EFFECT OF WORKING CAPITAL MANAGEMENT ON FINANCIAL PERFORMANCE OF LISTED COMMERCIAL AND SERVICE FIRMS AT NAIROBI SECURITIES EXCHANGE LIMITED KENYA

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DECLARATION

Declaration

This project report is my original work and to the best of my knowledge, it has not been submitted to any institution or university for examination.

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ABSTRACT

The study analyzed the relationship of WCM on financial performance, taking the case of Firms in the Commercial and Services Segment of NSE, Kenya. Specifically, the study analyzed the effect of accounts receivable, accounts payable, stock conversion period, cash conversion cycle on Return on Asset as measures of financial performance of commercial and services segment listed in Nairobi Securities Exchange, Kenya. The study adopted the following theories to explain the effect of working capital on financial performance of Listed commercial and services segments; Residual Equity Theory, Value Chain Theory, Operating Cycle Theory, Cash Conversion Cycle Theory and Transaction Cost Economics Theory. The study adopted descriptive research design which tested variables the way they occur in natural environment without interfering with them. The target population of the study was the 12 firms in the Commercial and Services Segment of Nairobi Securities Exchange. The secondary data used in the analysis was from audited accounts reports from 2007to 2017. The researcher had a challenge in the companies which did not disclose some components of working capital on their financial statements but had to visit their company's premises to access the data. Data was analyzed using panel data regression models and correlation analysis with the help of Stata Statistical Software to establish the combined influence of the four components of working capital management on financial performance. The results is useful for the Capital Market Authority (CMA) of Kenya who formulate policies that promote efficiency in the management of the listed firms in understanding how the existing policy support efficient working capital management with an aim of improving financial performance of the listed companies. The study found out that that apart from Cash Conversion Cycle, the other elements of Working Capital Management (Accounts Receivable, Accounts Payable and Inventory Conversion Period) affected financial performance measured in terms of Return of Asset of firms' in commercial and service segment in the NSE. Accounts Receivable had positive correlation with financial performance, r=.686, p=.012<.05 indicating that Accounts receivables affected financial performance of firms' in the commercial segment of the NSE,Accounts Payable had positive correlation with financial performance, r=.509, p=.05 indicating that Accounts Payable affected financial performance of firms' in the commercial segment of the NSE, Inventory Conversion Period had no correlation with financial performance, r=.509, p=.050 indicating that Inventory Conversion Period affected financial performance of firms' in the commercial segment of the NSE, Cash Conversion Cycle had no significant relationship with financial performance, r=.001, p=.073>.05 indicating that Cash Conversion Cycle did not affect financial performance of firms' in the commercial segment of the NSE and on overall, there is a weak relationship between cash flows and performance indicators . The study recommends that firms' in commercial and service segment in the NSE should enhance credit management to avoid over investment in accounts receivables. Collection policies should be reviewed in order to make the cash conversion cycle shorter for efficient working capital while keeping in view the intensity of competition. The study also recommends proper inventory management to avoid overstocking which could negatively affect financial performance. While coming up with inventory related policies.

Key words: *Accounts Receivable, Accounts Payable, Inventory Conversion Cycle, Cash Conversion Cycle, Financial Performance and Return on Asset.*

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ATN   Asset Tangibility

CCC   Cash Conversion Cycle

CMA   Capital Market Authority

CCC   Cash conversion cycle

ICC   Inventory Conversion Cycle

NACOSTI   National Commission for Science, Technology and Innovation

NSE   Nairobi Securities Exchange

PLC   Private Limited Company

ROA   - Return on Asset

ROE   **-** Return on Equity

ROS   **-** Return on Sales

TCE   - Transactional Cost Economic

WC   **-**Working Capital

WCM   - Working Capital Management

KQ   **-** Kenya airways ltd

FP   -Financial performance

TPS   -Tourist promotion service

OPERATIONAL DEFINITION OF TERMS

Commercial and services   These are listed firms in the NSE which offer a range of services

Like   Listed firms in Nairobi transport airline and sea,

publishing, Tourism and Security exchange Logistic services,

news & publicity. They play an important role in

The economy by creating an employment opportunity, increase

the Gross domestic product and foreign exchange earnings

(Kimeli, 2014)

Accounts Receivable   This is outstanding invoice to be paid on goods sold (Sharma &Kumar, 2011). This is the number of days it takes to convert inventory into cash. It also symbols the average number of days it takes customers to pay their credit accounts. Average receivables period is computed by dividing the number of working days for a given period (usually an accounting year) by receivables turnover ratio.

ARP =   <u>Accounts Receivables *365 days</u>

         Sales

Accounts payable   : This are obligations of a firm to creditors on goods delivered or services offered (Sharma &Kumar, 2011). The no of days the company will pay off their creditors.). It also refers to the average number of days a firm takes to pay off its credit purchases. Formula:

APP =   <u>Accounts Payables *365 days</u>

         Cost of sales

Cash Conversion Cycle   : The cash conversion cycle (CCC) is a process or a cycle where the company purchases inventory, sells the inventory on credit as an account receivable, and then collects the account receivable or turns

it into cash (Pandey, 2015).

It measures how long cash is tied up in inventory before the inventory is sold and cash is collected from customers. CCC measures the time it takes a company to convert its inventory into cash. C.C.C=Average receivables period + Inventory Conversion period – Average payment Period

Financial Performance   : These are a arithmetical measures used to assess how well a company is using its funds to make a profit. Financial performance includes operating income, earnings before interest and taxes, and net asset value. It is vital to note that no one measure of financial performance ought to be taken on its own. Rather, a thorough assessment of a company's performance should take into account many different measures (Farlex 2012).

Inventory   Conversion   : Pandey (2015), define Inventory conversion period as a ratio
Period   showing how many times a company's inventory is sold and replaced over a period of time. The days in the period can then be divided by the inventory turnover formula to calculate the days it takes to sell the inventory on hand.

$$ICP = \frac{Inventory *365\ days}{Cost\ of\ goods\ Sold}$$

Working   Capital   : Working capital management refers to the process where the firm
management   invests in short-term assets in form of cash, and cash equivalents whereby they are in form of accounts receivables and inventory (Gretsenberg 2010). Working capital is represented by a firm's net investment in current assets necessary to support its everyday business. Working capital frequently changes its form and is sometimes also referred to as circulating capital. According to Gretsenberg 2010, *circulating capital means current assets of a*

company that are changed in the ordinary course of business from one form to another.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Studies in financial decisions have dwelt on; particularly investments, capital structure, dividends and company valuation decisions. Recently, short-term assets and liabilities, which are considered as important components of total assets, are now gaining more interest across the different industry by converging towards Working Capital Management (WCM) efficiency. Accordingly, efficient WCM also revolve on monitoring of current assets and existing liabilities in a way to minimize the potential debt and also to keep the firms from too much spending on the asset (Eljelly, 2004). In addition, efficient WCM will allows firms to redeploy underutilized of firm's resources to higher-valued use in which could heightening of firm's performance (Aktas, & Croci, & Petmezas, 2015).

Essentially, working capital management (WCM) is one of the most vital segments in firm's financing decisions as an important stimulus towards firm's performance. The importance of WCM towards firm's achievement was considered as a traditional concept that was highlights in all standard corporate finance textbooks (Aktas, & Croci, & Petmezas, 2015). Thus, the importance of managing the working capital (WC) efficiently is irrefutable in certifying each component of working capital are at the best level of efficiency to successfully operate and is highly desirable for firm's growth and sustainability because of its effects on profitability and risk (Tsagem, Aripin & Ishak ,2014).

Gitman (2012) describes working capital management as the regulation, adjustment, and control of the balance of current assets and current liabilities of a firm such that maturing obligations are met, and the fixed assets are properly serviced. Working capital management involves managing the firm's inventory, receivables and payables in order to achieve a balance between risk and returns and thereby contribute positively to the creation of a firm value. Excessive investment in inventory and receivables reduces the profit, whereas too little investment increases the risk of not being able to meet commitments as and when they become due. The working capital includes all the items shown on a company's balance sheet as short term or current assets, while net

working capital excludes current liabilities. These measures are considered useful tools in accessing the availability of funds to meet current operations of companies. Therefore, the importance of maintaining an appropriate level of working capital and its contribution to business survival is a concept that should be understood by every company (Harris, 2005). Working capital management strives to maintain a delicate balance between the components of working capital and provides vital support for revenues or inter-temporal cash flows of the firms (Afrifa, 2016). Firms can reduce the cost of carrying cash inventory by reducing its liqudity (Hill, 2010).

Corporates in emerging economy require effect working capital management to remain competitive. The firms in these economies are usually smaller, growing in nature and with limited access to capital market and institutional finance for long-term funds. Further, the emerging economies are characterized by higher interest rate, poor corporate governance, greater political instability, unequal distribution of wealth, and underdeveloped formal financial markets. Therefore, quite often firms tend to rely on internal sources of funding like working capital (Allen, 2012).

There is significant relationship and from the empirical results show that the working capital management play a big role in the profitability in Tehran stock exchange and the study suggest that to decrease the receivables accounts and inventory in order to increases the shareholders' values. Jayarathne (2014) established that the liberal credit policy would be influencing to the profitability of the company and suggests that manufacturing companies can make more profit if they can manage the working capital management efficiently. Similarly, to the study done by, Richard et.al (2013) to examine the effects on working capital management on profitability in manufacturing firms in Ghana and found that components in working capital management must be managed properly to avoid problem on liquidity crisis and the short-term liabilities since it's also play a big role in companies. For this research, he used account receivable days, account payable days, cash conversion cycle, current assets ratio, size and current asset turnover as an independent variables and return on assets as present for profitability for the dependent variables. Different firms use different capital management policies to manage their cash flows namely: aggressive working capital management policy and conservative working capital management

policy (Afza 2008). Aggressive investment policy with high levels of fixed assets and low investment in current assets may generate more profits for a firm. However, it also accompanies a risk of insufficient funds for daily operations and for payment of short term debts. A conservative investment policy is opposite to it with less investment in fixed assets and more in current assets. For financing of working capital aggressive policy implies that current liabilities are maintained at a greater portion as compared to long term debts. High level of current liabilities requires more resources to be in liquid form to pay back debts earlier. But current pay outs bear less rate of interest and hence can cause more savings. In conservative working capital financing policy a greater portion of long term debts is used in contrast to current liabilities (Nyabuti and Alala, 2014).

Financial scholars use cash conversion cycle as a measurement of capital management practices where firms are keen on the number of days it takes to collect cash out of inventories sold (Jose 2012). It is the time between purchase of raw materials and getting finished goods paid. Longer cash cycle means more investment on working capital. Afza and Nazir (2011) stress on the importance of efficient working capital management by examined the efficiency of the working capital management for the cement sector in Pakistan for the year 1988 to 2008. In order to examine the efficiency of the firms, following the Bhattacharya (1997) indicator of efficiency, which is consist of three part namely performance index of working capital management, utilization index of working capital management and efficiency index of working capital management (Bhattacharya 1997). The study found that the industry under this study did very well on performance of efficiency during the period. Shehzad (2012), study on efficiency of the textile sector of the Pakistan companies on their working capital management for the year 2004 to 2009. The study done by Press, Valipour and Jamshidi (2012) found that there are positive relationship between performance index, efficient index, and utilization index with the efficiency of the asset and established that CCC inversely significant relationship on efficiency of the assets. He concluded that index developed by Bhattacharya is more promising as proper indexes and more significant in determining the working capital management compared to the conventional one.

1.1.2 Profile of Firms in Commercial and Service Segment in NSE

The Nairobi stock exchange (NSE) is a public market for the trading of securities issued by publically quoted companies and government of Kenya at an agreed price. The Nairobi stock

exchange is the center point of Kenya capital market; stocks are listed and traded on the exchange. The apex regulatory body is the CMA. With permission of the London stock exchange Nairobi stock exchange started its operations in 1954 as an overseas stock exchange. At first it was voluntary association of stock brokers registered under societies act and share trading was restricted to residential European community. In 1963, after independence, African and Asian were permitted to deal in securities, but it was hard to convince native Kenyans of the significance of the exchange.

