ANALYSIS OF WORKING CAPITAL MANAGEMENT ON PERFORMANCE OF CONSTRUCTION AND ALLIED, ENERGY AND PETROLEUM COMPANIES LISTED AT NAIROBI SECURITIES EXCHANGE, KENYA

BY

CHARLES ACHUODHO LUMBWA

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DEPARTMENT OF ACCOUNTING AND FINANCE

MASENO UNIVERSITY

ABSTRACT

Working capital management means the administration of current assets and current liabilities. Studies on effect of working capital management on profitability have revealed positive and negative relationships. Studies focusing on average collection period, inventories turnover in days, average payment period and cash conversion cycle on performance of construction and allied, energy and petroleum companies are missing. This study seeks to analyze working capital management on performance of construction and allied, energy and petroleum companies listed at Nairobi Securities Exchange, Kenya for a period of 2000-2016. Specific objectives are to determine; effect of average collection period on performance, effect of inventories turnover in days on performance, effect of average payment period on performance and effect of cash conversion cycle on performance of construction and allied, energy and petroleum companies. The study was anchored on the cash conversion cycle and risk-return trade-off theories. The study adopted diagnostic and descriptive research designs. Study was done in Kenya. Target populations are 9 firms, appendix I. Stratified sampling was used to sample 2 sectors. Census survey was used for 8 companies in the two sectors. Secondary data was used. Data sources were financial statements. Data was analyzed using regressions and correlations. Results were presented by tables. Regression and correlation analysis revealed a significant negative relationship between salesT and ACP ($R=-0.297$, p value$=0.001<0.01$), insignificant negative relationships between ROE and ACP ($R=-0.163$, p value$= 0.078>0.05$) implying that short ACP was applied for quick money collection. It established a significant negative relationship between salesT and ITP ($R= -0.546$, p value$=0.000<0.01$) implying firms took short period to convert inventories to sales, insignificant positive relationships between ROE and ITP ($R=0.132$, p value$=0.154>0.05$) implying firms held a lot of inventories for more production. It revealed a significant negative relationship between saleT and APP ($R= -0.306$, p value$=0.001<0.01$), insignificant negative relationship between ROE and APP ($R= -0.134$, p value$=0.148>0.05$) implying firms speeded up payments to benefit from prompt payments. It established a significant negative relationship between salesT and CCC ($R=-0.180$, p value$=0.051\geq0.05$) implying firms applied short CCC to avoid funds tied up in working capital, insignificant positive relationship between ROE and CCC ($R=103$, p value$=0.268>0.05$) implying many inventories held. Multiple regression of independent variables on sales revealed 34.4% variations in sales turnover was explained by the model, multiple regression of independent variables on ROE revealed 6.6% variations in ROE was explained by the model. The study concludes that ACP has negative effects on sales turnover and ROE, ITP relates to sales turnover negatively and ROE positively, APP relates to sales turnover and ROE negatively and CCC affects sales turnover negatively and ROE positively. Study recommends shortening ACP, ITP, CCC and paying suppliers in time. Study suggests other sectors to be studied. Results were useful to scholars, company managers, investors, regulators and policy formulators.

CHAPTER ONE: INTRODUCTION

1.1 Introduction

This section provides the background of the study, statement of a problem, objectives of the study, research questions, scope of the study, justification of the study and conceptual framework.

1.2 Background of the study

Working capital also called gross working capital refers to current assets. Current assets are assets which can be converted into cash within an accounting year and includes, cash, short term securities, debtors (accounts receivables) or book debts, bills receivables, stock (inventories). Current liabilities are those claims of outsiders which are expected to mature for payments within an accounting year and include creditors (accounts payables), bills payables and outstanding payments, overdrafts, accruals and provisions for taxations. Net working capital can either be positive or negative. A positive net working capital will arise when current assets exceed current liabilities and indicates the ability of the business to pay off its short term financial obligations at most when requests come from suppliers (Brealey & Myers, 2002). A negative net working capital arises when current liabilities are in excess of current assets and indicates the inability of the business organization to pay short term obligations. Working capital management refers to the administration of current assets and current liabilities.

Working capital is a vital element in any organizational setting that requires cogent attention, proper planning and management (Owolabi and Alu, 2012). Excessive working capital indicates an accumulation of idle current assets, which do not contribute in generating income for the firm during the operating period however inadequate working capital harms the credit worthiness and the day-to-day activities of firms, which may lead to insolvency (Singh and Asress, 2010).

