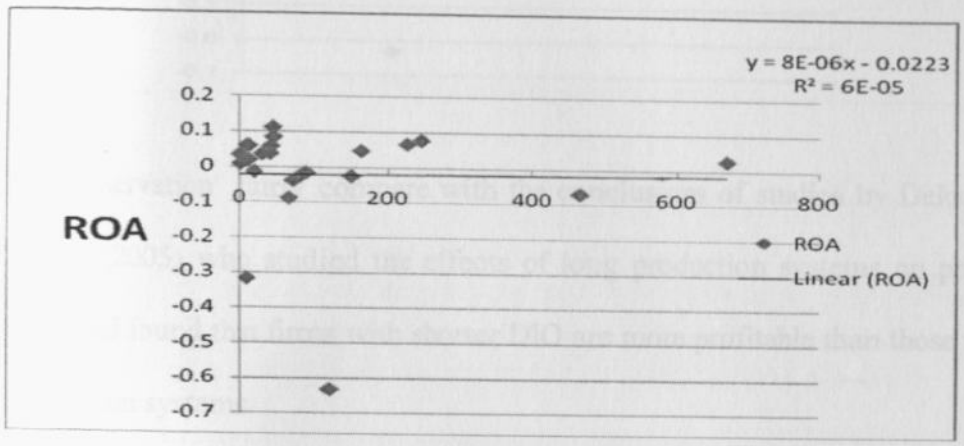


As the independent variable DSO increases, the dependent variable ROA decreases in line with the expected inverse relationship. This concurs with Block and Hirt(1990) findings that an extended credit period impairs the firm's liquidity and profitability position by increasing the chances of bad debt losses. It also agrees with a study by Deloof (2003) on several large Belgian firms which concluded that profitability could be improved by lowering the number of days debtors and inventory are outstanding. A study by Teruel and Solano (2005) also alludes to the fact that reduced accounts receivable days and inventory would drive a firm's value upwards

4.3.4 Days Inventory Outstanding (DIO) and Return on Assets

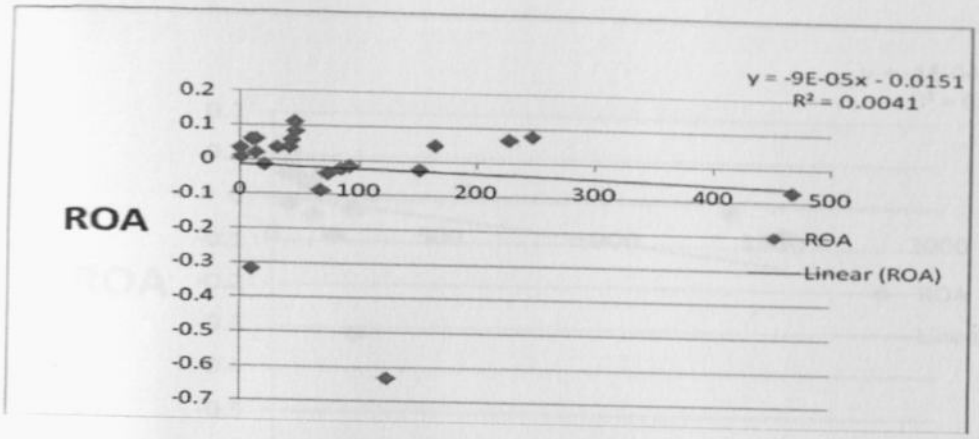
To evaluate the relationship between production efficiency and profitability, the firms are classified into three groups and their average day's inventory outstanding (DIO) is compared with corresponding average return on assets (ROA). The aggressive group comprising 7 firms (30% of the population) has a DIO of less than30days and a ROA of negative 2%. The moderate

group with DIO of 30 to 60 days makes up 22% of the population with an average ROA of 7%. The conservative group with a DIO above 60days accounts for 49% of the population with a ROA of negative 6%. The relationship is explained by the gently negatively sloping regression equation Y=8E-0.06X-0.0223.



ROA tends to decline as production schedules take long to accomplish. However a review of the reliability of this model to give an accurate estimate of ROA shows very little coherence having a correlation coefficient of 0.01 due to wide degree of data dispersion as given by the large variance of 26190. Similarly, the power of the regression equation to estimate the return on assets based on the independent variable (DIO) is also weak. The coefficient of determination (R^2) of 6E-0.05 is too small as a result of the extreme dispersion of actual ROA points compared with those obtained by the regression model.

The DIO for National Housing Corporation (NHC) is out of range in this distribution and its exclusion drastically reduces the standard deviation and consequently the error term in the regression equation. The new equation is Y=-9E-0.05X-0.0151 has a clear negatively sloping gradient indicating that as DIO increases, ROA declines.

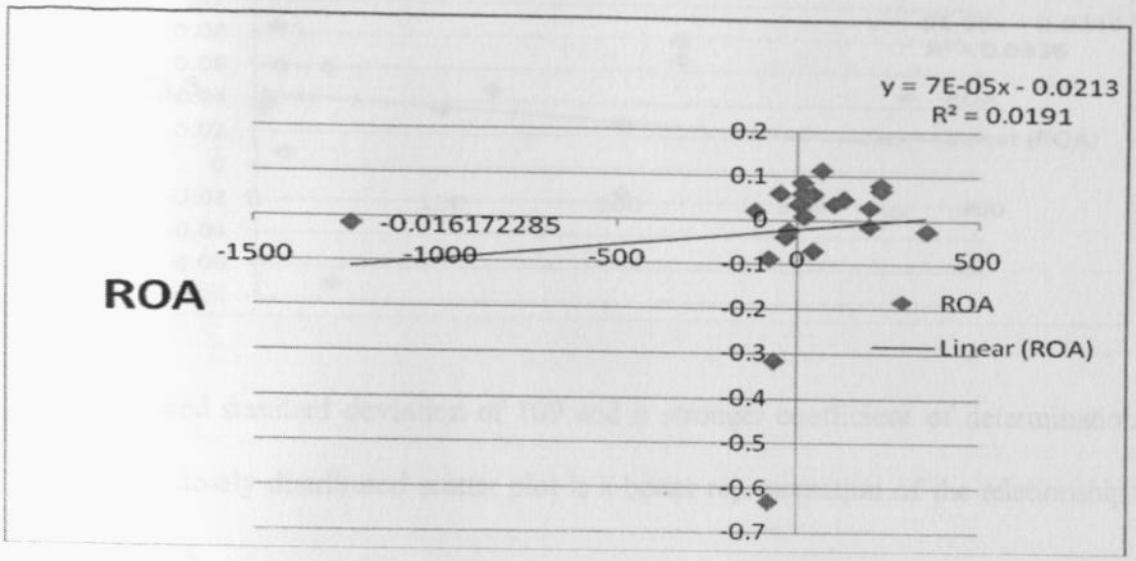


This observation fairly compare with the conclusions of studies by Deloof (2003), Teruel and Solano (2005) who studied the effects of long production systems on profitability of Belgian firms and found that firms with shorter DIO are more profitable than those with longer inventory conversion systems.