NSE has been the subject of significant changes towards the development of Kenya capital market in the recent years. Development of capital market is crucial for capital accumulation, efficient allocation of resources and promotion of economic growth of a country. Since its incorporation NSE has seen an increase in the number of stock brokers, introduction of investment banks, establishment of custodial institutions and credit rating agencies and the number of listed companies have increased over time. Securities traded include, equities, bonds and preference shares. The NSE has been one of the most popular investments in Kenya in the recent past due to its high return. However, there are operating exposures which can result to the unexpected change of the firm cash flow due the unexpected changes in exchange rate. It has become an integral part of the Kenya economy and any fluctuation in this market influences financial lives of individuals as well as corporate entities. Presently 63 companies are listed at NSE and two indexes are computed daily; the NSE-20 share index which is equal weighted geometric mean for twenty large and most active stocks that represents of all sectors and the NSE all stock index which is value weighted arithmetic mean. Companies listed in NSE are classified into two market segments; main investment market segment and the alternative investment market segment. The main segment had 65 listed companies, with those firms in commercial and service segment are 12 in number; Express Ltd, Sameer Africa PLC, Kenya Airways Ltd, Nation Media Group, Standard Group Ltd, TPS East Africa (Serena) Ltd, Scan Group Ltd, Uchumi Super Market Ltd, Longhorn Publishers Ltd, Atlas Development and Support Services, Deacon (East Africa) PLC and Nairobi Business Venture Ltd (NSE, 2017).

1.1.3 WCM and Financial Performance

Financial performance is an indicator on how firms use assets from its operation to and generate revenues (www.graph.co.ke-2018). The performance of a firm can be measured in several ways. Brigham and Gapenski (2012) argue that the measures of profitability can either be book value based or market value based. They contend that accounting ratios such as Tobin's Q, ROE and ROA can be used to measure firm's performance Biwott (2011) and Kithii (2008), used (ROA). Aquino (2010) used the ratio of net income after taxes to stockholders' equity (ROE). Cash Conversion Cycle is the firms' estimation in terms of how long it takes to sell inventory, to receive payments on inventory sold and to make good invoices from creditors. Ashorter CCC could be associated with high profitability because it improves the efficiency of using the working capital (Nobanee, 2011).

Mihajlov (2012) with a sample of 108 firms is used, which are the most successful Serbian firms listed at the Prime and Standard Listing as well as the Multilateral Trading Platform of the Belgrade Stock Exchange. The accounts receivables policies are examined in the crisis period of 2008-2011. In order to explore the relation between accounts receivables and farm's profitability, the short-term effects are tested. The study shows that between accounts receivables and two dependent variables on profitability, return on total asset and operating profit margin, there is a positive but no significant relation. This suggests that the impact of receivables on firm's profitability is changing in times of a crisis.

Lwiki *(*2013) examined the impact of inventory management practices on the financial performance of sugar manufacturing firms in Kenya, by analyzing the extent to which lean inventory system, strategic supplier partnership and technology are being applied in these firms. The research survey was conducted in all the eight operating sugar manufacturing firms from the period 2002- 2007. Secondary data was obtained from annual financial performance statements available in the year Book sugar statistics. Descriptive statistics was used to test the impact of inventory management practices and Correlation analysis was used to determine the nature and magnitude of the relationship among inventory management variables. The results indicate that there exists a positive correlation between inventory management and Return on Sales (r=0.740)

and also with Return on Equity (r=0.653) which were found to be statistically significant at 5% level.

1.2 Statement of the problem

Commercial and services segments over years have had a challenge of being profitable in the past, this led some of them to be privatized with an objective to enhance operational efficiency, improve services, curb costs escalation, attract new investment and enhance quality of service delivery. Shareholders can only benefit from the value created by corporate managers when they instill effective working capital management in running the firms. Many firms today keep only the level of liquidity they are comfortable with and invest much on loans and other securities (Afza and Nazir, 2007). Key components of working capital management is efficient management of accounts receivable that ensures that invoices due because of sales are paid in good time. On the other hand, firms should make sure that they pay for their obligations when they are due and also converting inventory into the required values and lastly managing financial conversion cycle. Over years, commercial and services segments have been privatized and ultimately listed in Nairobi Securities Exchange where their operations are governed by CM of Kenya regulations. The symptom of the problem was that in spite of regulations by Capital Market Authority ,Uchumi Super Market Ltd continuously incurred losses over years , Kenya Airways Ltd also was faced with challenges of managing its capital leading to losses, Nation media group profit dropped since 2013,Standard group had a mixed fortune posting a loss of 282 million in 2017,TPS Serena made a loss in 2015,Express ltd posted a loss in 2014-2016,Atlas development and support services posted a loss in the year 2013-2014,Deacons posted a loss in 2015-2016 ,Sameer Africa posted a loss in 2016. Other firms in commercial services segment are Scan Group Ltd, Longhorn Publishers Ltd and Nairobi Business Venture Ltd. Many researchers have conducted research on effects of working capital management on financial performance. Waithaka (2012) conducted effects of working capital on financial performance on Agricultural companies listed in NSE, Nduta (2015), manufacturing firms, Hiram kariuki & Dr Willy Muturi (2017) on Non-Financial listed firms and Runyora (2012) on Oil and petroleum companies. This misfortune of financial performance of commercial and services segments necessitated the current study that analyzed effect of working capital management on financial performance of commercial and services firms listed in Nairobi Securities Exchange.

1.3 Purpose of the study.

The general objective of the study was to analyze effect of working capital management on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya.

1.3.1 Objectives of the study.

Specific objectives of the study were;

i. To ascertain the effect of accounts receivable on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya.

ii. To establish the effect of accounts payable on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya.

iii. To ascertain the effect of inventory conversion on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya.

iv. To ascertain the effect of cash conversation cycle on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya.

1.4 Hypothesis of the Study

HO_1: Accounts receivable does not have significant effect on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya.

HO_2: Accounts payable does not have significant effect on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya.

HO_3: Inventory conversion does not have significant effect on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya.

HO_4: Cash conversation cycle does not have significant effect on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya.

1.5 Significance of the Study

The study contributed to the existing body of knowledge of the effect of effect of working capital management on financial performance of listed commercial and service firms. The findings from the study shall be of great importance to the CMA of Kenya who formulate policies that promote efficiency in the management of the listed firms in understanding how the existing policy support efficient working capital management with an aim of improving financial performance of the

listed companies. Second, the finding of the study shall be of important to scholars in financial management, economics, corporate structures, accounting in broadening their knowledge on effect of working capital management on financial performance of listed commercial and service firms. Third, since listed companies are owned by individual, corporate and government investors, the findings from this study shall be of great importance to the stakeholders, shareholders and regulatory bodies of the Nairobi Securities Exchange (NSE) in understanding effect of working capital management on financial performance of listed commercial and service firms.

1.6 Scope of the study

This study covered the following elements of working capital management: debtors' obligations, firms obligation to creditors, sales of inventory and the firms' cash flow. Return on asset as a measure of performance was the dependent variable. The study was conducted in NSE among firms in commercial and service segment. Secondary data analyzed were audit financial reports of the listed firms.

1.7 Limitation/ Delimitations of the Study

The following limitation hampered the study from attaining its objective and testing the research hypotheses. The study had a challenge especially on some rear cases where some elements of Accounts Receivable, Accounts Payable, Inventory Conversion Period and Cash Conversion Cycles were not captured in the financial reports. The researcher overcame this challenge by physically visiting the firms to verify the data elements and obtained the correct figures.

1.8 Assumptions for the study

During the study the following assumptions were used:
  I.   The audited financial statements were all availed during the study.
  II. The time used in collecting data was adequate.
  III. The findings of the study hoped to provide the employees, stakeholders and the management board with adequate knowledge for decision making.
  IV. The study hoped to enhance credit policies in the commercial and services segments in the NSE.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed relevant literature on effect of working capital management on financial performance of commercial and services segments in Kenya, a case study of commercial and services segments Listed in Nairobi Securities Exchange. This section was divided into the theories informing the study, Theoretical review, empirical review, knowledge gaps and conceptual framework.

2.2 Theoretical Review

The study adopted the following theories to explain the effect of working capital on financial performance of listed commercial and services segment; Residual Equity Theory, Value Chain Theory, Operating Cycle Theory, Cash Conversion Cycle Theory and Transaction Cost Economics Theory.

2.2.1 Residual Equity Theory

Residual Equity Theory was developed by Hendrickson (1982). Residual equities are the claims of creditors and the equities of preferred stockholders. The balance sheet equation becomes as follows: 'Assets minus specific equities are equal to Residual equity'. Stockholders equity is reported differently compared to preferential stockholders. According to Hendrickson (1982) the residual equity point of view is a concept somewhere between the proprietary theory and the entity theory.

The objective of the residual equity approach is to provide better financial reporting as a consequence of good financial management practices. Since financial statements are not generally prepared on the basis of possible liquidation, the information provided regarding the residual equity should be useful in predicting possible future financial status to common stockholders. In the balance sheet format this is stated as follows: 'Assets minus liabilities are equal to residual equity'. The assets are assumed to be owned by the proprietor and the liabilities are the proprietor's obligations. Revenues are increases in proprietorship and expenses are decreases. Thus the net income accrues directly to the owners, that is, it represents an increase in the wealth of the proprietors. The proprietorship is considered to be the net value of the business

to the owners. It is a wealth concept (Hendrickson, 1982). This theory is the basis of testing the performance which is the dependent variables of the study.

2.2.2 Value Chain Theory

Rappaport's (1986) theory on shareholder value network is adopted here because it explains the linkage between the corporate objective of value creation and its value drivers (Irene, 2010). He argues that to be effective, management must be guided by a set of principles that can be applied to decision making in various situations (Irene, 2010). To this end, he also developed a number of financial management approaches and basic principles applicable to the management of working capital. Two major principles are the objective of shareholder value creation and cash flow approach to decision making. Rappaport (1986) felt that the objective of shareholder's value maximization is critical as owners of a firm hire a manager to act in their best interest by generating profits (Irene, 2010). Shareholders value/wealth maximization criterion therefore becomes a basic approach to formulate and evaluate a firm's objective (Irene, 2010). This theory is relevant to the study as it informs on the study variables of capital management.

2.2.3 Operating Cycle Theory

Richards and Laughlin (1980) developed this theoretical approach was they focused their attention at looking at management of working capital and its individual elements. Firms scrutinize their balance sheet and income statement to maintain optimal liquidity to reduce the cost of inventory carriage, they do this to increase their cash flow and with an intention of making more profit. Accounts receivable and inventory turnover usually give firms position of managing their liquidity compared to current and acid taste ratio. The flow concept of liquidity can be developed by extending the static balance sheet analysis of potential liquidation value coverage to include income statement measures of a firm's operating activity. In particular, incorporating accounts receivable and inventory turnover measures into an operating cycle concept provides a more appropriate view of liquidity management than does reliance on the current and acid-test ratio indicators of solvency. These additional liquidity measures explicitly recognize that the life expectancies of some working capital components depend" upon the extent to which three basic activities- production, distribution (sales), and collection are non-instantaneous and un-synchronized (Weston and Eugene, 2012). Accounts receivable turnover is an indicator of the frequency with which a firm's average receivables investment is converted into cash.

Firms' policy on credit cycle impacts on the outstanding debts relative to a firm's annual sales. The cumulative days per turnover for accounts receivable and inventory investments approximates

the length of a firm's operating cycle. Incorporating these asset turnovers into an operating cycle concept of the current asset conversion period thereby provides a more realistic, although incomplete, indicator of a firm's liquidity position. The operating cycle concept is deficient as a cash flow measure in that it fails to consider the liquidity requirements imposed on a firm by the time dimension of its current liability commitments. Integrating the time pattern of cash outflow requirements imposed by a firm's current liabilities is as important for liquidity analysis as evaluating the associated time pattern of cash inflows generated by the transformation of its current asset investments (Richards and Laughlin, 2013). The theory is relevant to the study as it looks explicitly at current assets which accounts receivable is a major component and gives income statement measures of a firm's operating activities which includes production, distribution and collection. This theory will be the basis of the test of the effect of accounts receivable on financial performance of commercial and service segment in NSE in Kenya.

2.2.4 Cash Conversion Cycle Theory.

The cash conversion cycle, which represents the interaction between the components of working capital and the flow of cash within a company, can be used to determine the amount of cash needed for any sales level. Gitman (2005) developed CCC is the process of adding inventory period to AR period and then subtracting accounts payables from it. Its focus is on the length of time between the acquisition of raw materials and other inputs and the inflows of cash from the sale of finished goods, and represents the number of days of operation for which financing is needed.