Average collection period is one of the important ratios in financial management. Its effect on profitability has been studied by many authors. Ksenija (2013) investigated how public companies listed in Serbia manage their accounts receivables during the recession. A sample of 108 firms was used and the accounts receivables policies were examined in

the crisis period of 2008-2011. Using correlation and regression, findings revealed that there is a positive but no significant relation between accounts receivables and two dependent variables on profitability return on total asset and operating profit margin.

Kwasi (2010) study of 11 Ghanaian Oil marketing firms employing trend and econometric analysis from 2001-2008 found a significant negative relation between profitability and number of day's accounts receivables, number of days payables, the cash conversion cycle and the net trade cycle.

Akoto, Awunyo-Vitor and Angmor (2013) studied listed manufacturing firms in Ghana. Using panel data methodology and regression analysis they found a significant negative relationship between profitability and accounts receivable days. Falope and Ajilore (2009) study of 50 Nigerian quoted non-financial firms from 1996-2005 using panel data econometric, pooled regression, time series and cross sectional observations found a significant negative relationship between profitability and average collection period.

Gakure, Cheluget, Onyango and Keraro (2012) study of 15 manufacturing NSE firms from 2006-2010 using Pearson's correlation and regression analysis indicated that there is a strong negative relationship between firm's performance and liquidity, a negative coefficient relationship between ACP, APP, inventory holding period and profitability while the CCC was found to be positively correlated with profitability. Mathuva (2009) study of Kenyan NSE listed firms from 1993-2008 using Pearson's and spearman's correlation, panel data regression, pooled OLS and FEM found a significant negative relationship between ACP and profitability. Nzioki et al. (2013) researched on 6 manufacturing companies listed at NSE from 2006 - 2010 using multiple regression and correlation and found that gross operating profit was positively correlated with ACP. Increase in APP lead to increase in gross operating profit.

From the literature reviewed, Ksenija (2013) used 108 listed Serbian firms from 2008-2011 by correlation and regression, Nzioki et al (2013) study of 6 NSE listed manufacturing companies from 2006-2010 using multiple regression and correlation found a positive relationship between ACP and profitability Contrary to Mathuva (2009) study of 30 NSE listed firms from 1993-2008 using Pearson's and Spearman's

correlation, panel data regression, pooled OLS and FEM , Kwasi (2010) study of 11 Ghanaian oil marketing firms from 2001-2008 using trend econometric analysis, Gakure, Cheluget, Onyango and Keraro (2012) study of 15 NSE manufacturing firms from 2006-2010 for 75 firms year observations using Pearson's correlation and regression analysis, Akoto, Awunyo-Vitor and Angmor (2013) research on 13 listed manufacturing Ghana firms from 2005-2009 by panel data and regression, Falope and Ajilore (2009) study of 50 Nigerian quoted non-financial firms from 1996-2005 using panel data econometric, pooled regression, time series and cross sectional observations, which found a significant negative relationship between profitability and the average collection period.

The above cited studies revealed that studies done by correlation, regression, multiple regression analysis in various parts of the world for different years using different research designs and population sizes found positive relationships between ACP and profitability while studies done in other localities for different years by different research designs and population sizes using Pearson's and Spearman's correlation and pooled OLS and the fixed effects regression models (FEM), trend econometrics, Pearson's correlation and regression, panel data econometric, time series and cross sectional observations revealed negative relationships between ACP and profitability. Studies reviewed established contradicting results; however, studies of average collection period on performance of construction and allied, energy and petroleum companies listed at NSE, Kenya are missing.

The study of Shah & Sana (2006) Oil and gas sector in Pakistan for a period of 2001-2005 employing correlation analysis and OLS method, revealed that gross profit is inversely associated with all working capital ratios except number of days payable. Sharma and Kumar (2011) examined Indian firms using a sample of 263 non-financial BSE 500 firms from 2000 - 2008 and employing OLS multiple regressions. The results revealed that WCM and profitability are positively correlated, inventory number of days and numbers of day's accounts payable are negatively correlated with a firm's profitability, number of days accounts receivables and cash conversion period relate positively with corporate profitability.

Eneje et al. (2012) also evaluated brewery firms in Nigeria. A cross sectional data from 1989-2008 was gathered and analyzed by correlation and regression. The study established that inventory management is significantly strong and positive and affects the profitability of the brewery firms.