4.3.5 Days Purchases Outstanding (DPO) and Return on Assets

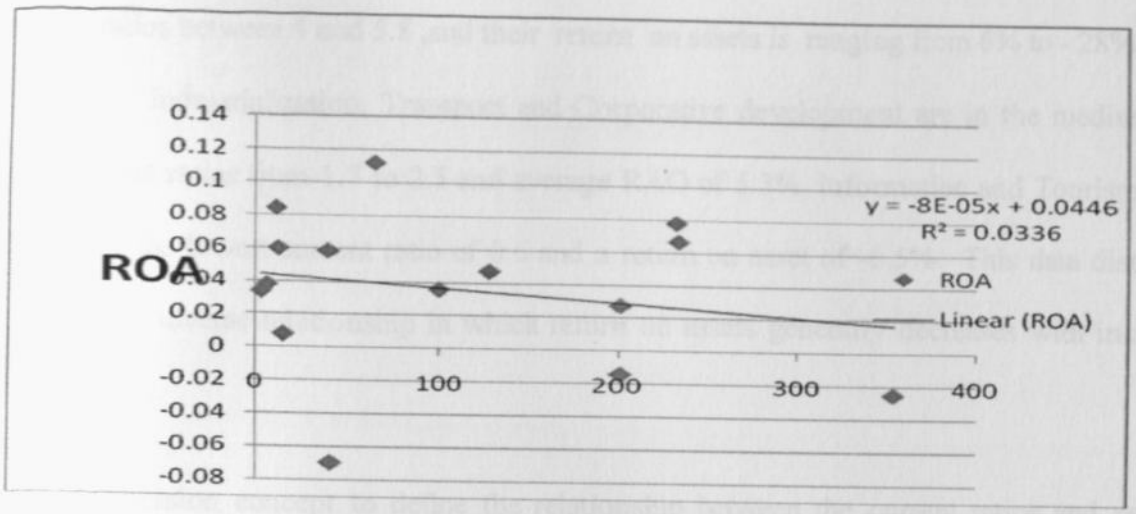
The study shows that state owned commercial firms take longer to pay their current obligations. 30% pay after 40 days but before 60days are over and have an average ROA of 6%. The rest 70% which are conservative have an average DPO of approximately one year (382days) but their average ROA is negative 6%. Those with negative ROA in the conservative group also make up 35% of the population and their average DPO and ROA is 551days and negative 15% respectively. The regression equation Y=-1E-0.04X+0.006, define an inverse relationship between DPO and ROA. As DPO increases, the return on assets consequently declines

maps this relationship. The positive slope of the regression equation indicates a positive relationship in which ROA increases with increase in CCC.



This is not consistent with the findings of Soenen (1993), Jose,et al.(1996) and Deloof(2003) among others who concluded that a shorter CCC promises better returns on assets than a longer CCC. This conflict may be as a result of the large standard deviation (295) of data distribution away from the arithmetic mean (-2.22). The correlation coefficient of 0.14 indicates a weak relationship between the ROA and the CCC. This also explains the poor statistical relationship between the cash conversion cycle and the return on assets captured by the weak coefficient of determination (R^2) of 0.0191.

When firms with negative CCC's (see appendix III) are omitted from the analysis, the new regression equation gains a negative gradient implying that ROA decreases with increase in CCC. This position is consistent with past empirical studies discussed above. The new equation and graph would be as plotted below.



With a reduced standard deviation of 109 and a stronger coefficient of determination (R^2) of 0.0336, this closely distributed scatter plot is a better representation of the relationship between CCC and ROA

4.4 Industry Working Capital and Profitability Analysis

To study the relationship between the working capital and profitability of state corporations in different sectors of the economy, the firms are grouped in appendix IV under their respective economic sectors (industry), with their working capital ratios and return on assets indicated. The relationship between these ratios and return on assets is reported in the analysis of each working capital variable. The power of these relationships is also measured by the respective Pearson correlation coefficients and regression coefficients of determinations for goodness of fit. All the working capital ratios and returns on assets are generated from appendix II.

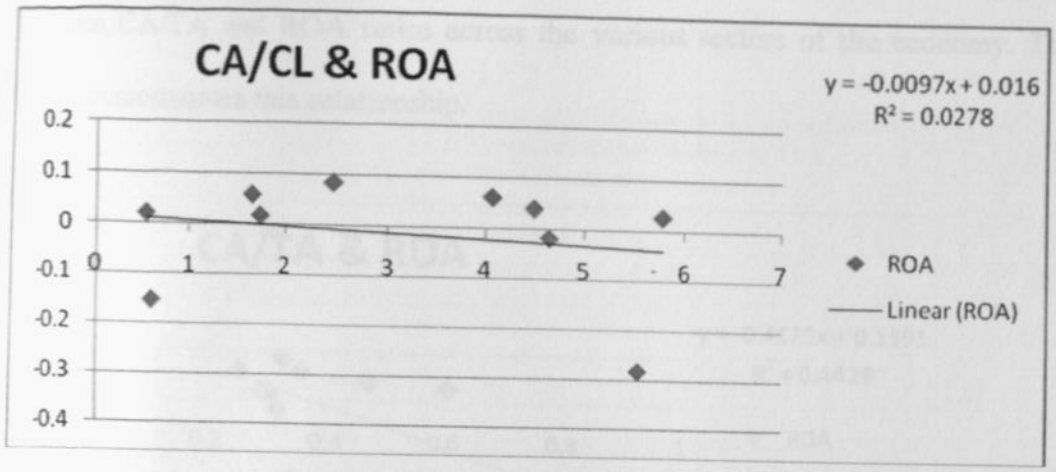
4.4.1 Current Ratio versus Return on Assets

The current ratio (CA/CL) for each economic sector is from 0.6 to 5.8. Housing, Education, Agriculture, Trade and Energy account for half of the number of sectors and have the highest

current ratios between 4 and 5.8 ,and their return on assets is ranging from 6% to - 28% with an of -3.4%. Industrialization, Transport and Corporative development are in the medium range with current ratios from 1.7 to 2.5 and average RAO of 5.3%. Information and Tourism sectors registered the lowest current ratio of 0.6 and a return on asset of -6.5%. This data distribution portrays an inverse relationship in which return on assets generally decreases with increase in current ratio.

Using regression concept to define the relationship between the current ratios and return on assets for all the sectors listed in appendix IV, the equation Y= -0.0097X+ 0.016 is generated. 'Y' is a dependent variable representing ROA; 'X' is an independent variable representing the current ratio (CA/CL) and the slope of the regression line is negative 0.0097, which means ROA decreases gently with increase in the current ratio and increases with a drop in current ratio.

However, the strength of the regression line to give an accurate value of return on assets (ROA) is fairly weak. The coefficient of determination (R^2) is 0.0278. This lack of any consistent relationship is indicated by the weak correlation coefficient of -0.17. An attempt to draw a regression equation on the scatter plot below does not perfectly fit the distribution due to the large working capital ratio variance and the weak coefficient of determination of 0.0278. Thus the insensitivity of return on assets to the strength of this working capital factor at sector level concurs with the observation made at individual company level.

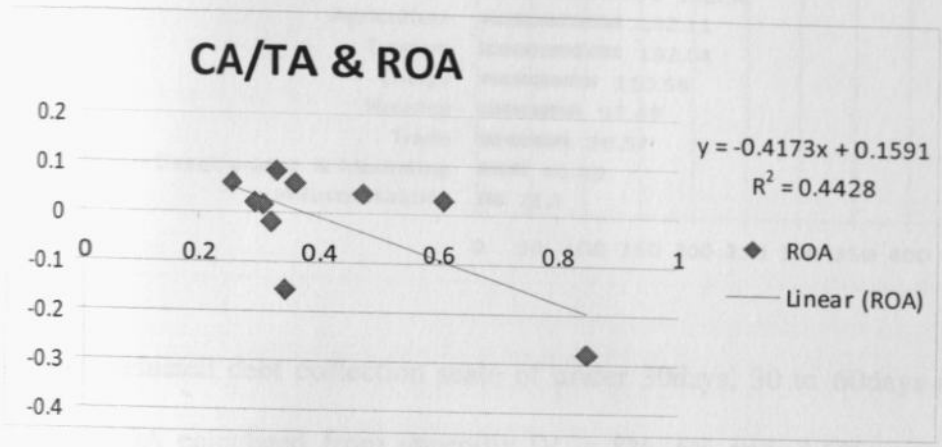


The regression equation for the industry presents a more accurate long term relationship between the current ratio and the the asset returns. Excessive current assets over liabilities ought to be invested in long term more rewarding investments such as bonds or even fixed assets, otherwise it becomes costly and less rewarding to the firm.