The rate at which firms convert their inventory into cash and how long it takes for such cash to be collected can gauge firms' working capital as it shows the time lag between expenditure for the purchase of raw materials and the collection of sales of finished goods (Padachi, 2006). Day-to-day management of a firm's short term assets and liabilities plays an important role in the success of the firm. Firms which can manage their cash conversion cycle always can not go under due to efficient liquidity management (Jose and Lancaster, 2006). Richards and Laughlin (2010) argued that traditional ratios such as current ratio, Quick acid test and cash ratios has not been able to provide accurate information about working capital and insisted on using ongoing liquidity measures in working capital management, where ongoing liquidity refers to the inflows and outflows of cash as a product of acquisition, production, sales, payment and collection process done over time.

The firm's ongoing liquidity is a function of its cash conversion cycle, hence the appropriateness of evaluation by cash conversion cycle, rather than liquidity measures. According to Arnold (2008) the shorter the CCC, the fewer are the resources needed by the company. So the longer the cycle the higher will be the investment in the working capital. But also a longer cycle could increase sales, which could lead to higher profitability. But this longer cycle, will also lead to higher investment and could rise faster than the benefits of the higher profitability. Cash Conversion Cycle Theory will be used as the theoretical basis of objective four that is set to ascertain the effect of cash conversation cycle on financial performance of Commercial and services segment in Kenya.

2.2.5 Transaction Cost Economics Theory.

Transaction Cost Economics Theory was developed by Oliver (2009) who observes that the optimum level of inventory should be determined on the basis of a trade-off between costs and benefits associated with the levels of inventory. Costs of holding inventory include ordering and carrying costs. Ordering costs is associated with acquisition of inventory which includes costs of preparing a purchase order or requisition form, receiving, inspecting, and recording the goods received. However, carrying costs are involved in maintaining or carrying inventory and will arise due to the storing of inventory and opportunity costs. There are several motives for lower or higher levels of inventories and highly depends on what business a company is in.

The most widely and simple motive of managing inventories is the cost motive, which is often based on the Transaction Cost Economics (TCE) theory (Emery and Marques, 2011). To be competitive, companies have to decrease their costs and this can be accomplished by keeping the costs of stocking inventory to a reasonable minimum. This practice is also highly valued by stock market analysts (Sack, 2000). The theory will be the basis of the address of objective three which is to ascertain the effect of inventory conversion on financial performance of commercial and services segments in NSE in Kenya.

2.3 Empirical Review

2.3.1 Effect of Accounts Receivable on Financial Performance of commercial and services firms

Waweru (2011) carried out a study on the relationship between receivables management and the value of companies at the NSE in Kenya using secondary data from NSE. A sample of 22

companies listed on the NSE for a period of seven years from 2003 to 2009 was studied. The 27 average stock prices was used to measure the value of the firm. The regression models indicated that there was some relationship between receivables management and the firm's value while the result of the Pearson correlation indicated a negative relationship between average cash collection period, inventory turnover in days, cash conversion cycle and the value of the firm. Accounts receivable management is a dynamic financial management process and its effectiveness is directly correlated with a firm's ability to realize its mission, goals and objectives (Sherman, 2010).

Despite the role cash flow management plays, many firms have not implemented effective cash flow management practices and the results can be dire, Ahmet (2012). Even profitable firms can go bankrupt if they fail to manage their accounts receivable effectively, particularly, if they operate in rapid-growth or seasonal industries (Prere, 2010). For a credit policy to be effective it should not be static but requires review periodically to incorporate changes in a firm's strategic direction and risk tolerance as well as to ensure that the firm operate in line with competition to ensure sales and credit departments are benefiting (Eliots 2009). Szabo (2012) note that due to the speed in which technology is changing and the dynamics in business caused by changes in the internal and external environment, the ways in which businesses are conducted today differ significantly from yester years. The competitive nature of the business environment require firms to adjust their policies and strategies frequently for survival and growth (Kathleen, 2010). Although a credit policy ensures decision making process is logical and simplified it is based on pre-determined parameters at a historical period in time which may not hold at the current time (Venancio 2013).

Extending credit to customers is a decision based on the credit management and policy of a firm. Granting credit exists to facilitate sales. On the other hand, Al-Mwala (2012) state that sales are pointless without due payment and therefore the sales and accounts receivable functions must work together to achieve the objective of sales maximization within minimum length of time. Owalabi and Obida (2012) note that credit sales are a sign that firm is able to maximize its sales and improve its financial performance. When a firm increase its cash collection from debtors it also increases net working capital and reduces the cost of holding accounts receivable and both leading to a decrease in the value of the firm (Sushma, 2007),. Firms who pursue an

increase in the accounts receivable to an optimal level increase their profitability resulting from the increased sales and market share.

Extension of Credit as stated by Gill, (2010) should only be on the basis of customer creditworthiness in order to minimize the level of default and bad debts. Weston & Copeland (205) state there are six C's of credit which credit managers should consider when extending credit: character, capacity capital, collateral, condition and contribution. They further assert that the six C's helps firms to decrease their default rate as they get to know their customers. Information on the C's can be obtained several sources including the firm's prior experience with the customers, financial statements for previous years, credit reporting agencies and even the customer's financial institutions (Kalunda, 2012). As stated by Gitau. (2014), the purpose of credit control is to ensure that trade debts are recovered early enough before they become uncollectible and a loss to the business. According to Pandey (2008), average collection period determines the speed of payment by customers and delayed payment is a potential ground for bad debts which have a negative effect on a firm's financial performance.

Many firms establish a credit period for their customers and offer discounts to encourage early payments. Gitau (2014) citing Chee and Smith (1999) assert that there are two forms of credit periods: the net terms which specifies that full payment is due within a certain period after delivery, for example, "net 30" means full payment is due 30 days after invoice and after that the buyer is in default; the two part terms which has three basic elements, discount percentage, discount period and effective due date, for example "2/10 net 30" would mean 2% discount for payment within 10 days and a net period ending on day 30 and thereafter if payment not received the buyer is in default. Longer credit periods are likely to stimulate sales while at the same time a firm forgoes the use of its funds for longer length of time and increases the potential for bad debts and losses. Gitau (2014) state that unless transactions occur instantaneously, payment arrangement is credit terms. As stated by Pandey (2008), a firm can shorten its credit period if customers are defaulting too frequently and bad debts are building up. However, through expanded sales, a firm will length credit period to increase its operating profit.

Dedication of debt collection resources ensures better and timely collection and few instances of bad debts. When sales are on credit, a monitoring system is important to avoid the potential build up to excessive levels of accounts receivable which would erode set profits (Maria 2014). Meyer (2006) advocate that firms should have rational and dedicated collection resource to categorize

customers for future credit depending on their credit worthiness. Atkinson et al (2007) posit that credit procedures should include instructions on what data to be used for credit investigation and analysis process, provide information for data approval process, account relationships and instances for management notification.

Maria (2014) relates dedication of debt collection to human factors establishing that dedicated resources ensured better collection and fewer instances of bad debts. Owonde (2013) provide that customer relationship officers in most firms' act as the link between the firm and customers. They maintain close links which help in monitoring business activities of the customers and raising the red flag for management to take action before a debt can go bad and affect the firm's profits. Padachi (2006) state that a collection resource is a control process which ensures that trade debts are recovered early enough before they become un-collectable and therefore a loss to an organization.

Overdue accounts receivable is delayed payment by customers and is a potential ground for bad debts and subsequent low profitability. Although extension of Credit as stated by Gill, et al (2010) should only be on the basis of customers' creditworthiness in order to minimize the level of default and bad debts, firms that use a lenient credit policy tend to give credit to customers on very liberal terms and standards that credit is granted for longer periods even to those customers whose credit worthiness is not well known (Krueger, 2005). Gitau. (2014), state that the purpose of credit control is to ensure that trade debts are recovered early enough before they become uncollectible and a loss to the business. In an attempt to pursue customers who do not pay on due dates, a firm may follow different procedures. Dunn (2009) state that a firm seeking to pursue overdue accounts may remind the debtor through a politely worded letter, a strongly worded letter, send a representative and eventually contemplate a legal action or writing off the debt altogether. Collection efforts may involve reminding the debtor through a demand note and if no response is received, progressive steps using tighter measures are taken (Pandey, 2008). Gitau (2014) assert that a creditor should use litigation as a last resort to collect a debt that is bad and when there is a major breakdown in the repayment agreement resulting in undue delays and legal action is required to effect collection. Finally, a debt may be written off when the creditor feels that it is uncollectable. It is honorable to write off a bad debt from the books of accounts to give a true and fair view of the firm's financial position.

2.3.2 Effect of Accounts Payable on Financial Performance

Similar studies on capital and firm performance were by: Mwangi, Makau, and Kosimbei, (2014), who found that financial leverage had a statistically significant negative association with performance as measured by return on assets (ROA) and return on equity (ROE); Siro, (2011), whose findings revealed that there was an inverse relationship between capital structure and financial performance of listed firms in NSE; Leonard, (2014), found that debt and equity were major determinants of financial performance of firms listed at the NSE and there was evidence of a negative and significant relationship between capital structure and all measures of performance, implying that the more debt the firms used as a source of finance they experienced low performance and firms listed at NSE used more short-term debts than long-term debts.

Nima et al, (2012) examined the relationship between capital structure and firm performance of Tehran Stock Exchange Companies between the years 2006 to 2011 and established that the independent variables considerably had effect on dependent variable. Similar studies by Ebaid (2009), Nimalathasan, (2010) and Pouraghajan, (2012) found weak-to-no influence, debt was positively and strongly associated with financial performance and significant negative relationship between debt ratio and financial performance, respectively, as measured by profitability. Another similar study by Iorpev and Kwanum, (2012) revealed a negative and insignificant relationship between Short term debt to total assets and Long term debt to total assets, and ROA and profit margin.

Munene, (2011), examined The Effect of Lease Financing on The Financial Performance of Companies Listed at the Nairobi Securities Exchange and found that lease financing and size of the firm had negative effects on ROA while liquidity and leverage had positive effects on ROA and established that sources of financing operations does not have relationship with financial performance of listed firms in Kenya. Akinbola, (2012) study found that lease option had positively affected the profit of the SME's as did a similar examination by Salam, (2013) in Bangladesh on the performance of Medium enterprises SMEs. Malm, and Rosland, (2013), investigated the Bond-to-Total Debt Ratio on Firms' Performance and found an in insignificant relationship between the bond-to-total debt ratio and firm performance. Several researchers have tested the effects of profitability on firm leverage. Kester (1986) and Friend and Lang (1988) concluded that there was a significantly negative relationship between profitability and debt/asset ratios. Rajan and Zingales (1995) and Wald (1999) found a significantly negative relationship

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between profitability and debt/asset ratios. A similar study by Duyen, (2012) found that short-term debt presents a negative impact on profitability measured by net margin.

Pratheepkanth, (2011), study found a weak positive relationship between gross profit and capital structure and there was a negative relationship between net profit and capital structure. ROI and ROA also had negative relationship with capital structure at -0.104, -0.196 respectively. Kajirwa, (2015), examination revealed that debt negatively affects firm performance of NSE Commercial Banks, though not statistically significant as measured by ROA. Kajananthan & Nimalthasan (2013) examination indicated that gross profit, net profit, return on equity, return on assets, were not significantly correlated with debt equity ratio and Gross profit margin and Return on equity were significantly correlated with debt assets ratio as the measures of capital structure and capital structure had significant impact on gross profit and return on equity. Quainoo, (2011) study investigated the impact of loans on SMEs (in Ghana) and found that term loans were the most patronized type of bank loans due their repayment structure which were structured in line with the business cash flows; that most SMEs used loans as working capital mainly to source raw materials for production; that bank loans for SMEs were mostly used improve their performance and that there was a major disadvantage of accessing a bank business loan because of the high cost of capital (usually high interest rate) charged mostly on SMEs.

Charitou , (2010), performed a study on the effect of working capital management on firm's financial performance and found that the cash conversion cycle and all its major components; namely, days in inventory, days' sales outstanding and accounts payable payment period – were associated with the firm's profitability and that working capital management led to improved profitability.

2.3.3 Effect of ICP on Financial Performance

Mathuva (2010) found contradicting evidence with the management of inventories in Kenya. He argued that companies increase their inventory levels to reduce the cost of possible production stoppages and the possibility of no access to raw materials and other products. He further stated that higher inventory levels reduces the cost of supplying products and also protects against price fluctuations caused by changing macroeconomic factors. Waweru (2011) in his empirical study OF the influence of working capital management on the value of the firms listed at NSE concluded that there is a statistical relationship between efficient working capital management and the value of firms quoted at the NSE.