Madishetti and Kibona (2013) examined SMEs profitability in Tanzania. They sampled 26 SMEs and secondary data from annual financial statements for 5 years from 2006 – 2011were analyzed by correlation and regression and established a significant negative linear relationship between inventory conversion period and profitability.

Muturi, Wachira and Lyria (2015) investigated the effect of inventory conversion period on profitability of tea companies in Meru County for a period of five years from 2009-2013 using correlation and regression. The findings revealed that inventory conversion period negatively affected the profitability.

From the literature above, Shah & Sana (2006) study of Pakistan Oil and Gas sector from 2001-2005 by correlation and OLS, Sharma and Kumar (2011) study of 263 non-financial 500 Bombay listed firms from 2000-2008 by OLS multiple regression, Madishetti and Kibona (2013) study of 26 Tanzania SMEs from 2006-2011 using correlation and regression, Muturi, Wachira and Lyria (2015) study of Kenyan Meru tea companies from 2009-2013 by correlation and regression found inventory conversion period to negatively affect profitability. Contrary result was found by Eneje et al. (2012) study of Nigerian brewery firms from 1989-2008 applying correlation and regression analysis that established that the effect of efficient management of raw material inventory by a company on its profitability is significantly strong and positive.

From the cited work, studies done by correlation and OLS, OLS multiple regression analysis in various parts of the world for different years using different research designs and population sizes found negative relationships between ITP and profitability while a study done in another area for different years using different research designs and population sizes by correlation and regression analysis revealed positive relationships between ITP and profitability. Since studies reviewed noted mixed results, none of the

studies considered inventory turnover in days on performance of construction and allied, energy and petroleum companies listed at NSE, Kenya.

In studies to investigate how average payment period relates to performance, Malik and Bukhari (2014) studied performance of cement, chemical and engineering sectors of Pakistan using 2007-2011 data. Pooled ordinary least squares method was used. Findings established that APP negatively and significantly associated to ROE. Solomons (2014) study of South Africa SMEs from 2000-2013 using ROA and analyzed data by correlation and regression, Ponsian, Chrispina, Tago and Mkiibi (2014) studied manufacturing firms listed in Dar es Salaam Stock Exchange. Data from 2002 - 2012 were used and analyzed by correlation and OLS regression, Nzioki et al. (2013) researched on manufacturing companies listed at NSE from 2006 - 2010 using multiple regression and correlation, Mathuva (2010) study of 30 NSE listed firms from 1993-2008 using pooled OLS and the fixed effects regression models found a positive correlation between APP and profitability.

From the above literature, Malik and Bukhari (2014) Pakistan cement and chemical engineering sectors study from 2007-2011 applying pooled ordinary least square, showed a strong negative relationship between average payment period and profitability. Contrary studies by Solomons (2014) on SMEs listed on AltX Johannesburg Stock Exchange from 2000-2013 using correlation and regression, Ponsian et al (2014) study of Dar es Salaam Stock Exchange listed manufacturing firms from 2002-2012 using correlation and OLS regression, Mathuva (2010) study of 30 NSE listed firms from 1993-2008 using pooled OLS and the FEM, study by Nzioki et al. (2013) on 6 NSE listed manufacturing companies from 2006-2010 using diagnostic research design and multiple regression and correlation analysis revealed a highly positive and significant relationship between APP and profitability.

According to studies reviewed, researches done in different parts of the world by different research designs and population sizes using pooled ordinary least square analysis found negative relationships between APP and profitability while studies done in other areas by different research designs and population sizes using correlation and regression, OLS regression, pooled OLS and the FEM, diagnostic research design and

multiple regression and correlation analysis revealed positive relationships between APP and profitability. Studies reviewed established differing opinions; however, studies of average payment period on performance of construction and allied, energy and petroleum companies listed at NSE, Kenya had not been done.

Lazaridis and Tryfonidis (2006) study of 131 companies listed in the Athens Stock Exchange from 2001-2004 using regression analysis and descriptive statistics found a significant negative relationship between CCC and gross operating profit. Mohamad and Saad (2010) study of 172 listed companies in Bursa Malaysia from 2003-2007 using correlations and multiple regressions, found that current assets to total asset ratio shows positive significant relationship with Tobin Q, ROA and ROI. Cash conversion cycle, current asset to current liabilities ratio and CLTAR illustrate negative significant relations with Tobin Q, ROA and ROI.