4.4.2 Current Assets to Total Assets Ratio versus Return on Assets

The industry working capital ratio CA/TA increased gradually from 0.26 to 0.85 as ROA decreased from 6% to -28%. This relationship depicted below indicates how the return on assets is decreasing gradually with increase in the quantity of current asset relative to total assets. This observation is consistent with that made earlier on individual firms and supports the assertion that an aggressive working capital policy in this context would maximize the value of a firm. The standard deviation (0.18) and correlation coefficient (-0.67) for this working capital ratio given in appendix IV describe a statistical data that is closely distributed, thus supporting the existence of relationship between the independent variable CA/TA and dependent variable ROA. The regression equation Y=-0.4173X+0.1594, gives a relatively strong relationship

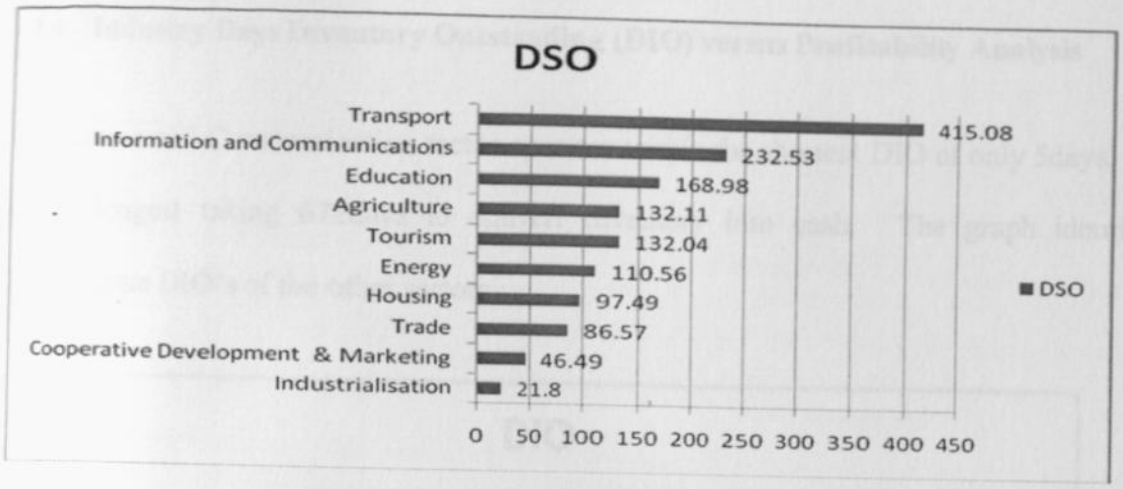
between CA/TA and ROA ratios across the various sectors of the economy. The scatter plot below demonstrates this relationship.



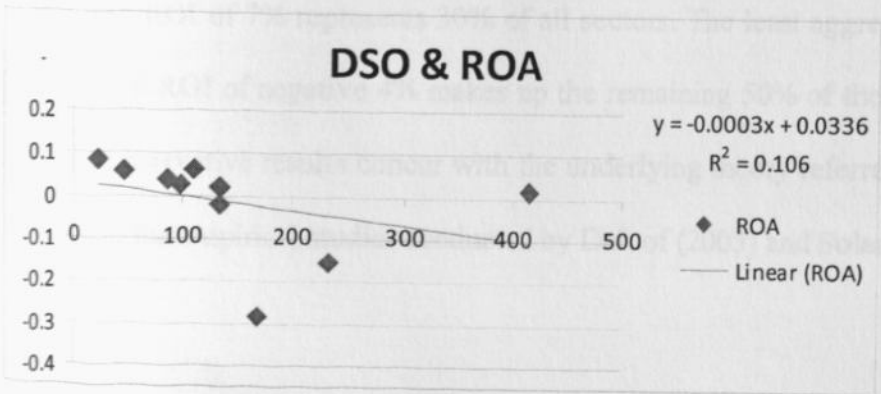
ROA is inversely related with CA/TA. As the working capital ratio increases, the return on assets declines as indicated by the slope of the regression model. The coefficient of determination (R^2) of 0.44 is an improvement on that previously calculated for individual firms thus confirming that the strength of the industry regression model for this relationship is much more applicable than at individual firm level.

4.4.3 Industry Days Sales Outstanding (DSO) versus Profitability Analysis

The immediate graph below identifies the most efficient to the least efficient sector in managing debt collection. They all fall within a spread of 21days to 415days. Industrialization sector is the most efficient and transport is the least efficient.

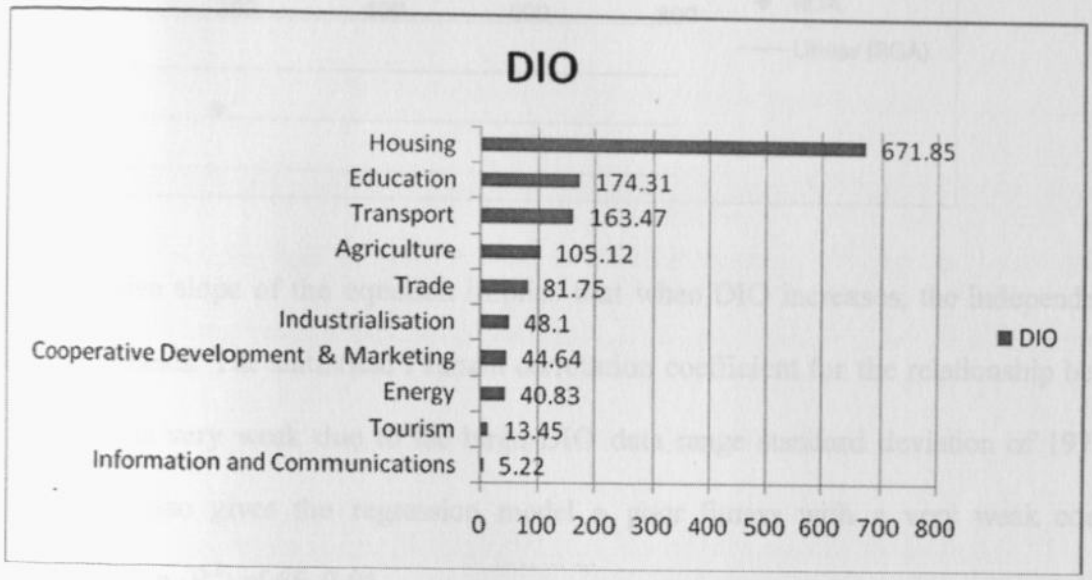


With a graduated debt collection scale of under 30days, 30 to 60days and above 60days, the average ROA calculated from appendix IV is 8%, 6% and -3.5% respectively. This outcome assigns better value returns to economic sectors that realize their debtors earlier than those that delay. This observation is supported by the regression line Y=-0.0003X+0.0336 which has a negatively sloping gradient implying that as the value of the independent variable (DSO) increases, the dependent variable(ROA) reduces. The equation has its challenges, correlation coefficient of the working capital ratio and returns of - 0.33 signify a moderately weak cohesiveness because the DSO figures are widely spread out resulting also in a weaker coefficient of determination (R^2) of 0.106. The following sketch illustrates the fitness of the regression line on the data points.