Carrying costs are involved in maintaining or carrying inventory and will arise due to the storing of inventory and opportunity costs. There are several motives for lower or higher levels of inventories and highly depends on what business a company is in. The most widely and simple motive of managing inventories is the cost motive, which is often based on the Transaction Cost Economics (TCE) theory (Emery and Marques, 2011). To be competitive, companies have to decrease their costs and this can be accomplished by keeping the costs of stocking inventory to a reasonable minimum. This practice is also highly valued by stock market analysts (Sack, 2000).

Samiloglu& Demirgunes (2008) in his empirical study in Turkey between 1998-2007established that, accounts receivables period, inventory turnover period and leverage significantly and negatively affect profitability. They also proved that cash conversion cycle, size and fixed financial assets had no statistically significant effect on profitability.

Lieberman and Helper (2009) studied the determinants of inventory policies of automotive companies in the United States. They found that both technological and managerial factors have a significant influence on the determining of the levels of inventories. Technological factors, like longer setup and processing times increases the level of inventories. While the average price per piece of inventory decreases the inventory levels. They also found that managerial factors, like more employee training and problem solving training have a reducing effect on the inventory levels.

Mutungi (2010) carried out a study on the relationship between working capital management and financial performance of oil marketing companies in Kenya. The study was inspired by the fact that working capital in any firm is extremely critical and requires conscious balance between the components on the working capital namely cash, receivables, payables and inventory. The objectives of the study was to establish the working capital management policies among oil marketing firms in Kenya and to examine the relationship between working capital management and profitability in oil marketing firms in Kenya. From the correlation analysis, the study concluded an existence of aggressive working capital policy in the oil sector.

Waweru (2011) carried out a study on the relationship between working capital management and the value of companies quoted at the NSE. The study used secondary data collected from annual reports and audited books of accounts of firms listed on the Nairobi securities exchange. A sample of 22 companies listed on the NSE for a period of seven years from 2003 to 2009 was

studied. The average stock price was used to measure the value of the firm established that there are some influence of working capital management on firms' value.

2.3.4 Effect of Cash Conversion Cycle on Financial Performance

There are multiple ways of measuring profitability. Deloof (2003) analyzed gross operating income in the measurement of financial assets in the firms balance sheet indicating lack receipt of most of their ROA from operating activities. However, in more recent studies, such as Pais and Gama (2015) and García-Teruel and Martínez-Solano (2007), ROA and ROIC are used as measures of profitability. By removing industries normally associated with high levels of financial assets, such as bank and insurance industry, they argue that this will reflect the return from operating activities, and thus be a valid measure of profitability.

The firms' cash flow measures working capital management popular known as cash conversion cylce (Deloof 2003 and Jose, 2012). It is the time between purchase of raw materials and getting finished goods paid. Longer cash cycle means more investment on working capital. Reduction of CCC improves profitability with longer cycles increases profitability because it leads to higher sales (Deloof 2003). More recent studies, Silva (2011) and Gomes (2013) found the existence of a non-monotonic (concave) relationship between working capital level and firm profitability, which indicates that firms have an optimal working capital level that maximizes their profitability (see also Baños-Caballero, 2012 for evidence concerning Spanish SMEs).

Dong& Su (2010) study of the listed firms in Vietnam stock market covering 2006 to 2008 and on the effect of CCC on profitability revealed that cash conversion cycle had a negative effect on profitability. When CCC increases, if affect firms profitability by reducing it. As such the managers could create a positive value for the shareholders by handling the adequate cash conversion cycle and keeping each different component to an optimum level.

Sharma and Kumar (2011) carried a study to determine the effect of WCM on profitability of Indian firms. The study found a positive relation between WCM and firms Profitability, although the relationship between CCC and ROA was not statistically significant. The study also found that accounts receivables are also positively related to ROA and that accounts payables are negatively related to ROA. The findings revealed that profitability is dependent CCC.

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Kaddumi and Ramadhan (2012) conducted a study to assess the effect of WCM on the performance of Jordanian Industrial Corporations listed at Amman Stock Exchange and established that cash conversion cycle and inventory conversion cycle had relationship with profitability. This implies that handling proper inventory and shortening the debtors' collection period will increase the profitability. On the other hand, they found positive relationship between average payment period and profitability implying that increase of payment period increase profitability.

Kiprono (2004) studied the relationship between cash flows and earnings performance measures for companies listed in the Nairobi Stock Exchange (NSE). His objective was to determine the relationship between return on assets (ROA), return on equity (ROE), and return on net assets (RONA) against the cash flows of firms. To achieve this, regression analysis was employed on thirty companies listed at the NSE. The companies were picked randomly and were analyzed for the five-year period between 1998 and 2003. He concluded that there is a positive or direct association between cash flows from operating activities and all the return performance indicators. The results also showed that there is a negative or indirect association between cash flow from financing and investing activities and returns performance indicators. Cash flows does not influence performance indicators. However, he noted that it is important to determine the impact of firm size in cash flow and earnings performance indicators.

Soimo (2010) studied the relationship between WCM and profitability of State Owned Commercial Enterprises in Kenya. He took a sample of 23 firms for a period of 5 years from 2005 to 2009. He analyzed his data using simple linear regression model to establish the relationship between WCM and profitability. He found that organizations operating in the same industry operating on a shorter Cash Conversion Cycle than their peers were able to report better returns. Kamula (2011) study on cement companies operating in Kenya as at 30-12-10using data for five years (2006-2010) and testing the data using Spearman's Correlation analysis established that there was relationship between Working Capital Management and Profitability. The finding of the study was that there is a negative relationship between WCM and profitability variables.

2.4 Knowledge Gap

The main aim of this study was to analyze effect of working capital management on financial performance of Commercial and services segment in Kenya. The review considered theoretical review on theories surrounding working capital and financial performance. The study also reviewed working capital elements including accounts receivable and payable, inventory conversion and cash conversion cycle and how they relate to financial performance. Similar studies done locally in Kenya have revealed relatively similar results as concluded by Biwott (2011) Caffaso (2011), Kamula (2011), Kweri (2011). As earlier noted, the issue on accounts receivables have been widely studied. However, largely missing from literature is the focus on manufacturing sector and specifically on manufacturing firms in Nakuru municipality that is in significantly different industry setting compared to industries where studies have already been done locally. They are equally in significantly different context to other manufacturing firms where studies have already been done elsewhere in the world. Indeed, Biwott (2011), Caffasso (2011) and Kweri (2011) have recommended similar studies to be done in different industries and sectors. The following are the literature gap that this review established; there is no specific literature that generally contain information analyze effect of working capital management on financial performance of commercial and services firms listed in NSE in Kenya, creating a research gap in this area; None of the studies particularly looked at accounts receivable and payable, inventory conversion and cash conversion cycle and how they affect Return on Asset which are the measures of financial performance which is a research gap that this study has filled.

2.5 Conceptual Framework

This is a hypothesized model identifying the concepts or variables under the study and their relationships. It is a scheme of concepts (variables), which the researcher operationalized in order to achieve the set objectives. The purpose of the conceptual model was to help the researcher to relate the proposed relationships.

Independent Variables   **Dependent Variable**

| Accounts Receivable |
| • Annual trade receivable |

| Accounts Payable |
| • Average trade payable |
| • Annual trade purchases |

| Inventory Conversation Period |
| • Average Inventory |
| • Cost of Sales |

| Cash Conversion Cycle |
| • Accounts payment period |
| • Accounts collection period |

| Financial Performance (ROA) |
| • Net Income |
| • Total Asset |

Intervening Variable

| Macro-Economic Environment |
| • Tax Regime |
| • Interest rate |

Source: (Own Conceptualization, 2018)

Figure 1: Effect of Working Capital Management on Financial Performance

Accounts Receivable (average trade receivable and annual credit sales), Accounts Payable (Average trade payable and credit purchases), Inventory Conversion (Average Inventory and cost of sales) and Cash Conversion Cycle (Accounts payment period and collection period) are the independent variables of the study. The dependent variable is return on asset as a measure of firms' performance. The intervening variable is macroeconomic environment including tax regimes and interest rate. When the listed commercial and service segments manage their working capital effectively under controlled macroeconomic environment in terms of the country's existing tax regimes and exchange rate then their financial performance (Return on Asset) improves and vise visa.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This section presents detail methodology adopted by the study including; the design adopted for the study, where the study was conducted, population targeted, how the population was sampled and the sample size obtained, data collection instruments and procedure and data analysis methods.

3.2 Research Design

The study will adopt a descriptive research design taking the listed in commercial and service segment of Nairobi Securities. According to Lovell and Lawson (1971) descriptive research is concerned with conditions that already exist, practices that are held, processes that are ongoing and trends that are developing. Descriptive research design is most appropriate when the purpose of study is to create a detailed description of the issue relating working capital and financial performance (Mugenda & Mugenda, 1999).

3.3 Population of the Study

The target population of the study comprised the 12 firms under commercial and service segment of NSE. The study purposively took the 12 firms under commercial and service segment as the sample size.

3.4 Data Collection Technique

Unlike other studies where the data relied upon for the purposes of analysis has been drawn from surveys, interviews and other similar sources, this study being financial based used secondary data from audited financial statement of the 12 firms. In Kenya, under present regulations, these are only readily available from enterprises listed in Nairobi Stock Exchange. The 11 years' period is adequate to show a developed pattern as far as effect of working capital management on Return of Asset. Once the proposal was successfully presented, the researcher obtained an official letter from Kabarak University to allow him apply for research permit from The National Commission for Science, Technology and Innovation (NACOSTI). After obtaining

the permit as requirement by NACOSTI Act 2007, the researcher downloaded all the financial statement covering the 11 years' period of the study which was published in the firms' website.

3.5 Data Analysis

Both random and fixed effects regression models was applied. To discriminate between random effects and fixed effects models, the study applied the Hausman test and based on the p value obtained, the researcher was in a position to reject or accept the null hypothesis. Thereafter the researcher carried out autocorrelation test between variables, testing for panel roots, for heteroskedasticity, for random effects and time fixed effects in the data to ensure regression model assumptions was not violated. Correlation analysis also was used to test the hypothesis of the study. Descriptive statistics was used to summarize and profile the status of working capital management and corporate financial performance among the commercial and services companies listed in the NSE and thereafter analysis was done by use of Stata statistical analysis software, and presented in form of tables, and charts. To test the hypotheses of the study, the following model was used to analyze the relationship between the variables and test hypothesis direction by the regression model coefficient at 95% confidence level.

$$Y_{it} = \alpha + \beta_1 ACP_{it} + \beta_2 APP_{it} + \beta_3 ICP_{it} + \beta_4 CCCP_{it} + \varepsilon$$

Where;

Y_{it}= Return on Asset, α =constant, $\beta_1 ... . \beta_{4d}$ = parameter estimates

ACP = Average Collection Period.

APP = Average Payment Period.

ICP= Inventory Conversion Period.

CCCP= Cash Conversion Cycle Period.

ε is the error of prediction (with a Zero variance).

Testing the moderating effect of working capital management on financial performance of Listed Commercial and Service Firms in Nairobi Stock Exchange

$$Y_{it} = \alpha + \beta_1 ACP_{it} + \beta_2 APP_{it} + \beta_3 ICP_{it} + \beta_4 CCCP_{it} \ (InRate) + \varepsilon$$

β_5 =Parameter of estimate on for interest rate

3.6 Ethical Considerations

The study was conducted on ethical background. Caution was taken during data collection period since the researcher maintained and upheld high levels of objectivity in the entire process and acknowledges citations by previous authors where reference was made to past literature. The firms' secondary data collected were kept confidential. Data generated from the financial reports were analyzed on their natural setting of occurrence without alteration and falsifying of information. The firms in commercial and services a segment was assured that the information provided was used solely for academic purpose. No pressure or inducement of any kind was applied to encourage the firms to participate in the research study. Participants was allowed to withdraw from the process if they so wish. Upon completion the researcher intends to publish the findings so as to provide literature for future research on the topic and the suggested areas for further studies.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSIONS

4.1 Introduction

The purpose of this chapter was to analyze the data collected in relation to the set objectives and hypotheses, interpret and discuss the findings of the study in reflection to what other scholars have documented on effect of working capital management on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya. Specifically, the study analyzed the effect of accounts receivable, accounts payable, inventory conversion and cash conversation cycle on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya. The variables were first analyzed using descriptive analysis in terms of mean and standard deviation. The core secondary data relating to the null hypotheses was tested using both Pearson Correlation and multivariate regression analysis, tested statistic at 0.05 significance level. Presentation was done by use of tables and figures. A total of 12 audited financial reports were obtained from the firms in the commercial and services sector of Nairobi Securities Exchange.