Hasan, Halil, Arzu and Salih (2011) studied companies in the Istanbul Stock Exchange from 2005 to 2009 using correlation and regression and found that reducing CCC affects return on assets (ROA). Ademola (2014) studied listed manufacturing companies in Nigeria from 2002 - 2011 by multiple regression and correlation and noted that CCC and profitability are positively related while debtors' collection, creditors' payment and stock conversion periods are negatively related to profitability.

Akoto et al (2013) researched on the impact of working capital management and profitability of 13 Ghanaian listed manufacturing firms from 2005 - 2009. Using panel data methodology and regression analysis, results revealed negative relationship between profitability and accounts receivable days whereas cash conversion cycle, current asset ratio, size and current asset turnover relate positively to profitability.

From the cited literature, Lazaridis and Tryfonidis (2006) study of 131 Athens listed stock exchange companies from 2001-2004 using regression analysis and descriptive statistics, Mohamad and Saad (2010) study of Bloomberg's data base Malaysian 172 listed companies applying correlation and multiple regression, Hasan, Halil, Arzu and Salih (2011) panel data study of Istanbul stock exchange listed companies from 2005-2009 using correlation and regression found negative relationship between CCC and

profitability. Contrary, Ademola (2014) study of selected listed Nigerian manufacturing companies from 2002-2011 using survey research design, descriptive statistics, multiple regression and correlation analysis found positive relationship between CCC and profitability. Akoto et al (2013) study of 13 Ghanaian listed manufacturing firms from 2005-2009 using panel data methodology and regression analysis revealed CCC, current asset ratio, size and current asset turnover relate positively to profitability and a negative relationship between profitability and accounts receivable days.

Based on the reviewed work, studies done using regression analysis and descriptive statistics, correlation and multiple regressions, survey research design in various parts of the world for different years using different research designs and population sizes found negative relationships between CCC and profitability. Contrary, other studies done in different areas for different years, using survey research design, descriptive statistics, multiple regressions and correlation, panel data methodology and regression analysis, different research design and population size revealed that CCC, current asset ratio, size and current asset turnover relate positively to profitability. The above reviewed studies revealed varied conclusions; none of the studies considered cash conversion cycle on performance of construction and allied, energy and petroleum companies listed at NSE, Kenya.

1.3 Statement of a problem

The relationships between working capital management and performance of companies had been studied by many scholars using working capital management as independent variables and profitability as dependent variable and varied results had been noted. Some studies had established negative relationships while contrary, others noted positive relationships. Empirical studies and theories reviewed had also shown mixed results by outlining negative and positive relationships. While there had been substantial body of research investigating this phenomenon in developed and developing countries, no study in Kenya had been done on average collection period, inventories turnover in days, average payment period and cash conversion cycle on performance of construction and allied, energy and petroleum companies listed at Nairobi Securities Exchange, Kenya. Therefore this study was to analyze working capital management on the performance of

construction and allied, energy and petroleum companies listed at Nairobi Securities Exchange, Kenya.

1.4 General objective

The main objective of the study was to analyze working capital management on the performance of construction and allied, energy and petroleum companies listed at Nairobi Securities Exchange, Kenya.

1.4.1 Specific objectives

To achieve the general objective, the study aimed to:

(i) Determine the effect of average collection period on performance of construction and allied, energy and petroleum companies listed at Nairobi Securities Exchange, Kenya.

(ii) Establish the effect of inventories turnover in days on performance of construction and allied, energy and petroleum companies listed at Nairobi Securities Exchange, Kenya.

(iii) Examine the effect of average payment period on performance of construction and allied, energy and petroleum companies listed at Nairobi Securities Exchange, Kenya.

(iv) Investigate the effect of cash conversion cycle on performance of construction and allied, energy and petroleum companies listed at Nairobi Securities Exchange, Kenya.

1.5 Research questions

(i) What is the effect of average collection period on performance of construction and allied, energy and petroleum companies listed at Nairobi Securities Exchange, Kenya?

(ii) What is the effect of inventories turnover in days on performance of construction and allied, energy and petroleum companies listed at Nairobi Securities Exchange, Kenya ?

(iii) What is the effect of average payment period on performance of construction and allied, energy and petroleum companies listed at Nairobi Securities Exchange, Kenya?

(iv) What is the effect of cash conversion cycle on performance of construction and allied, energy and petroleum companies listed at Nairobi Securities Exchange, Kenya?

1.6 Scope of the study

The study was done in Kenyan NSE listed companies. Books containing published annual reports and financial statements of 9 listed companies in the construction and allied, energy and petroleum sectors for a period covering the years 2000 to 2016 were used.