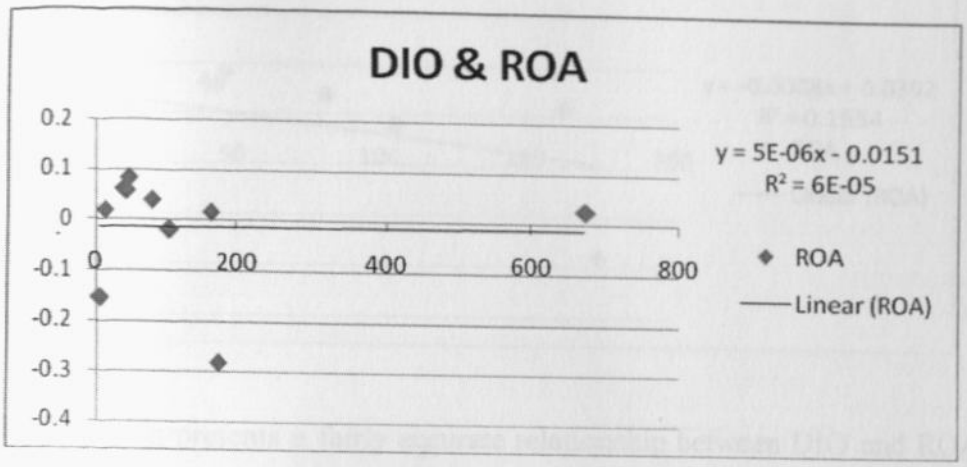
4.4.4 Industry Days Inventory Outstanding (DIO) versus Profitability Analysis

Information and Communication sector operates within the shortest DIO of only 5days. Housing is the longest taking 672days to convert inventory into cash. The graph identifies the intermediate DIO's of the other sectors.



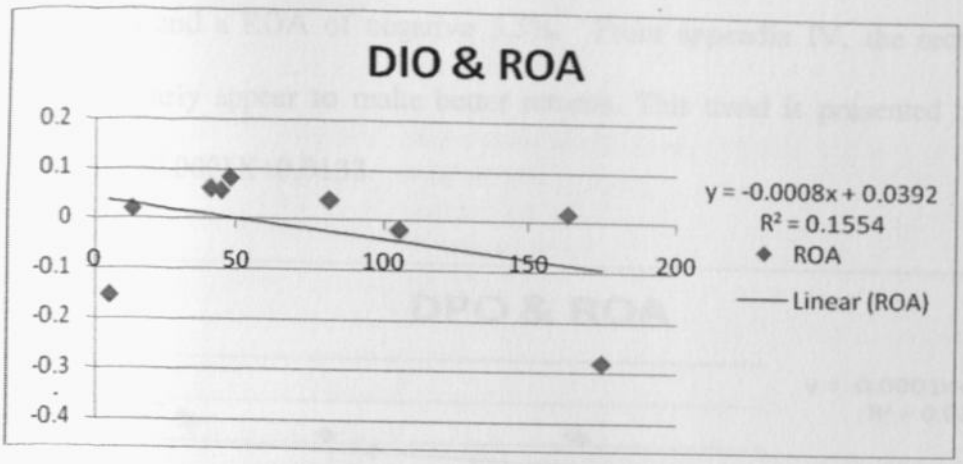
By arranging the variables in ascending order and applying the graduating policy framework which associates lower, medium and higher range values with aggressive, moderate and conservative production policies, it can be observed that a DIO of 9 days was met by only 20% of all economic sectors and realized an ROA of negative 7%. The moderate group with a DIO of 46days and ROI of 7% represents 30% of all sectors. The least aggressive group with a DIO of 239days and ROI of negative 4% makes up the remaining 50% of the population. The moderate and the conservative results concur with the underlying theory referred to on page 18 by Horne (1975) and the empirical studies conducted by Deloof (2003) and Solano (2005).

This position is supported by the regression equation Y=5E-0.06X+0.0151.



The negative slope of the equation implies that when DIO increases, the independent variable ROA decreases. The statistical Pearson correlation coefficient for the relationship between DIO and ROA is very weak due to the large DIO data range standard deviation of 197. This data dispersion also gives the regression model a poor fitness with a very weak coefficient of determination (R^2) of 6E-0.05.

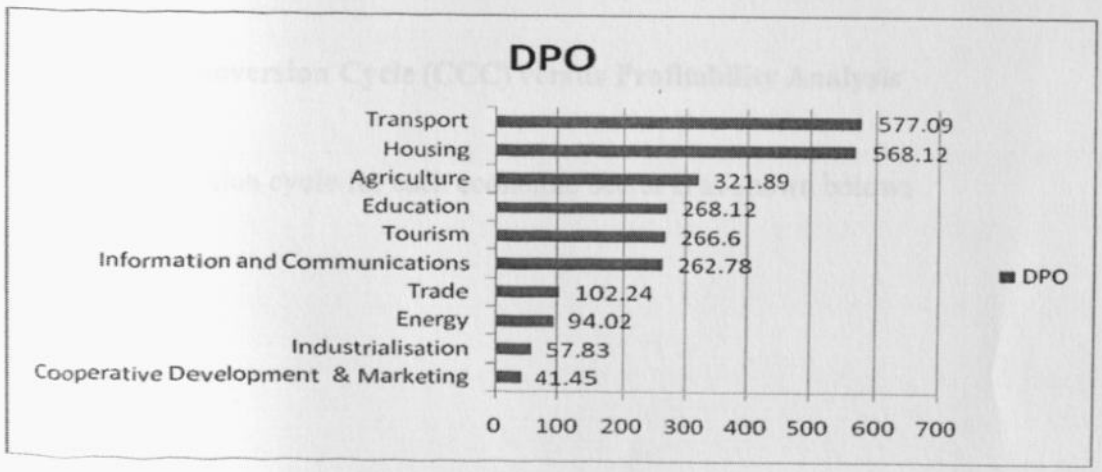
When the DIO statistic for National Housing Corporation (NHC) is excluded, the data dispersion range reduces from a standard deviation of 197 to 61 thus minimizing the error inherent in the data. It makes sense to exclude this firm because its inventory conversion period is generally delayed by the long construction and disposal processes which is unique to its business. The new regression model would be stated as Y=-0.0008X+0.0392 with an R^2 value of 0.1554 which is better than the above.



This equation presents a fairly accurate relationship between DIO and ROA. As days inventory outstanding increase due to the lengthy production process, returns on assets decline. This position also agrees with past empirical studies.

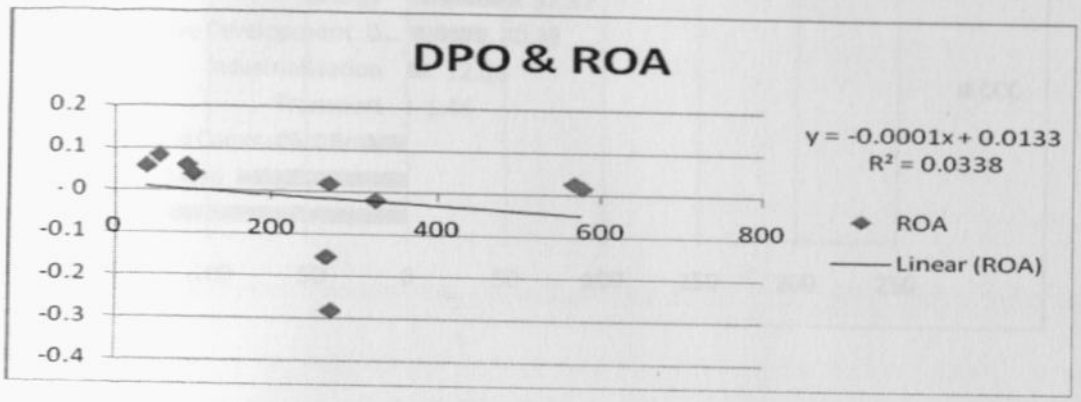
4.4.5 Days Purchases Outstanding (DPO) versus Profitability Analysis

At sector level, vendors wait for 41 to 577days for their payments to be settled. The efficiency of this process varies according to each sector as portrayed in the following chart.