4.2 Working Capital and Firms Performance Statisitcs

In this section, the study first found it necessary to present the results on the mean, standard deviation, minimum and maximum values of accounts receivable, accounts payable, inventory conversion and cash conversation cycle and financial performance listed commercial and service firms in Nairobi Securities Exchange Kenya.

4.2.1 Trend of Accounts Receivable and Payable Management
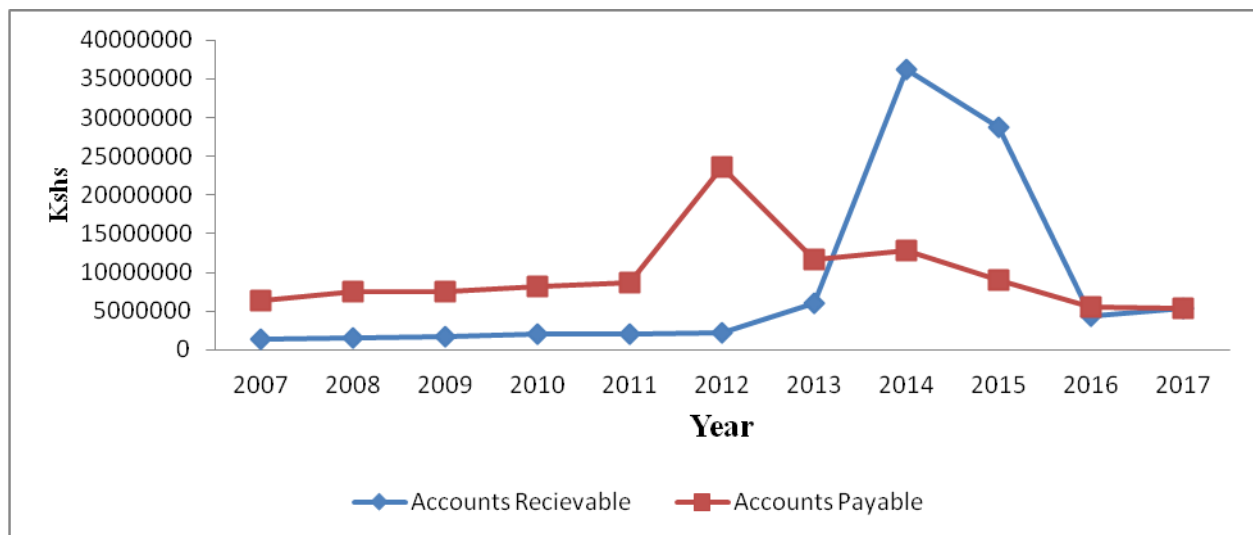
Figure 4.2.1: Trends in Accounts Receivable and Payable

Figure 4.2.1 presents the descriptive statistics of both the accounts payable and receivable of the listed firms in the commercial segment in the NSE. The results reveal that accounts payable of the firms were higher between 2007 to 2013 with almost linear trend except for 2012 and 2013 when the difference between accounts payable and accounts receivable was larger. The results between 2014 and 2015 indicated that accounts receivable were higher than accounts payable with a drop and almost a tie in 2016 and 2017. This finding is supported by by Ebaid (2009), Nimalathasan, (2010) and Pouraghajan, (2012) found weak-to-no influence, debt was positively and strongly associated with financial performance and significant negative relationship between debt ratio and financial performance, respectively, as measured by profitability. Another similar study by Iorpev and Kwanum, (2012) revealed a negative and insignificant relationship between Short term debt to total assets and Long term debt to total assets, and ROA and profit margin.

The trend is further supported by Quainoo, (2011) who study investigated the impact of loans on SMEs (in Ghana) and found that term loans were the most patronized type of bank loans due their repayment structure which were structured in line with the business cash flows; that most SMEs used loans as working capital mainly to source raw materials for production; that bank loans for SMEs were mostly used improve their performance and that there was a major

disadvantage of accessing a bank business loan because of the high cost of capital (usually high interest rate) charged mostly on SMEs.

This finding indicated that the firms in commercial segment in the NSE had poor accounts receivable between 2007 to 2013 compared to accounts payable. Accounts payable and accounts receivable are two main indicators of cash flow in either direction and are critical in determining the financial health of firms which require proper tracking and managing them is important not only for assessing overall performance, but for helping managers and owners make smarter decisions that can influence an organization's future. Poor management and control of accounts receivable could have resulted to disruption of the firms' daily operations caused by cash flow problems which results to non-payment of suppliers of goods and services, non-payments of employees and inability to meet statutory obligations.

4.2.2 CCC Trends
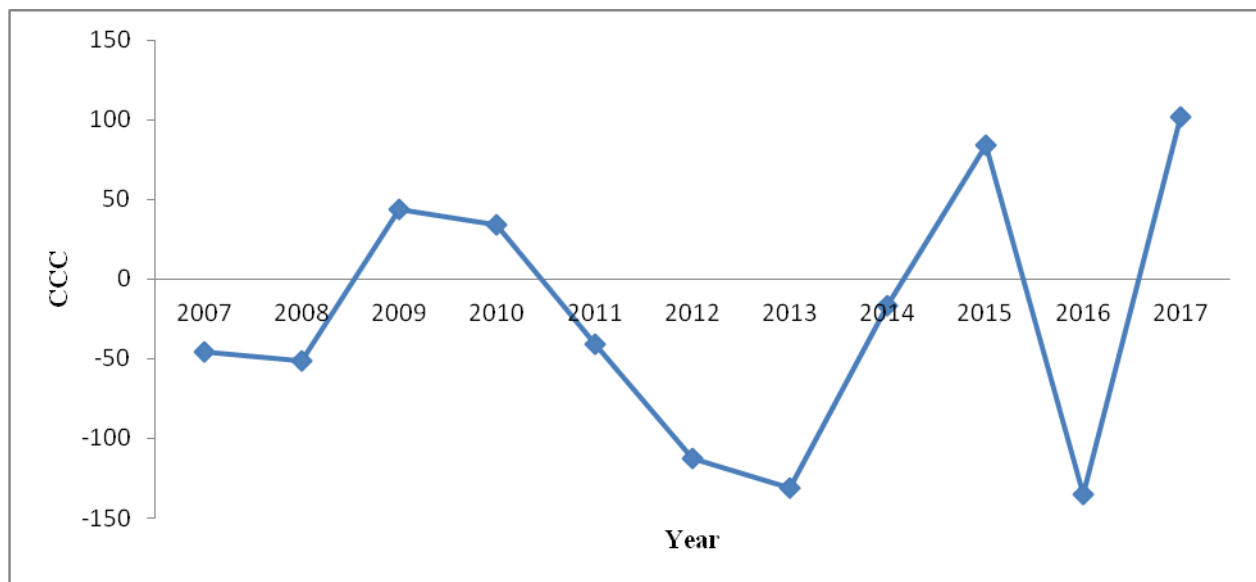
Figure 4.2.2: CCC Trends

A result from figure 4.2.2 was used to presents findings on trends of Cash Conversation Cycle of the listed firms in commercial segment of the NSE. The study established that the CCC for the year 2007 and 2008 was -50 which shot up to 50 in 2009 and ultimately dropped to -100 in 2013. In 2015 there was a positive turn of 100 in 2015 and a drastic drop in 2016 to -100 followed with a final rise to positive 120 in 2017. This finding generally indicated that the CCC of firms in commercial segment took a *zig zag* pattern indicating fuzzy CCC. The negative cash cycle indicated that the firms during that period did not pay for inventory or materials until after they were sold the final product associated with them. It means the firms were using their working capital as efficiently as possible and had available cash for other things.

The CCC trend is supported by Dong& Su (2010) study of the listed firms in Vietnam stock market covering 2006 to 2008 and on the effect of CCC on profitability revealed that cash conversion cycle had a negative effect on profitability. When CCC increases it make the firms profitability reduces drastically. Managers should work to multiply shareholders investment by reducing CCC leading to more profitability. The trend is further supported by Sharma and Kumar (2011) carried a study to determine the effect of WCM on profitability of Indian firms. The study found a positive relation between WCM and firms Profitability, although the

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relationship between CCC and ROA was not statistically significant. The study also found that accounts receivables are also positively related to ROA and that accounts payables are negatively related to ROA. The study established that firms' profitability is inverse to CCC.

Further support of CCC trends is by Kaddumi and Ramadhan (2012) conducted a study to assess the effect of WCM on the performance of Jordanian Industrial Corporations listed at Amman Stock Exchange and established that cash conversion cycle and inventory conversion cycle had relationship with profitability. This implies that handling proper inventory and shortening the debtors' collection period will increase the profitability. On the other hand, they found positive relationship between average payment period and profitability implying that increase of payment period increase profitability.

Kiprono (2004) studied the relationship between cash flows and earnings performance measures for companies listed in the Nairobi Stock Exchange (NSE). His objective was to determine the relationship between return on assets (ROA), return on equity (ROE), and return on net assets (RONA) against the cash flows of firms. To achieve this, regression analysis was employed on thirty companies listed at the NSE. The companies were picked randomly and were analyzed for the five-year period between 1998 and 2003. He concluded that there is a positive or direct association between cash flows from operating activities and all the return performance indicators. The results also showed that there is a negative or indirect association between cash flow from financing and investing activities and returns performance indicators. Cash flows does not influence performance indicators. However, he noted that it is important to determine the impact of firm size in cash flow and earnings performance indicators.

4.2.3 Trends in Sales by the Firms
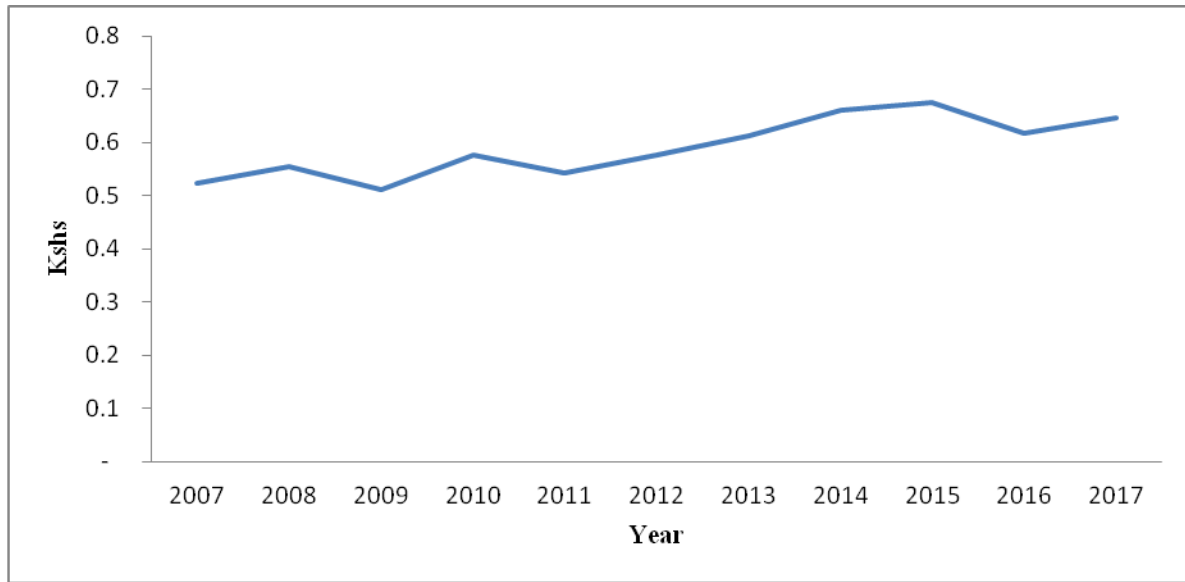
Figure 4.2.3: Trends in Sales by the Firms

Results from figure 4.2.3 illustrates sales trends starting with Kshs 0.52 billion sales in the year 2007 with a gradual increase to Kshs. 0.57 billion in the year 2010 sales a sudden increase to Kshs 0.62 billion in the year 2013 and an equal sudden drop to Kshs 0.63 billion in the year 2017.