1.7 Justification of the study

Companies have corporate social responsibilities such as infrastructural development which benefit Kenyan society; they offer ready market for raw materials and also carry out research and innovations. The two sectors under this study were considered the driving force of other sectors since construction and allied sector provides infrastructural facilities while energy and petroleum sector provides energy and power to other sectors. In Kenya, cement firms that constitute a greater percentage of listed companies in the construction and allied sector are marked by problems which continue to have a depressing effect on prices. As such, the East Africa Portland Cement Company a major cement manufacturing company in Kenya has been performing poorly for years and recently issued a profit warning for the financial year 2014/2015. Some multinational companies in Kenya such as Shell, BP, Chevron, Mobil, Agip and Esso in the recent past had deliberately withdrawn from the Kenyan market. While there are many studies done to determine effect of working capital management on firms' profitability and different results had been noted, no study had considered average collection period, inventory turnover period in days, average payment period and cash conversion cycle on performance of construction and allied, energy and petroleum companies listed at Nairobi Security Exchange, Kenya. The study findings may help regulatory bodies, companies' policy building. The findings may also be of great benefit to, future researchers by

providing relevant literature in building up the course of study. It may help investors to make sound choice for company investment. It may benefit other scholars and students of finance who may use the findings for academic purposes.

1.8 Conceptual Framework

It shows the relationship between independent variables of working capital management measured by average collection period, inventories turnover period in days, average payment period, cash conversion cycle and dependent variables of performance, measured by, sales turnover, return on equity and intervening variables measured by government policies and economic cycles.