The sectors that pay their obligations in less than 60days account for only 20% and post an average ROA of 7%. The rest 80% which settle their obligations after two months have a DPO

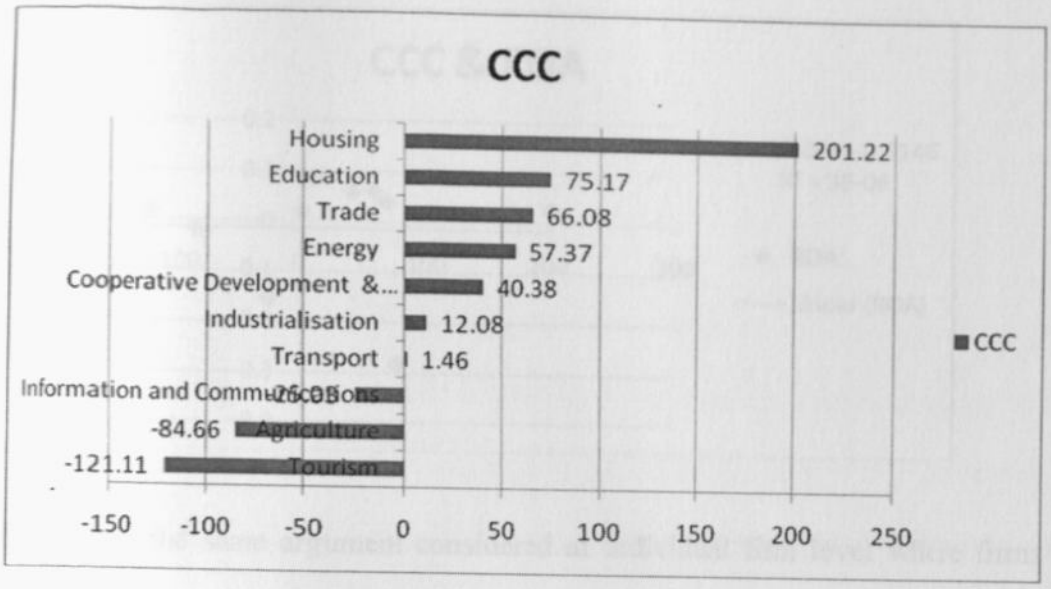
of 308days and a ROA of negative 3.5%. From appendix IV, the sectors that honour their obligation early appear to make better returns. This trend is presented below in a regression model Y = -0.0001X+0.0133.



The regression equation has a negative gradient implying that the returns are declining with increase in DPO. ROA is at its highest point when DPO is at minimum. This trend captures the relationship in the variables inspite of the weak coefficient of determination (R^2) which stands at 0.034. The benefits of timely settlement of creditors outweigh the perceived gains of delaying beyond the allowed credit period.

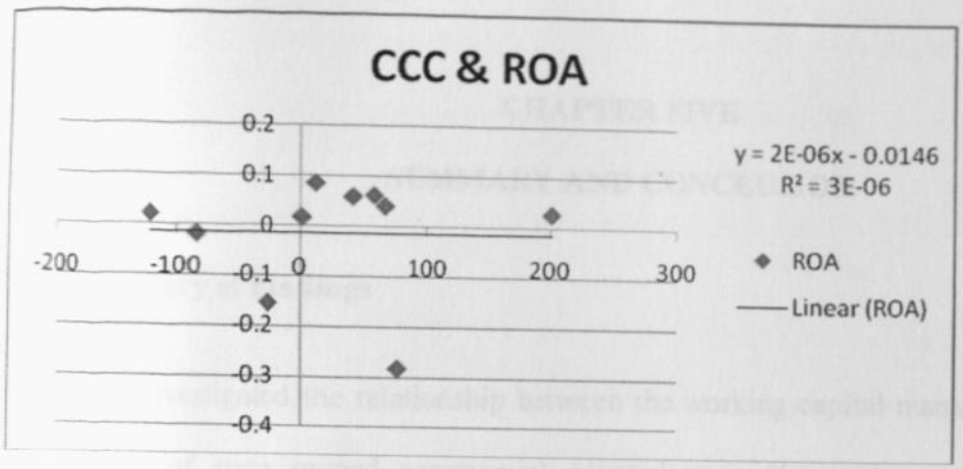
4.4.6 Cash Conversion Cycle (CCC) versus Profitability Analysis

The cash conversion cycle for each economic sector is as shown below;

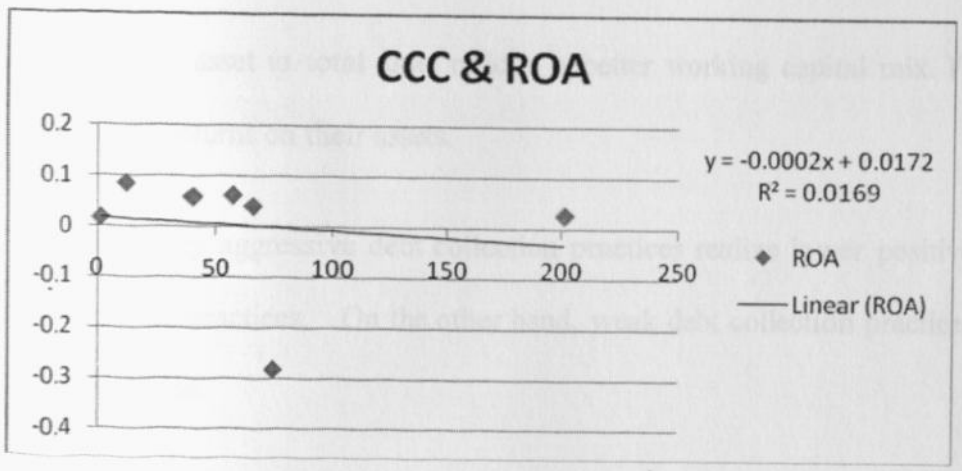


30 % of all economic sectors in the study have an average CCC of negative 77days. These are the sectors whose DPO exceeds the sum of their DSO and DIO combined and their return on assets (ROA) is negative 5%. Comparatively, the other 70% is made up of sectors with positive CCC and a ROA of 0.14%. It is also notable that 67% of all firms with negative CCC also have negative ROA of 8.5%. The other 33% have a ROA of 2%. The study also shows majority (67%) of industries with negative cash conversion cycle realize negative returns and 60% of all sectors with positive ROA have positive cash conversion cycles.

The regression equation Y = 2E-0.06X-0.0146 which attempts to define the above relationship is almost indifferent about the impact of CCC on ROA. Its gradient is almost zero. Due to the large standard deviation of the CCC given on appendix III, the correlation coefficient portrays weak data cohesiveness. The regression line may not also fit perfectly on the data points. The poor statistical relationship between the cash conversion cycle and the return on assets is evidenced by the weak coefficient of determination (R^2) of 3E-0.06.



Employing the same argument considered at individual firm level where firms with negative CCC are omitted from assessment of the relationship between CCC and ROA, the new equation and graph would be $Y=0.0002X+0.0172$ with $R^2 = 0.0172$ which is a more accurate equation than the previous one.



The study shows that those economic sectors with lower CCC are more profitable than those with higher CCC. This position is consistent with the findings of Soenen(1993), Jose, et.al.(1996), Deloof(2003) and Teruel and Solano(2005) .

CHAPTER FIVE

SUMMARY AND CONCLUSION

5.1 Summary of Findings

The study investigated the relationship between the working capital management practices and profitability of state owned commercial enterprises in Kenya by reviewing the financial statements of 23 firms for a period of 5 years from 2005 to 2009. The analysis which looked at the impact of working capital management practices on asset returns has revealed the following:

High current ratios are associated with declining returns. Excess current assets should be invested in better yielding instruments or even capitalized.

Lower current asset to total asset ratio is a better working capital mix. Firms in this position realize better returns on their assets.