4.2.4 Trends in the Firms Asset
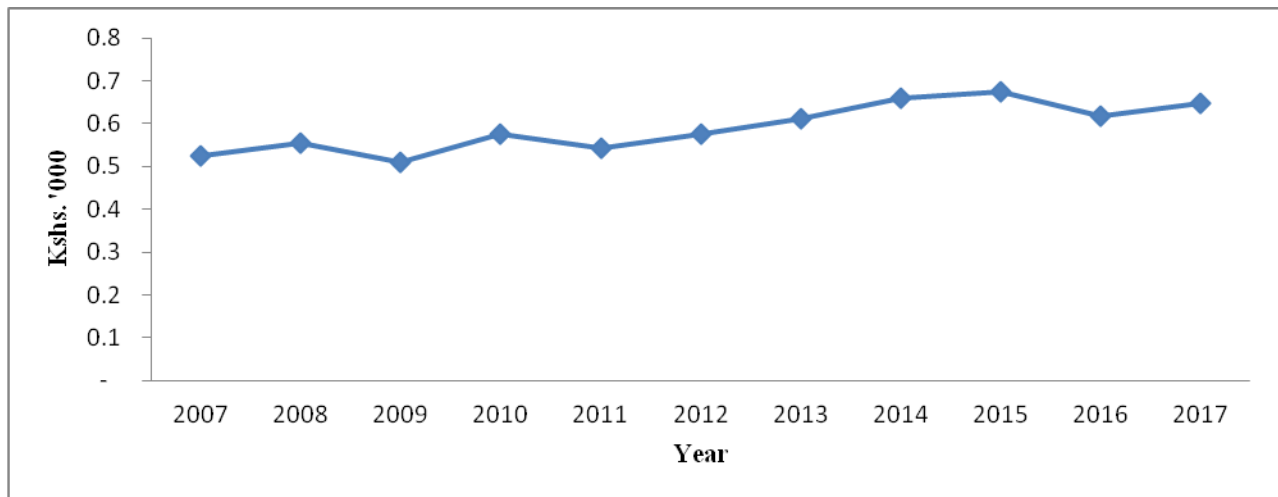
Figure 4.2.4: Trends in the Firms' Asset

Figure 4.2.4 was used to present the results of the asset base of the firms in commercial segment in the NSE. The study established that there was a gradual acquisition of asset starting with Kshs

0. 5 billion in the year 2007, gradually rising to about Kshs 0.66 Billion in 2013 and a drastic rise Kshs 0.7 billion and Kshs 0.72 Billion in 2014 and 2015 respectively before drastically dropping to Kshs 0.59 Billion in 2016 and ksh 0.6 in the year 2017.

The trends in firm asset is supported by Nima et al, (2012) who examined the relationship between capital structure and firm performance of Tehran Stock Exchange Companies between the years 2006 to 2011 and established that the independent variables considerably had effect on dependent variable. Similar studies that supported the trend were by by Ebaid (2009), Nimalathasan, (2010) and Pouraghajan, (2012) found weak-to-no influence, debt was positively and strongly associated with financial performance and significant negative relationship between debt ratio and financial performance, respectively, as measured by profitability. Another similar study by Iorpev and Kwanum, (2012) revealed a negative and insignificant relationship between Short term debt to total assets and Long term debt to total assets, and ROA and profit margin.

The finding is further supported by Kajananthan & Nimalthasan (2013) examination indicated that gross profit, net profit, return on equity, return on assets, were not significantly correlated with debt equity ratio and Gross profit margin and Return on equity were significantly correlated with debt assets ratio as the measures of capital structure and capital structure had significant impact on gross profit and return on equity. Quainoo, (2011) study investigated the impact of loans on SMEs (in Ghana) and found that term loans were the most patronized type of bank loans due their repayment structure which were structured in line with the business cash flows; that most SMEs used loans as working capital mainly to source raw materials for production; that bank loans for SMEs were mostly used improve their performance and that there was a major disadvantage of accessing a bank business loan because of the high cost of capital (usually high interest rate) charged mostly on SMEs.

4.2.5 Trends in the Firms' Cost of Sale
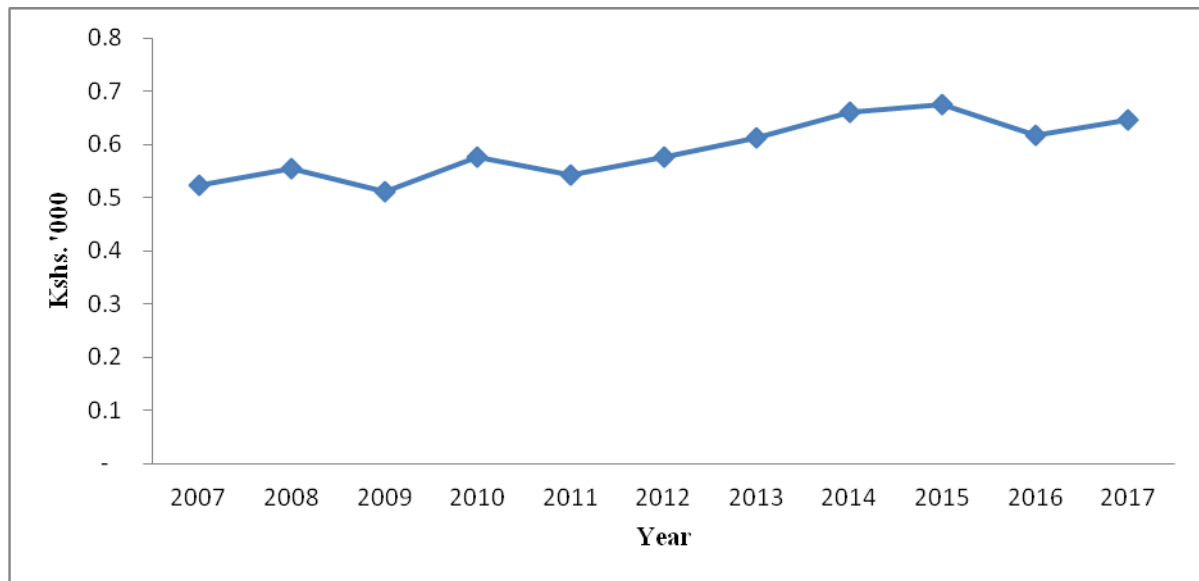
Figure 4.2.5: Firms' Cost of Sale

Results from figure 4.2.5 revealed that the cost of sale gradually increased from Kshs 0.52 Billion to Kshs 0.6 Billion in 2007 to 2010 before drastically rising to Kshs.0.72 Billion in 2015 which was the highest. The trend drastically dropped from 2016 to about Kshs 0.63 Billion and finally raising to Kshs 0.64 Billion in 2017. The finding indicated that the firms had challenges managing the cost of sale between 2007 to 2013, they finally managed to control the costs after 2014.

4.3 Descriptive Statistics for Various Measures of Working Capital Management and Financial Performance

This section indicates the mean, standard deviation, minimum and maximum value of measures of Working Capital Management and Financial Performance. Working Capital measures presented included; cash flow.

Table 4.1: Statistics designed for different Measures of Working Capital Management and Financial Performance

Working Capital	Years	Min	Max	Mean	Std. Dev
Accounts Receivable	11	1,339,617	36,274,987	8,323,394	12,179,313
Accounts Payable	11	5,290,728	23,664,068	9,660,361	5,193,502
Invent. Conv. period (Days)	11	95	419	186	98
Cash Conv. Cycle	11	(131)	102	(23)	81

Source: Abstract of Accounts (2007-2017)

4.5.6 Firms in Commercial Segment Performance

This section presents the results of financial performance of the firms in commercial and services segment in the NSE. The financial performance was measure using the firms' Return on Asset whose indicators were net income captured in terms of the sales in the financial reports and total asset.
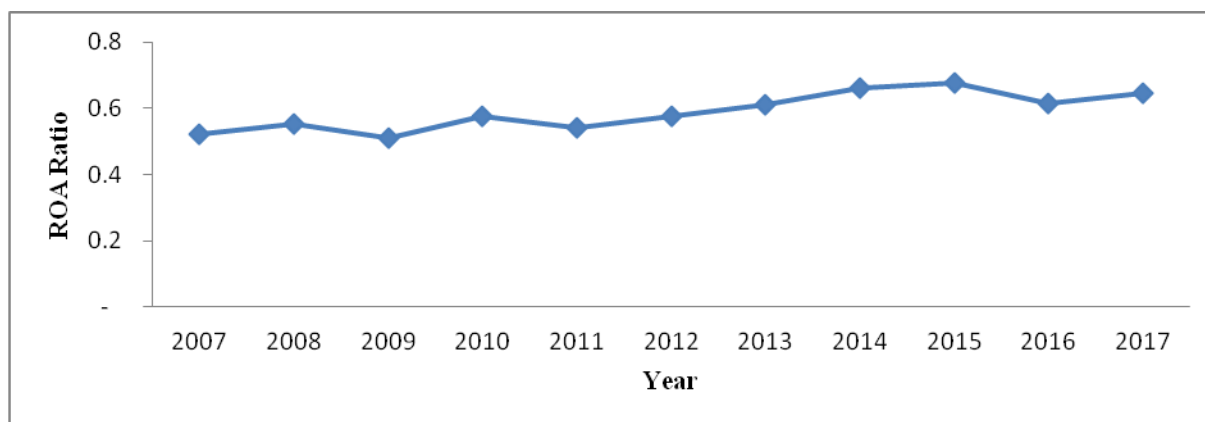
Figure 4.5.6: Return on Asset of the Firms in Commercial Segments

The study established that the ROA grew gradually from 0.5 in the year 2007 to about 0.7 in the year 2015 before a slight drop 2016 and another rise in 2017.

Table 4.2: Descriptive Statistics

WC/Performance	Observ	Average	Stand. Dev.	Min	Max
ARB	132	8,323,394	45,700,000	-	403,000,000
APB	132	9,660,361	28,200,000	-	190,000,000
INCP	132	370	757	4	4,547
CCC	132	169	125	13	222
Return on Asset	132	0.612	0.215	0.1	1.0

Key: ARB = Accounts Receivable, APB = Accounts Payable, INCP = Inventory Conversion Period, CCC = Cash Conversion Cycle and ROA = Return on Investment

Descriptive analysis indicates the mean and standard deviation of the diverse capital management and financial performance variables of in the study. The table also indicates highest and lowest variable values used. The table shows that the average value of return on assets (ROA) is 60% and standard deviation is 20.0%. ROA deviated from mean to both sides by 20.0%. The maximum and minimum values for the dependent variable (ROA) are 10.0%. The independent variables for the study comprised of accounts receivable, accounts payable, inventory conversion period and cash conversion cycle.

The mean accounts receivable was 8,323,394 with a standard deviation of 45,700,000 with maximum of 403,000,000. Accounts payable had a mean of 9,660,361 deviating with 28,200,000 and maximum of 190,000,000. The mean inventory conversion period was 370 days deviating up to 753 days, the shortest time of collection was 4 days whereas the longest time it took for collection was 4,547 days. It took an average of 169 days in the firms' cash conversion cycle deviating by 125 days. The shortest time for CCC was 13 days whereas the longest CCC was 222 days. The table 4.3 provides a summary of descriptive statistics on how the firms performed over between 2007-2017.

4.5 Inferential Statistics

This section presents the results of inferential statistics using panel data regression and the decision of which type of model to adopt based on Hausman Test. Data normality tests are carried out before testing the set hypotheses.

4.5.1 Panel Data Regression

Panel regression was used to test existence of any relationship between the independent and dependent variable. The researcher used fixed effects and random effects model panel data regression models, thereafter Hausman test was conducted to choose between the two models and relevant diagnostics test were carried out before conclusion was made from the preferred model.