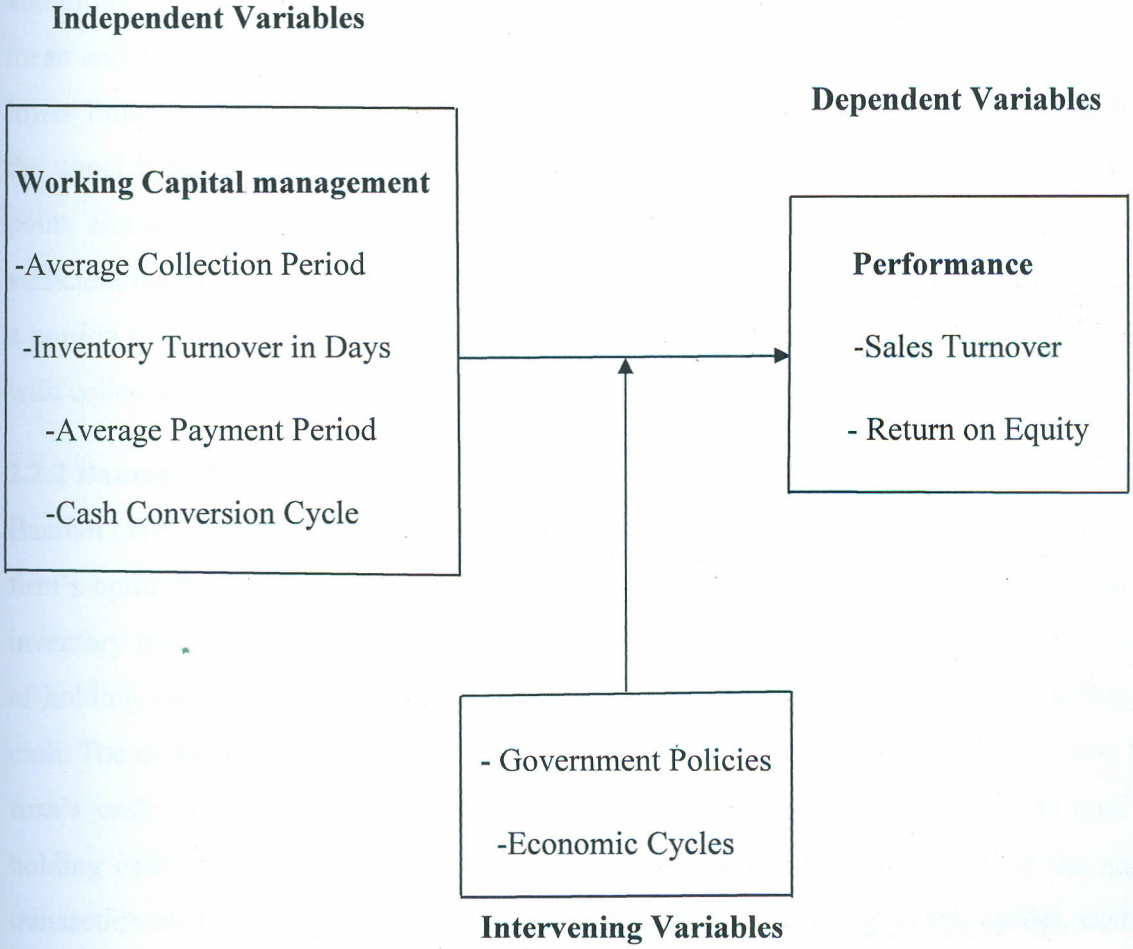

Figure 1: Relationship between working capital management and performance.

(Source: Adapted and modified from Pandey, 2011 and Deloof, 2003)

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section deals with the literature related to working capital management in respect to performance of companies. It is sub divided into theoretical reviews and empirical reviews.

2.2 Theoretical Literature Review

2.2.1 Miller and Orr's Cash Management Model

Miller and Orr (1966) and Cornett et al (2009) model allows for daily cash flow variations. It assumes that the net cash flows are normally distributed with a zero value of mean and a standard deviation. The model provides for two control limits, the upper and lower limits as well as return point. If the firms' cash flows fluctuate randomly and hit the upper limit, then it buys sufficient marketable securities to come back to the return point. Similarly when the firms' cash flows fluctuate and hit the lower limit, it sells sufficient marketable securities to bring the cash balance back to the return point. Cash is a portion of current asset and the model supports average collection period which deals with collections of cash from buyers.

2.2.2 Baumol Model of Cash Management

Baumol (1952) model of cash management provides a formal approach for determining a firm's optimal cash balance under certainty. It considers cash management similar to an inventory management problem. As such, the firm attempts to minimize the sum of cost of holding cash (inventory of cash) and the cost of converting marketable securities to cash. The model assumes that the firm is able to forecast its cash needs with certainty, the firm's cash payments occur uniformly over a period of time, the opportunity cost of holding cash is known and it does not change overtime, the firm will incur the same transaction cost whenever it converts securities to cash. According to this model, cash is assumed to start from a cash balance of C. As firm spends cash, its cash balance decreases steadily and reaches to zero. The firm replenishes its cash balance to C by selling marketable securities. This pattern continues over time (Cornett et al., 2009). This

model also supports the objective of average collection period which deals with cash collections from customers.

2.2.3 Economic Order Quantity

Ford, H. (1913) developed economic order quantity (EOQ) inventory model which expresses the quantity at which cost of having stocks is minimum. The cost of having stock can be broken down into holding costs, ordering costs, shortage costs and purchase costs. Economic order quantity is calculated using the formula which takes into consideration delivery cost per batch, annual demand for product, cost price per item, stock holding cost per annum (expressed as a fraction of stock value). Its assumptions stated that demand is constant and known with certainty, lead time is constant and known with certainty, there are no stock outs, Purchase, holding and ordering costs are constant and known with certainty and replenishment of stock is in equal batches. This model helps organizations to put in place an effective stock management system to ensure reliable sales forecasts to be used in ordering purposes (Atrill, 2006). This model supports the objective of inventory turnover period since the model regulates inventories held by firms at each time.

2.2.4 Price Discrimination Theory

Firms' market power can be enhanced considerably by employing price discrimination through trade credit as buyers are heterogonous. More often, firms enjoying high price cost margin are found to resort to price discrimination (The National Bureau of Economic Research, 1996).Trade credit is industry based hence the application of this strategy is limited and can be used selectively. Customers who have low default risk and can obtain institutional finance at better terms may not be willing to accept trade credit because its implicit cost is higher than that of institutional finance. This makes the offer only attractive to high-risk marginal customers whose access to institutional finance is prohibitively costly raising the incidence of bad debts (Bhattacharya, 2009).This theory supports the objective of average collection and payment periods since the two periods are created by credit received and allowed.

2.2.5 Risk-Return Trade-off Theory

The management of working capital involves risk and return trade-off between components of working capital. It is not possible to accurately estimate the working capital needs and so a firm must decide about levels of current production required. Considering a firm's technology and production policy, sales and demand conditions and operating efficiency, its current assets holdings will depend upon its working capital policy which may either be conservative or aggressive and these policies involve risk and return trade-offs (Pandey, 2011). This theory supports all objectives since it deals with trade-offs of various components of working capital which in turn cause trade-offs between profitability and liquidity.