Firms with very aggressive debt collection practices realize lower positive returns, than those with moderate practices. On the other hand, weak debt collection practices are associated with negative returns.

Firms with longer day's inventory outstanding are likely to realize negative returns on their assets. Efficient production technologies that take shorter time to convert raw materials into finished product promises better returns.

Firms that take long to pay their current obligations hence grossly violating their own credit terms are likely to make negative returns.

A lower cash conversion cycle promises better returns on assets. A negative CCC is a reflection of a very high level of outstanding creditors and a poor credit rating.

60% of all state owned commercial enterprises make marginal returns of between 1% and 11%, the rest 40% make losses.

The study has also confirmed that every sector of the economy in which the firms fall into follow different working capital management strategies and they realize different returns on assets. The highest return on assets is 8% registered by industrialization sector while the lowest is -28% recorded by education sector.

5.2 Conclusion

This research was aimed at establishing the most prevailing working capital management practices among state owned commercial enterprise in Kenya and how they impact on profitability of those firms. It was also intended to determine if there is any difference in working capital management practices amongst state owned commercial enterprises in the economic sectors they represent.

The study which was based on the review of financial statements of state owned commercial enterprises for five years from 2005 to 2009 looked at the working capital from three perspectives namely aggressive, moderate and conservative management approaches. It revealed that return on assets is dependent on these variables. Organizations in the same industry operating on shorter cash conversion cycles than their peers are able to report better returns. Those with lower current to total asset ratios earn relatively better returns because they manage to keep the quantity of idle resources at optimum levels. The different economic sectors in which the firms are represented have varied working capital characteristics which also influence their average returns on assets. Firms yield better returns if they cautiously follow aggressive working capital management practices. They need to ensure that debt collection practices are moderately aggressive, not very aggressive as that would result in loss of sales. They need to be very careful in managing current assets and liabilities. Too much current assets is a reflection of a poor investment strategy leading to a lower return on assets. On the other hand, too much current liabilities portray a firm with poor credit rating and poor returns due to lost opportunities for growth. The findings of this study support past empirical studies and conclusions drawn by

Deloof (2003), Nyakudi (2003) and Solano (2005) regarding working capital management and its relevance to profitability

5.3 Recommendation

Arising from the observations made and in line with the objectives of the study, the performance of state owned commercial enterprises can be improved by adapting aggressive and careful working capital management strategy. Shortening of debt collection period should be top priority, followed by reduction of days creditors remain unpaid in order to improve on credit rating. Production systems should also be improved to shorten the inventory conversion time so that cash could be realized earlier.

Harmonization of financial reporting framework in line with International financial reporting standards would guarantee consistency and make accounts more comparable across firms and economic sectors.

5.4 Challenges and Limitations of the Study

Majority of the firms studied are not members of Nairobi Stock Exchange, hence they are not obligated to observe strict international financial reporting standards. Inadequate disclosure and inconsistency in presentation of annual accounts may have compromised the relevance and reliability of some comparative analyses.

Some of the firms are financiually challenged while others are emerging from periods of poor performance due to bad governance; hence their working capital and profitability ratios represent

extreme and probably misleading relationships patterns. This could have impacted negatively on the accuracy and relevance of some of the research findings and conclusions drawn.

The study was intended to cover the entire population of commercial state corporations numbering 29 as per appendix I, but some of the financial statements were not available hence the size of the population was scaled down from to 23 firms whose data was obtained in full.

5.5 - Suggestions for Further Research

This was a general study cutting across all firms regardless of their sizes, economic situations and industry. More studies could be carried out focussing on these differentiating variables.

Annual accounts were used as a basis for this study. Further studies could be done using monthly or quarterly figures to obtain more accurate results.

To appraise the working capital management competency level of state owned commercial enterprises in the market, it is important to carry out a comparative study with a cross section of firms in the private sector.

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Appendix I: List of State Owned Commercial Enterprises

NO.	STATE CORPORATION	INDUSTRY
1	Nyayo Tea Zone Development Corporation	Agriculture
2	Kenya Literature Bureau	Education
3	New Kenya Co-operative Creameries Ltd.	Cooperative Development & Marketing
4	Nzoia Sugar Company	Agriculture
5	Kenya Ports Authority	Transport
6	East African Portland Cement Company Ltd	Industrialization
7	Agro Chemical and Food Company Ltd.	Agriculture
8	Kenya Railways Corporation	Transport
9	Kenya Electricity Generating Company Ltd.	Energy
10	Kenya Pipeline Company Ltd	Energy
11	Kenya Power and Lighting Company Ltd.	Energy
12	Kenya National Shipping Line	Transport
13	National Cereals and Produce Board	Agriculture
14	National Oil Corporation of Kenya	Energy
15	National Housing Corporation	Housing
16	Kenya Seed Company	Agriculture
17	Industrial &Commercial Development Corp	Trade
18	Kenya Safari Lodges and Hotels	Tourism
19	Kenya Wine Agencies Ltd.	Trade
20	Kenya Broadcasting Corporation	Information and Communications
21	Kenya Airports Authority	Transport
22	South Nyanza Sugar Company	Agriculture
23	Kenya International Conference Centre	Tourism
24	Numerical Machining Complex	Industrialization
25	Postal Corporation of Kenya	Information and Communications
26	Pyrethrum Board of Kenya	Agriculture
27	Jomo Kenyatta Foundation	Education
28	Chemelil Sugar Company	Agriculture
29	School Equipment Production Unit	Education

Source: state corporations contracting and performance evaluation unit, office of the prime minister

Appendix II: Extract Financial Statements, 2005 to 2009

NO.	STATE CORPORATION	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
		Revenue	Revenue	Revenue	Revenue	Revenue	A/R	A/R	A/R	A/R	A/R
		KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M
1	Agro Chemical and Food Company Ltd.	779	613	846	763	1163	206	241	240	284	390
2	Chemelil Sugar Company	2134	2434	2422	2450	1692	99	52	109	110	77
3	East African Portland Cement Company Ltd	5363	6181	6403	7205	8101	129	326	357	538	741
4	Industrial & Commercial Development Corp	424	448	490	1859	2170	359	192	89	212	124
5	Kenya Airports Authority	3951	4958	5391	5071	5707	837	908	1250	1424	1687
6	Kenya Broadcasting Corporation	725	1115	1723	2311	1406	481	479	587	683	683
7	Kenya Electricity Generating Company Ltd.	7792	8222	11141	11548	12652	2848	4373	6375	5414	5717
8	Kenya Literature Bureau	615	697	728	814	740	106	114	67	119	120
9	Kenya Pipeline Company Ltd	8108	8452	8803	8256	10036	1202	1424	1533	2003	2985
10	Kenya Ports Authority	13669	12775	13186	13890	18364	1975	1878	2353	2225	1836
11	Kenya Power and Lighting Company Ltd.	28341	33967	37944	40919	65208	5863	6550	10154	13159	8716
12	Kenya Railways Corporation	4485	5191	3337	1130	1521	5677	5523	4737	7142	7689
13	Kenya Safari Lodges and Hotels	276	326	354	301	314	80	114	121	111	144
14	Kenya Seed Company	2838	2954	2811	2860	3780	242	190	273	365	350
15	Kenya Wine Agencies Ltd.	879	950	1054	1309	1440	215	175	129	123	142
16	National Cereals and Produce Board	785	1013	1505	3377	3930	1961	962	2798	1716	1329
17	National Housing Corporation	521	583	746	806	860	142	182	174	194	238
18	New Kenya Co-operative Creameries Ltd.	2,491	4905	4479	5566	6030	107	420	596	627	815
19	Nyayo Tea Zone Development Corporation	351	327	395	383	564	218	250	232	216	363
20	Nzoia Sugar Company	2579	2522	2389	2474	3574	211	348	376	367	278
21	Postal Corporation of Kenya	2765	2798	2950	3195	3160	1933	2152	2389	3167	2801
22	School Equipment Production Unit	25	27	24	13	17	23	15	11	14	15
23	South Nyanza Sugar Company	2963	2561	2877	2546	3233	183	145	174	175	531