4.5.1.1 Fixed effects panel data model

Table 4.3: Fixed effects panel data model

```
FE panel data model          Number of obs    =     132

Group variable: var2                  Number of groups   =       12


R-sq: within = 0.1695                Observ. per group: min =      11

   between = 0.1639                           avg =        11.0

   overall = 0.1467                           max =        11


                         F(4,116)       =     5.90

corr(u_)   = -0.3873              Prob > F       =   0.0015



-------------------------------------------------------------------------------
    ROA |    Coef.  Std. Err.    t   P>|t-|   [95% Confidence. level]
-------------+-----------------------------------------------------------------
    ARB |  .0001093 .0000286 -3.82  0.000   .0001659  .0000527

    APB |  1.0109  4.31e-10  4.32  0.000    1.01e-09   2.72e-09

    INCC | 7.571509 1.97e-09 -3.85 0.000    1.15e-08  3.67e-09

    CCC |  .0000367  .0000351 1.05  0.297   .0000327  .0001061

   _cons |  .616089  .0232526  26.50 0.000 .5700343   .6621437

-------------+-----------------------------------------------------------------
  sigma_u |  .15823777

  sigma_e |  .1592031

     rho |  .49791906   (fract. of var. due to u_i)

-------------------------------------------------------------------------------
F test that all u_i=0:    F(11, 116) =    9.02         Prob > F = 0.000025
```

Source: Published Audited Financial Statements (2007-2017)

The fixed effects model above shows that the combined effect of working capital management on return on assets is statistically significant within the listed commercial and service firms in

Nairobi Securities Exchange. The study established chi-square of 0.0002<0.05 with R squared of 0.1690 indicating that the firms cash flows had effect on return on assets by 16.9 % while the other 73.1% was from factors outside the scope of the study. It can therefore be concluded that the independent variables can be used to foresee the outcome of return on assets within the listed commercial and service firms in Nairobi Securities Exchange.

From the model accounts receivable is positively related with return on assets. From the model, an increase in accounts receivables will result in an increase in return on assets by 0.0001093 units keeping accounts payable, inventory conversion period and cash conversion cycle constant. The relationship is more of significant and therefore can be used to predict the outcome of return on assets. The relationship between accounts payable and return on assets is positively related. When accounts payable increases by 1 unit, return on assets also increases by 1.0109 units with other variables kept constant resulting into statistically significant relationship where $p = 0.000 < 0.05$. On the other hand, inventory conversion cycle period had positive significant relationship with return on asset. When inventory conversion cycle period increases by 1 unit, return on assets also increases by 7.571509 units with other variables kept constant. Resulting into a significant relationship, $p = 0.000 < 0.05$.

Further analysis indicated that cash conversion cycle period had a positive relationship with return on asset. From the model, an increase in cash conversion cycle by a day will lead to an increase in return on assets by .0000367units keeping other variables constant. The relationship though is not statistically significant and it cannot be used to foresee the result of return on assets since is $p = .297 > .05$. Overall, inventory conversion period was the best predict of return on asset with any increase on inventory conversion cycle period will result in an increase in return on assets by 7.571509 units keeping other variables constant where $p = .000 < .05$.

4.5.1.2 RE Model

Table 4.4: Random Effects regression model

Random-effects GLS regression				Number of obs =	132
Group variable: var2				Number of groups =	12
R-sq: within = 0.16173				Obs per group: min =	11
between = 0.1607				avg =	11.0
overall = 0.1563				max =	11
		Wald chi2(4)	=	24.40	
Corr (u_i, X) = 0 (assu.)		Prob > chi2	=	0.0001	

ROA	Coef.	Std. Err.	z	P> |z|	[95% Conf. Interval]	
ARB	-.0000929	.0000239	-3.89	0.000	-.0001397	-.0000461
APB	1.7709	4.16e-10	4.25	0.000	9.53e-10	2.58e-09
INCP	-6.3809	1.58e-09	-4.04	0.000	-9.47e-09	-3.29e-09
CCC	.0000322	.0000314	1.03	0.305	-.0000294	.0000937
Int. rate	.0014701	.0014251	2.05	0.418	.0001457	.0014361
_cons	.6098188	.0522285	11.68	0.000	.5074529	.7121848

---

sigma_u	.16729943	
sigma_e	.1592031	
r-h-o	.5259191	(fraction of variance due to u_i)

Source: Published Audited books of accounts (2007-2017)

The random effects model above shows that the combined effect of working capital management on return on assets is statistically insignificant within the listed commercial and service firms in

Nairobi Securities Exchange. The study established chi square value of 24.4>0.05 with R squared 0.1672 indicating that firms' cash flows had effect on return on assets by 16.7 %, the other 73.3% were contributed by factors outside the scope of the study. It can therefore be accomplished that the independent variables can be used to foresee the result of return on assets within the listed commercial and service firms in Nairobi Securities Exchange.

From the model accounts receivable is inversely related with return on assets. From the model, an increase in accounts receivables will lead to a decrease in return on assets by -.0000929 units keeping accounts payable, inventory conversion period and cash conversion cycle constant. The relationship though is statistically important and therefore can be used to forecast the outcome of return on assets. The relationship between accounts payable and return on assets is positively related. When accounts payable increases by 1 unit, return on assets also increases by 1.7709 units with other variables kept constant which was statistically significant, $p = 0.000 < 0.05$. On the other hand, inventory conversion cycle period had inverse significant relationship with return on asset. When inventory conversion cycle period increases with 1 unit, assets decreases by 6.3809 units keeping with other variables constant indicating statistically significant relationship, $p = 0.000 < 0.05$.

Findings on accounts receivable is supported by Pratheepkanth, (2011), study found a weak positive relationship between gross profit and capital structure and there was a negative relationship between net profit and capital structure. ROI and ROA also had negative relationship with capital structure at -0.104, -0.196 respectively. Kajirwa, (2015), examination revealed that debt negatively affects firm performance of NSE Commercial Banks, though not statistically significant as measured by ROA. Further empirical studies that support the findings include; On the other hand, Al-Mwala (2012) state that sales are pointless without due payment and therefore the sales and accounts receivable functions must work together to achieve the objective of sales maximization within minimum length of time. Owalabi and Obida (2012) note that credit sales are a sign that firm is able to maximize its sales and improve its financial performance. When a firm increase its cash collection from debtors it also increases net working capital and reduces the cost of holding accounts receivable and both leading to a decrease in the

value of the firm (Sushma, 2007),. Firms who pursue an increase in the accounts receivable to an optimal level increase their profitability resulting from the increased sales and market share.

The finding on inventory conversion cycle is supported by Mathuva (2010) found contradicting evidence with the management of inventories in Kenya. He argued that companies increase their inventory levels to reduce the cost of possible production stoppages and the possibility of no access to raw materials and other products. He further stated that higher inventory levels reduces the cost of supplying products and also protects against price fluctuations caused by changing macroeconomic factors. The finding is further supported by Mutungi (2010) carried out a study on the relationship between working capital management and financial performance of oil marketing companies in Kenya. The study was inspired by the fact that working capital in any firm is extremely critical and requires conscious balance between the components on the working capital namely cash, receivables, payables and inventory. The objectives of the study was to establish the working capital management policies among oil marketing firms in Kenya and to examine the relationship between working capital management and profitability in oil marketing firms in Kenya. From the correlation analysis, the study concluded an existence of aggressive working capital policy in the oil sector.

Further analysis indicated that cash conversion cycle period had a positive relationship with return on asset. From the model, an increase in cash conversion cycle by a day will lead to an increase in return on assets by .0000322 units keeping other variables constant at any given time. The relationship though is not statistically significant and it cannot be used to forecast the outcome of return on assets since is p=.305>.05. Overall, inventory conversion period was the best foresee of return on asset with any increase on inventory conversion cycle period will effect in an increase in return on assets by -6.3809 units keeping other variables constant where p=.000<.05.

The finding on cash conversion cycle is supported by Kiprono (2004) studied the relationship between cash flows and earnings performance measures for companies listed in the Nairobi Stock Exchange (NSE). His objective was to determine the relationship between return on assets

(ROA), return on equity (ROE), and return on net assets (RONA) against the cash flows of firms. To achieve this, regression analysis was employed on thirty companies listed at the NSE. The companies were picked randomly and were analyzed for the five-year period between 1998 and 2003. He concluded that there is a positive or direct association between cash flows from operating activities and all the return performance indicators. The results also showed that there is a negative or indirect association between cash flow from financing and investing activities and returns performance indicators. Cash flows does not influence performance indicators. However, he noted that it is important to determine the impact of firm size in cash flow and earnings performance indicators.

The intervening effect of interest rate did not have significant effect in the relationship between working capital management and financial performance with r=0.0014701, p=0.418>0.05 indicating that an increase in 1 unit of interest rate will result into increase of ROA by 0.0014701 which was quite insignificant. The study therefore concluded that interest did not intervene the relationship between working capital management and financial performance of listed firms in NSE. The moderating effect of interest rate is supported by Quainoo, (2011) study investigated the impact of loans on SMEs (in Ghana) and found that term loans were the most patronized type of bank loans due their repayment structure which were structured in line with the business cash flows; that most SMEs used loans as working capital mainly to source raw materials for production; that bank loans for SMEs were mostly used improve their performance and that there was a major disadvantage of accessing a bank business loan because of the high cost of capital (usually high interest rate) charged mostly on SMEs.

4.5.2 Hausman Test

Estimating models from panel data requires a determination of whether a correlation exists between the unobservable heterogeneity of each firm and the independent variables within a model (fixed effects). The choice of the model to use was based on Hausman (1978). The study established p=0.3534>0.05 hence the null hypothesis was accepted, taking random model as the preferred model which according to Raheman and Nasr (2007) counters the challenges of heteroskedasticity.

	(b)	(B)	(b-B)	squrt (diag (V_b-V_B))
	fe	re	Difference	Std.Err.
ARB	.024875	-.01247	.0145108	…
APB	.045781	.0470954	-.0157971	…
INCP	-.01257	-.088739	.0125783	…
CCC	-.024573	-.0837702	.0457103	…

b = consistent under null and alt hyp; from reg

    B = conflicting under Ha, well-organized under Ho; from reg

 Test: Ho: difference in coeff. not method.

     $chi2(4) = (b-B)'[(V_b-V_B)^{\wedge}(-1)](b-B) = $ 3.98

   Prob.>chi2 =   0.3874

   (V_b-V_B is not positive definite)

Table 4.5: Hausman Test

In order to arrive at the required model, Hausman test. The hypothesis that the random effects model was preferred to the fixed effects model was used for the basis of the choice of the model. The study established chi-square of 3.98, p=0.3874>0.05, which was insignificant making the researcher accept and hence choosing random effect model as recommended by Greene (2012).

4.6 Diagnostic Test Results

The following diagnostic tests were used to ascertain data normality: time fixed effects test, test for random effects, test for cross sectional dependence, test of multicollinearity, autocorrelation test, panel unit root test, and Hausman specification test.

4.6.1 Test for Time Fixed Effect

Table 4.1: Test for Fixed Effect

```
testparm acrb acpb incp ccc roa
 ( 1)  acrb = 0
 ( 2)  acpb = 0
 ( 3)  incp = 0
 ( 4)  ccc = 0


     chi2( 4) =   3.47
   Prob > chi2 =   0.5176
```

The study established p=0.5176>0.05, hence the null that the coefficients for all years are both equal to zero was accepted, therefore there was no time fixed effects.

4.6.2 Test for Random Effect

The study carried out a Lagraian multiplier test to decide between random effects regression and simple Least Square regression. The study used BP/L-M multiplier test for random effects. The null hypothesis is pooled estimation was suitable.

Table 4.2: Breusch and Pagan Lagrangian multiplier test for random effects

```
    roa[firm,t] = Xb + u[firm] + e[firm,t]

    Estimated results:
              |    Var     sd = sqrt(Var)
         ----------------------------------------
         roa |   241.75844      11.2589
           e |   230.1573      11.21786
           u |      0             0
    Test:   Var(u) = 0
                chirbar2(01) =    5.864
              Prob > chibar2 =   0.002
```

A Chibar2 =5.864 and p=0.002<0.05 was established hence the null hypothesis that pooled estimation is suitable was rejected,RE model.

4.6.3 Test of cross-sectional dependence

Table 4.8 Test of cross-sectional dependence

```
      __e1    __e2    __e3
__e1   1.00000
__e2   0.0297  1.00000
__e3  -0.1301  0.6249  1.0000
Breusch-Pagan LM test of independence: chi2 (3) =    5.90, Pr = 0.9215
Observation = 132
```

The null hypothesis in the B-P/LM test of independence is that residuals across entities are not interrelated. The study found p=0.9215> the researcher therefore failed to reject the null hypothesis and found that there whence there was no cross sectional dependence data used in the study.