2.2.6 Cash Conversion Cycle Theory

The theory integrates both sides of working capital. In their seminal paper, Richards and Laughlin (1980) devised this method of working capital as part of a broader framework of analysis known as the working capital cycle. It claims that the method is superior to other forms of working capital analysis that rely on ratio analysis or a decomposition of working capital. Cash conversion cycle measures the time between the purchases of raw materials until the firm receives money for their finished products sold (Deloof, 2003). This is one of the theories upon which this study is anchored since it deals with all working capital dimensions considered by this study. It also supports the objective of cash conversion cycle.

2.3 Concept of Financial Performance and Profitability

According to Kabethi (2013), the financial performance is the process of measuring the results of a firm's policies and operations in monetary terms. Agha (2014) mentioned that profitability is the ability to gain from margins. Profit is determined by deducting expenses from the revenue incurred in generating that revenue. One of the measurements of financial performance is the Return on Assets (ROA) that is the net income divided by the total assets (Ogoye, 2013). The other measure is Return of Equity (ROE) that is the internal performance measure of shareholder's value (Machiuka, 2010).This study focuses performance by profitability, return on equity and sales turnover.

2.4 Empirical Literature Review

2.4.1 The effect of average collection period on performance.

Falope and Ajilore (2009) carried out a research on 50 Nigerian quoted non financial firms from 1996-2005 using panel data econometric, pooled regression, time series and cross sectional observations and found a significant negative relationship between net operating profit, ACP and APP.

Mathuva (2009) investigated the impact of the components of working capital management upon profitability of the firms. His sample consists of 30 listed firms from NSE from 1992-93 to 2007-08. He used Pearson's and Spearman's correlations, panel data regression, pooled OLS and fixed effects models (FEM).He found negative relationship between the age of debtors and profitability while, a positive association was originated between the inventory conversion period and profitability, and also between age of creditors and profitability of the selected firms.

Kwasi (2010) attempted to measure and analyze the trends in working capital management of 11 Ghanaian Oil market firms and its impact on their performance. The study was initiated because of the purported high profitable level of the sector and likely under-utilization of such profit potential. The 2001-2008 study by trend econometric analysis used unbalanced panel data. For the econometric analyses, the study adopted the number of days inventory, number of days accounts receivable, number of days payable, cash conversion cycle and the net trade cycle as measure of working capital management, and gross profit divided by total assets as profitability. He found a significant negative relation between profitability and number of day's accounts receivables, number of days payables, the cash conversion cycle and the net trade cycle.

Gakure, Cheluget, Onyango and Keraro (2012) studied the relationship between working capital management and performance of 15 manufacturing NSE listed firms from 2006 - 2010 and for a total 75 firms year observations. Secondary data from a sample of 18 companies were used by applying Pearson's correlation and regression analysis. The results revealed a strong negative relationship between firm's performance and liquidity and a negative coefficient relationship between accounts collection period, average

payment period, inventory holding period and profitability. Cash conversion cycle was found to be positively correlated with profitability. However, the effects of the independent variables except the average payment period were not statistically significant though the overall model was statistically significant.

Akoto, Awunyo-Vitor and Angmor (2013) carried out a research on the relationship between working capital management practices and profitability of 13 listed manufacturing firms in Ghana from 2005-2009 by applying panel data methodology and regression analysis and found a significant negative relationship between Profitability and Accounts Receivable Days. More so, the firms' Cash Conversion Cycle, Current Asset Ratio, Size, and Current Asset Turnover significantly positively relate to profitability. Further suggestions revealed that managers can create value for their shareholders by creating incentives to reduce their accounts receivable to 30 days. Researchers further recommended that, local laws enactment that protect indigenous firms and restrict the activities of importers are desirable to promote increase in demand for locally manufactured goods in Ghana both in the short and long runs.

Ksenija (2013) studied a sample of 108 public companies listed at the regulated market in the Republic of Serbia. The study was done during the recession period of 2008-2011 to determine how the companies manage their accounts receivable. Employing correlation and regression analysis techniques, the study revealed that there is a positive but no significant relation between accounts receivables and two dependent variables on profitability return on total asset and operating profit margin.

Nzioki et al. (2013) researched on 6 manufacturing companies listed at NSE from 2006 - 2010 using multiple regression and correlation and found that gross operating profit was positively correlated with ACP while increase in APP led to increase in gross operating profit.