Appendix II: Extract financial statements 2005-2009

NO.	STATE CORPORATION	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
		INVENT	INVENT	INVENT	INVENT	INVENT	A/P	A/P	A/P	A/P	A/P
		KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M
1	Agro Chemical and Food Company Ltd.	118	153	107	186	146	513	430	402	84	151
2	Chemelil Sugar Company	459	406	368	650	646	698	821	716	897	1065
3	East African Portland Cement Company Ltd	520	595	634	1033	797	467	843	920	934	1198
4	Industrial & Commercial Development Corp	0	0	0	0	0	80	39	37	89	101
5	Kenya Airports Authority	135	129	125	101	92	1071	1413	988	1639	1592
6	Kenya Broadcasting Corporation	67	72	53	64	45	1727	1846	1223	1167	1347
7	Kenya Electricity Generating Company Ltd.	758	1048	1037	985	753	1291	2129	3565	5650	2935
8	Kenya Literature Bureau	478	476	436	437	334	135	126	61	47	68
9	Kenya Pipeline Company Ltd	651	604	633	934	875	664	941	1394	1180	140
10	Kenya Ports Authority	296	336	392	242	241	1041	1380	1217	1943	2245
11	Kenya Power and Lighting Company Ltd.	2155	2929	5013	6655	6578	7903	9598	12310	15305	18107
12	Kenya Railways Corporation	1981	2005	1953	1699	1695	14018	12910	5295	4383	4652
13	Kenya Safari Lodges and Hotels	10	10	13	11	10	210	182	237	135	281
14	Kenya Seed Company	1184	1479	1599	1993	1844	264	309	324	388	263
15	Kenya Wine Agencies Ltd.	390	430	486	644	611	295	275	254	287	239
16	National Cereals and Produce Board	233	1022	2489	75	853	1388	1299	2411	828	1567
17	National Housing Corporation	741	756	554	1105	1570	312	490	848	1271	1309
18	New Kenya Co-operative Creameries Ltd.	201	671	951	690	502	226	611	847	581	595
19	Nyayo Tea Zone Development Corporation	22	20	18	19	26	15	23	21	19	182
20	Nzoia Sugar Company	384	375	383	984	991	7453	7698	9240	9486	10094
21	Postal Corporation of Kenya	3	4	1	9	9	2318	1052	1001	3366	3769
22	School Equipment Production Unit	13	20	5	8	8	14	19	55	67	62
23	South Nyanza Sugar Company	475	449	374	682	618	1444	1782	1281	1242	1040

Appendix II: Extract financial statements 2005-2009

NO.	STATE CORPORATION	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
		COGS	COGS	COGS	COGS	COGS	PAT	PAT	PAT	PAT	PAT
		KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M
1	Agro Chemical and Food Company Ltd.	504	505	362	730	2120	90	-55	483	38	-957
2	Chemelil Sugar Company	2113	2594	2358	2703	2629	34	-109	86	-6	-699
3	East African Portland Cement Company Ltd	3792	4461	5709	6307	7015	608	412	764	537	1834
4	Industrial & Commercial Development Corp	211	205	183	234	234	108	94	377	390	225
5	Kenya Airports Authority	2718	3242	2950	3202	4070	911	1293	1787	1253	993
6	Kenya Broadcasting Corporation	1879	2004	2397	2411	3233	-1487	-1211	-1477	-425	-2129
7	Kenya Electricity Generating Company Ltd.	8517	11565	11410	12558	8247	1753	3769	2446	5897	2071
8	Kenya Literature Bureau	632	664	692	761	794	53	66	58	77	70
9	Kenya Pipeline Company Ltd	5213	4785	5645	5893	6832	1391	2793	2975	1710	2392
10	Kenya Ports Authority	10554	9654	10561	12405	13033	1791	2047	1452	643	3782
11	Kenya Power and Lighting Company Ltd.	27172	32750	36666	38245	60688	1270	1644	1718	1765	3225
12	Kenya Railways Corporation	4480	3866	1678	740	859	-2001	-262	-909	-481	-2166
13	Kenya Safari Lodges and Hotels	200	265	329	430	319	-21	35	16	9	14
14	Kenya Seed Company	2189	1859	2285	2479	3463	407	458	367	268	426
15	Kenya Wine Agencies Ltd.	999	976	1011	1336	1370	-143	108	53	183	96
16	National Cereals and Produce Board	1385	1695	2304	3647	4732	-280	-569	-538	-186	61
17	National Housing Corporation	359	430	556	590	625	158	149	186	211	190
18	New Kenya Co-operative Creameries Ltd.	2,502	4536	4044	5033	5498	-9	237	248	375	499
19	Nyayo Tea Zone Development Corporation	368	364	389	342	364	-262	-23	31	53	209
20	Nzoia Sugar Company	1999	1897	2205	2482	3356	-53	59	-358	-351	-20
21	Postal Corporation of Kenya	2550	2646	2787	3031	3216	63	72	96	-63	93
22	School Equipment Production Unit	35	32	75	23	30	-10	-4	-52	-9	-11
23	South Nyanza Sugar Company	2676	2810	2780	2547	3097	-1349	-249	97	-69	24

Appendix II: Extract financial statements 2005-2009

O.	STATE CORPORATION	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
		TA	TA	TA	TA	TA	EQUITY	EQUITY	EQUITY	EQUITY	EQUITY
		KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M
1	Agro Chemical and Food Company Ltd.	2817	2732	2848	2816	3030	-3455	-3700	-3217	-3197	-4150
2	Chemelil Sugar Company	2777	2773	2881	3899	3622	1229	1120	1206	1636	947
3	East African Portland Cement Company Ltd	7718	9052	8939	9073	12054	2253	3077	3608	4027	6115
4	Industrial & Commercial Development Corp	2476	6404	6927	11428	10146	1050	5139	5751	10211	8971
5	Kenya Airports Authority	18056	19482	20692	23060	24030	14642	16065	17983	19672	20823
6	Kenya Broadcasting Corporation	4227	4340	4314	4288	4184	-12257	-13450	-14927	-15352	-17705
7	Kenya Electricity Generating Company Ltd.	77900	64786	101967	106993	108604	33429	36499	63638	68403	63313
8	Kenya Literature Bureau	899	884	870	926	1391	701	758	809	879	1323
9	Kenya Pipeline Company Ltd	17077	18743	20236	21429	23342	12531	15024	17849	19408	21651
10	Kenya Ports Authority	26282	26527	25668	24822	52820	13048	15223	17041	14116	43565
11	Kenya Power and Lighting Company Ltd.	35838	38727	47322	59812	70648	18898	20560	22249	23882	26848
12	Kenya Railways Corporation	16471	16038	15154	17567	17787	-3772	-3068	-8582	-6948	-9183
13	Kenya Safari Lodges and Hotels	488	494	543	531	557	-24	-9	155	139	122
14	Kenya Seed Company	4095	4494	4689	6170	6365	3052	3516	3808	4891	5228
15	Kenya Wine Agencies Ltd.	1149	1115	985	1202	1676	845	881	731	915	1327
16	National Cereals and Produce Board	7044	13727	16067	13205	13828	4924	11244	10921	10783	10805
17	National Housing Corporation	5441	5746	6494	7292	7783	5125	5215	5607	5974	6429
18	New Kenya Co-operative Creameries Ltd.	899	4068	4668	4847	4809	538	2553	2671	2893	3074
19	Nyayo Tea Zone Development Corporation	1274	1252	1476	1638	2092	242	1229	1455	1619	1895
20	Nzoia Sugar Company	8526	8891	8887	9045	9126	-9695	-9687	-11309	-11342	-11602
21	Postal Corporation of Kenya	5875	6056	6792	7697	7881	1982	2060	2599	2539	2472
22	School Equipment Production Unit	39	39	20	91	115	24	20	-35	24	53
23	South Nyanza Sugar Company	3507	3459	3157	3526	3461	1221	931	1028	986	937