4.6.4 Test of heteroskedasticity

Table 4. 9: Modified Wald test for group wise heteroskedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

    Ho: Constant variance

    Variables: fitted values of roalog

    chir2 (1)   =   0.37

    Prob > chi2 =   0. 5378

The study established a chi-square value of .38, p=0.5378>0.05, hence the study found existence of heteroskedasticity in the data Poi and Wiggins (2001) corrected by Cross-sectional time-series FGLS regression estimation approach.

4.6.5 Multicollinearity Test

Table-4.3: Multicollinearity Test

```
   Variable      |    VIF     1/VIF
-------------+---------------------
  INCC         |    2.56   0.391307
  CCC          |    1.91   0.524558
  ARB          |    1.75   0.572332
  APB          |    1.08   0.927625
-------------+---------------------
  Mean VIF |    1.82
```

There were no multicollinearity between all the variables based on VIF<10 (Hair et al., 1999). Average payables period recorded the lowest variance inflation factor of 1.82.

4.6.6 Autocorrelation Test

```
Number of gaps in sample 2
Durbin-Watson d statistics (7, 21) =0.73345
```

Durban-Watson revealed 7 and n 21 degrees of freedom and p=0.73345>0.05 implying the D test was statistically important at 5 percent level hence no first order autocorrelation in the data used in the study.

4.6.7 Panel unit root test

Unit root test is important in panel analysis as it helps to determine whether the variables in the study are stationary. Stationarity of variables is important as the data generating process of non-stationary variables cannot be generalized over time. Results from non-stationary data analysis maybe spurious as non-stationary data is unpredictable and difficult to be modeled or forecasted. The regression indicates a relationship between two variables where none exists. Hence to check whether the variables are non-stationary, a unit root test was done at 5% significance level. The null hypothesis is presence of unit root verses the alternative stationarity.

4.7 Hypotheses Test

The study established that 3 out of 4 elements of working capital management had significant relationship with financial performance of firms listed in the NSE. Accounts Receivable had positive correlation with financial performance, r=.847, p=.003<.05 indicating that Accounts Receivable affected financial performance of firms' in the commercial segment of the NSE. The hypothesis **HO₁** that AR does not have significant effect on financial performance of firms in commercial and service segments in NSE was **rejected**. Accounts Receivable had positive correlation with financial performance, r=.686, p=.012<.05 indicating that Accounts receivables affected financial performance of firms' in the commercial segment of the NSE. This finding is supported by Waweru (2011) whose regression models established a relationship between receivables management and the firm 's value while the result of the Pearson correlation indicated a negative relationship between average cash collection period, inventory turnover in days, cash conversion cycle and the value of the firm. Meyer (2006) advocate that firms should have rational and dedicated collection resource to categorize customers for future credit depending on their credit worthiness. The purpose of credit control is to ensure that trade debts are recovered early enough before they become uncollectible and a loss to the business. In an attempt to pursue customers who do not pay on due dates, a firm may follow different procedures (Gitau, 2014).

   Firms seeking to pursue overdue accounts should remind the debtor through a politely worded letter, a strongly worded letter, send a representative and eventually contemplate a legal action or writing off the debt altogether. Collection efforts should involve reminding the debtor through a demand note and if no response is received, progressive steps using tighter measures should be taken (Pandey, 2008). Firms should use litigation as a last resort to collect a debt that is bad and when there is a major breakdown in the repayment agreement resulting in undue delays and legal action is required to effect collection. Finally, a debt may be written off when the creditor feels that it is uncollectable. It is honorable to write off a bad debt from the books of accounts to give a true and fair view of the firm's financial position Gitau, 2014).

The hypothesis **HO₂** that AP does not have significant effect on financial performance of firms in commercial and service segments in NSE Kenya was **rejected**. Accounts Payable (AP) had positive correlation with financial performance, r=.509, p=.05 indicating that Accounts Payable (AP) affected financial performance of firms' in the commercial segment of the NSE. This

finding is supported by Leonard, (2014) who found that debt and equity were major determinants of financial performance of firms listed at the NSE and there was evidence of a negative and significant relationship between capital structure and all measures of performance, implying that the more debt the firms used as a source of finance they experienced low performance and firms listed at NSE used more short-term debts than long-term debts.

The hypothesis **HO₃** that ICP does not have significant effect on financial performance of firms in commercial and service segments in Nairobi Securities Exchange Kenya was rejected. Inventory Conversion Period had no correlation with financial performance, r=.509, p=.050 indicating that Inventory Conversion Period affected financial performance of firms' in the commercial segment of the NSE. This finding differed with Mathuva (2010) found that companies increase their inventory levels to reduce the cost of possible production stoppages and the possibility of no access to raw materials and other products. He further stated that higher inventory levels reduces the cost of supplying products and also protects against price fluctuations caused by changing macroeconomic factors. To be competitive, companies have to decrease their costs and this can be accomplished by keeping the costs of stocking inventory to a reasonable minimum. Lieberman and Helper (2009) found that both technological and managerial factors have a significant influence on the determining of the levels of inventories. Technological factors, like longer setup and processing times increases the level of inventories. While the average price per piece of inventory decreases the inventory levels. They also found that managerial factors, like more employee training and problem solving training have a reducing effect on the inventory levels.

The hypothesis **HO₄** that CCC does not have significant effect on financial performance of firms in commercial and service segments fin Nairobi Securities Exchange Kenya was **accepted**. The study established that Cash Conversion Cycle had no significant relationship with financial performance, r=.001, p=.073>.05 indicating that Cash Conversion Cycle (CCC) did not affect financial performance of firms' in the commercial segment of the NSE. This finding is supported by Silva (2011) and Gomes (2013) found the existence of a non-monotonic (concave) relationship between working capital level and firm profitability, which indicates that firms have an optimal working capital level that maximizes their profitability (see also Baños-Caballero , 2012 for evidence concerning Spanish SMEs). This means that as the cash conversion cycle increases, it will lead to declining of profitability of firm. As such the managers could create a

positive value for the shareholders by handling the adequate cash conversion cycle and keeping each different component to an optimum level. Besides, Sharma and Kumar (2011) found out that although the relationship between CCC and ROA was not statistically significant. The study also found that accounts receivables are also positively related to ROA and that accounts payables are negatively related to ROA. The results also imply that Indian firms can increase profitability by increasing Cash Conversion Cycle.

The study therefore established that apart from Cash Conversion Cycle, the other elements of Working Capital Management (Accounts Receivable, Accounts Payable and Inventory Conversion Period) affected financial performance measured in terms of Return of Asset (ROA) of firms' in commercial segment in the NSE.

Part of this finding is supported by Kiprono (2004) who established a positive or direct association between cash flows from operating activities and all the return on asset performance indicators. The results also showed that there is a negative or indirect association between cash flow from financing and investing activities and returns performance indicators. On overall, there was a weak relationship between cash flows and performance indicators. However, he noted that it is important to determine the impact of firm size in cash flow and earnings performance indicators.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.

5.1 Introduction

The chapter summarizes the study and makes conclusion based on the results. The recommendations and areas for further study. This section presents the findings from the study in comparison to what other scholars have said as noted under literature review.

5.2 Summary

The Descriptive analysis and inferential analysis results are summarized in this area. The descriptive analysis helps the study to describe the relevant aspects of the working capital management on financial performance of listed commercial and service firms in NSE and provide detailed information about each relevant variable. For the inferential analysis, the researcher used the regression analysis. The study first evaluated the effect of accounts receivable, accounts payable, inventory conversion and cash conversation cycle on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya. Lastly the study established the combined effect of accounts receivable and payable, inventory conversion and cash conversion cycle on financial performance of listed commercial and service firms in Nairobi Securities Exchange.

First, the study established that the firms in commercial segment in the NSE had poor accounts receivable between 2007 to 2013 compared to accounts payable. Accounts payable and accounts receivable are two main indicators of cash flow in either direction and are critical in determining the financial health of firms which require proper tracking and managing them is important not only for assessing overall performance, but for helping managers and owners make smarter decisions that can influence an organization's future. Poor management and control of accounts receivable could have resulted to disruption of the firms' daily operations caused by cash flow problems which results to non-payment of suppliers of goods and services, non-payments of employees and inability to meet statutory obligations. Second, the study established that the inventory conversion period is greatly influenced by the efficiency and effectiveness of the manufacturing process and the selling process. The time taken to produce a given quantity of

goods depends on the nature of the product and the type of technology used in the production process.

Third, the study established that the CCC of firms in commercial segment took a *zig zag* pattern indicating fuzzy CCC. The negative cash cycle indicated that the firms during that period did not pay for inventory or materials until after they were sold the final product associated with them. It means the firms were using their working capital as efficiently as possible and had available cash for other things. The study established that there was a gradual acquisition of asset starting with Kshs. 0.5 billion in the year 2007, gradually rising to about Kshs. 0.66 Billion in 2013 and a drastic rise to Kshs. 0.7 and Kshs. 0.72 Billions in 2014 and 2015 respectively before drastically dropping to Kshs. 0.59 Billion in 2016 and 0.6 Billion in 2017.

5.3 Conclusions

The study analyze effect of working capital management on financial performance of listed commercial and service firms in NSE. First, the study found out that Accounts Receivable (AR) had positive correlation with financial performance of listed commercial and service firms in NSE indicating that Accounts Receivables affected financial performance of the firms. Secondly, the study also established that Accounts Payable (AP) had positive correlation with financial performance of listed commercial and service firms in NSE indicating that Accounts Payable (AP) affected financial performance of the firms. Third, Inventory Conversion Period had no correlation with financial listed commercial and service firms in NSE indicating that Inventory Conversion Period did not affect financial performance of firms' in the commercial segment of the NSE. Four, Cash Conversion Cycle (CCC) did not affect financial listed commercial and service firms in NSE. Five, when Accounts Receivable (AR), Accounts Payable (AP), Inventory Conversion Period (ICP) and Cash Conversion Cycle (CCC) were combined, the study established that apart from Cash Conversion Cycle, the other elements of Working Capital Management (Accounts Receivable, Accounts Payable and Inventory Conversion Period) affected financial performance measured in terms of Return of Asset (ROA) of firms' in commercial segment in the NSE.

5.4 Recommendation

5.4.1 Policy Recommendation

1. The study recommends that firms' in commercial and service segment in the NSE should enhance credit management to avoid over investment in accounts receivables.

2. Collection policies should be reviewed in order to make the cash conversion cycle shorter for efficient working capital while keeping in view the intensity of competition.

3. The study also recommends proper inventory management to avoid overstocking which could negatively affect financial performance.

4. While coming up with inventory related policies the study recommends that the firms should come up or enhance computerizing inventory management systems to track all inventory for actions that are less costly as far as holding inventory is concern.

5.4.2 Suggestions for further study

The study recommends comprehensive evaluation of the effect of working Capital on financial performance across all the segments in NSE which the current study did not look at. The findings from such a study will shade more lights on comparative analysis on how the listed firms across the segments handle their working capital elements and how that affects their financial performance. The finding will be important in advising NSE on the development of policies that will enhance effective working capital management of the firms.

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LIST OF APPENDICES

Appendix I: List of Formerly Firms in Commercial and Service Segment of NSE

1. Express Ltd,
2. Sameer Africa PLC,
3. KQ Ltd,
4. Nationmedia Group,
5. Stan. Group Ltd,
6. T.P.S. Serena Ltd,
7. Scan Group Ltd,
8. Uchumi Super Market Ltd,
9. Longhorn,
10. Atlas Deve.
11. Deacon (East Africa) PLC and

12. Nairobi Business Venture Ltd.

Appendix II: Data collection tool

Company Name……………………………………………………………………

year	Sales	EBIT	Accounts receivables	Inventory	Cost of sales	Accounts payables	Total Current assets
2017							
2016							
2015							
2014							
2013							
2012							
2011							
2010							
2009							
2008							
2007							

Appendix III: Operationalization of Variable

Variables	Measurements
FIN. PERFORMANCE Fin. Perf. (ROA)	Return on Assets= $\underline{\text{Net income}}$ $\qquad\qquad$ Total assets
WORKING CAPITAL	
Debtors Period	$\underline{\text{Average Debtors}}$ x365 days Yearly Turnover
Creditors Period	$\underline{\text{Average Creditors}}$ x 365 days Annual Credit Purchases
Stock Period	$\underline{\text{Av. Inventory}}$ x365 days $\qquad\qquad$ Cost of Sales
CCC	Accounts Payment Period - Accounts Collection Period
Control Variables	
Tax Regime	Tax = 30%* Net Profit before Tax
Inflation	