Appendix II: Extract financial statements 2005-2009

NO.	STATE CORPORATION	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
		CA	CA	CA	CA	CA	CL	CL	CL	CL	CL
		KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M	KSHS'M
1	Agro Chemical and Food Company Ltd.	1507	1319	1417	1224	1067	547	430	402	6013	7180
2	Chemelil Sugar Company	678	606	930	946	844	1195	993	1138	1077	2002
3	East African Portland Cement Company Ltd	2950	3481	3170	2662	3131	895	1398	1435	1176	1512
4	Industrial & Commercial Development Corp	1083	1038	1082	1472	1624	308	238	162	214	226
5	Kenya Airports Authority	3707	5566	6016	5114	3674	1071	1711	1257	1900	1904
6	Kenya Broadcasting Corporation	680	927	980	1003	1053	10199	11505	12720	13627	16648
7	Kenya Electricity Generating Company Ltd.	10195	11675	9824	10655	12749	5329	5054	7234	7925	5868
8	Kenya Literature Bureau	585	634	643	717	777	127	126	61	47	68
9	Kenya Pipeline Company Ltd	4694	6020	6928	5257	4690	2055	1651	1394	1181	152
10	Kenya Ports Authority	5538	5213	5162	4841	7141	3224	4032	3351	3955	4043
11	Kenya Power and Lighting Company Ltd.	13553	15942	19039	20755	20342	10584	12125	17848	18518	23339
12	Kenya Railways Corporation	8040	7849	7163	9751	10087	14144	13308	19338	19719	21621
13	Kenya Safari Lodges and Hotels	106	142	172	178	177	295	252	306	218	365
14	Kenya Seed Company	1923	2455	2754	3125	3468	345	385	343	476	434
15	Kenya Wine Agencies Ltd.	714	772	809	1068	1058	301	293	254	287	239
16	National Cereals and Produce Board	2610	2806	5532	3068	4067	2120	2483	5146	2423	3024
17	National Housing Corporation	3453	3679	3813	4591	4369	316	531	887	1318	1354
18	New Kenya Co-operative Creameries Ltd.	360	1126	1631	1904	1905	339	854	1018	865	900
19	Nyayo Tea Zone Development Corporation	555	524	559	345	399	15	23	21	19	182
20	Nzoia Sugar Company	1387	1569	1606	1700	1804	17921	18577	20195	20387	20729
21	Postal Corporation of Kenya	2791	3078	2915	3576	3911	2318	2536	2409	3366	3769
22	School Equipment Production Unit	39	39	21	91	115	14	19	55	70	62
23	South Nyanza Sugar Company	712	624	555	893	1172	1777	2062	1533	1978	1785

Appendix III: 5 Year Average Working Capital and Profitability Ratios for each Firm

	STATE CORPORATION	CA/CL	CA/TA	DSO	DIO	DPO	CCC	ROA
1	Agro Chemical and Food Company Ltd.	1.94	0.46	120.36	84.41	231.13	-26.35	-0.02
2	Chemelil Sugar Company	0.66	0.25	14.83	74.17	123.18	-34.18	-0.04
3	East African Portland Cement Company Ltd	2.47	0.33	21.80	48.10	57.83	12.08	0.08
4	Industrial & Commercial Development Corp	5.72	0.21	118.85	0.00	115.60	3.25	0.03
5	Kenya Airports Authority	3.22	0.23	87.84	13.58	150.95	-49.54	0.06
6	Kenya Broadcasting Corporation	0.07	0.22	161.70	9.79	237.33	-65.84	-0.32
7	Kenya Electricity Generating Company Ltd.	1.82	0.12	174.49	32.14	106.14	100.49	0.04
8	Kenya Literature Bureau	9.37	0.69	53.75	226.17	46.64	233.27	0.07
9	Kenya Pipeline Company Ltd	9.24	0.28	75.26	47.44	57.79	64.90	0.11
10	Kenya Ports Authority	1.51	0.19	53.30	10.07	50.06	13.31	0.06
11	Kenya Power and Lighting Company Ltd.	1.13	0.37	81.95	42.91	118.13	6.73	0.04
12	Kenya Railways Corporation	0.50	0.51	1104.11	466.75	1530.26	40.60	-0.07
13	Kenya Safari Lodges and Hotels	0.56	0.29	132.04	13.45	266.60	-121.11	0.02
14	Kenya Seed Company	6.91	0.53	34.09	246.21	48.26	232.03	0.08
15	Kenya Wine Agencies Ltd.	3.27	0.73	54.30	163.50	88.88	128.91	0.05
16	National Cereals and Produce Board	1.21	0.29	449.18	149.82	246.24	352.76	-0.02
17	National Housing Corporation	5.77	0.61	97.49	671.85	568.12	201.22	0.03
18	New Kenya Co-operative Creameries Ltd.	1.66	0.36	46.49	44.64	41.45	40.38	0.06
19	Nyayo Tea Zone Development Corporation	21.35	0.33	232.18	21.02	52.08	201.12	-0.01
20	Nzoia Sugar Company	0.08	0.18	44.04	91.63	1372.87	-1237.20	-0.02
21	Postal Corporation of Kenya	1.15	0.47	303.36	0.64	288.22	15.79	0.01
22	School Equipment Production Unit	1.68	1.00	284.20	122.46	489.60	-82.93	-0.63
23	South Nyanza Sugar Company	0.43	0.23	30.06	68.56	179.43	-80.81	-0.09
	Regression Analysis	6.56	-0.59	-355.88	8.13	-606.96	257.86	1.00
	Pearson Correlation Coefficient	0.22	-0.44	-0.24	0.01	-0.24	0.14	1.00
	Variance	22.72	0.05	53432.11	26190.03	155909.24	87079.63	0.03
	Mean	3.55	0.39	164.16	115.19	281.16	-2.22	-0.02
	STD	4.77	0.21	231.15	161.83	394.85	295.09	0.16

Appendix IV: Working Capital and Profitability Ratios for Each Economic Sector

INDUSTRY	CA/CL	CA/TA	DSO	DIO	DPO	CCC	ROA
Transport	1.74	0.31	415.08	163.47	577.09	1.46	0.02
Trade	4.50	0.47	86.57	81.75	102.24	66.08	0.04
Information and Communications	0.61	0.35	232.53	5.22	262.78	- 25.03	- 0.15
Industrialisation	2.47	0.33	21.80	48.10	57.83	12.08	0.08
Housing	5.77	0.61	97.49	671.85	568.12	201.22	0.03
Energy	4.06	0.26	110.56	40.83	94.02	57.37	0.06
Education	5.52	0.85	168.98	174.31	268.12	75.17	- 0.28
Cooperative Development & Marketing	1.66	0.36	46.49	44.64	41.45	40.38	0.06
Agriculture	4.65	0.32	132.11	105.12	321.89	- 84.66	- 0.02
Tourism	0.56	0.29	132.04	13.45	266.60	- 121.11	0.02
Pearson Correlation Coefficient	- 0.17	- 0.67	- 0.33	0.01	- 0.18	0.00	1.00
Variance	3.92	0.03	12,583.43	38,944.51	37,816.27	8,118.83	0.01
Mean	3.15	0.42	144.36	134.87	256.01	22.30	- 0.01
STD	1.98	0.18	112.18	197.34	194.46	90.10	0.11