From the literature reviewed, Ksenija (2013) studied 108 listed Serbian firms from 2008-2011 by correlation and regression, Nzioki et al. (2013) research on 6 manufacturing companies listed at NSE from 2006-2010 using multiple regression and correlation found a positive relationship between ACP and profitability Contrary to Mathuva (2009)

study of 30 NSE listed firms from 1993-2008 using Pearson's and Spearman's correlation, panel data regression, pooled OLS and FEM, Kwasi (2010) study of 11 Ghanaian oil marketing firms from 2001-2008 using trend and econometric analysis, Gakure, Cheluget, Onyango and Keraro (2012) study of 15 NSE listed manufacturing firms from 2006-2010 for 75 firms year observations using Pearson's correlation and regression, Akoto, Awunyo-Vitor and Angmor (2013) research of 13 listed manufacturing Ghana firms from 2005-2009 by panel data and regression, Falope and Ajilore (2009) studies of 50 Nigerian quoted non-financial firms from 1996-2005 using panel data econometric, pooled regression, time series and cross sectional observations, which found a significant negative relationship between profitability and the ACP period.

From the studies above, studies done by correlation, regression, multiple regression in various parts of the world for different years using different research designs and population sizes found positive relationships between ACP and profitability while studies done in other localities for different years by different research designs and population sizes using Pearson's and Spearman's correlation, panel data regression, pooled OLS and FEM, trend and econometrics, pooled regression, time series and cross sectional observations revealed negative relationships between ACP and profitability. Studies reviewed established contradicting results; however, studies of average collection period on performance of construction and allied, energy and petroleum companies listed at NSE, Kenya are missing.

2.4.2 The effect of inventories turnover in days on performance

Shah and Sana (2006) examined the relationships between working capital management and financial performance of Oil and gas sector in Pakistan for a five year period; from 2001-2005 by using working capital ratios such as inventory turnover, current ratio, quick ratio, average collection period and average payment period. They analyzed using correlation analysis and OLS method to arrive at conclusions. The results revealed that Gross profit is inversely associated with all working capital ratios except number of days payable.

Sharma and Kumar (2011) studied the relationship between working capital and profitability of Indian firms. They collected data about a sample of 263 non-financial BSE 500 firms listed at the Bombay Stock Exchange (BSE) from 2000 - 2008 and evaluated the data using OLS multiple regression. The results revealed a positive relationship between working capital management and profitability and a negative relationship between inventory number of days and numbers of day's accounts payable with firm's profitability. Further, number of days accounts receivables and cash conversion period exhibit a positive relationship with corporate profitability.

Eneje et al. (2012) examined the effect of raw materials inventory management on the profitability of brewery firms in Nigeria from the sampled cross sectional data of annual reports from 1989-2008 period using correlation and regression analysis. The study established raw materials inventory management is significantly strong and positive and affects the profitability of the brewery firms in Nigeria.

Madishetti and Kibona (2013) investigated how inventory conversion period and SMEs profitability in Tanzania relate. A sample of 26 SMEs and secondary data from the SMEs annual financial statements for the 5 years period from 2006– 2011 were considered. The study used correlation and regression analysis and established that there was a significant negative linear relationship between inventory conversion period and profitability.

The research done by Muturi, Wachira and Lyria (2015) to investigate the effect of inventory conversion period on profitability of tea companies in Meru County for a period of five years from 2009-2013 using correlation and regression analysis revealed that inventory conversion period negatively affected the profitability.

From the literature above, Shah & Sana (2006) study of Pakistan Oil and Gas sector from 2001-2005 by correlation and OLS, Sharma and Kumar (2011) study of 263 non financial 500 Bombay listed firms from 2000-2008 by OLS multiple regression, Madishetti and Kibona (2013) study of 26 Tanzania SMEs from 2006-2011 using correlation and regression, Muturi, Wachira and Lyria (2015) study of Kenyan Meru tea companies from 2009-2013 by correlation and regression found inventory conversion period to negatively affect profitability. Contrary result was found, by Eneje et al. (2012) correlation and

regression study of Nigerian brewery firms from 1989-2008 that established that the effect of efficient management of raw material inventory by a company on its profitability is significantly strong and positive.

From the cited work, studies done by correlation and OLS, multiple regression in various parts of the world for different years using different research designs and population sizes found negative relationships between ITP and profitability while studies done in another area for different years using different research designs and population sizes by correlation and regression revealed positive relationships between ITP and profitability. Since studies reviewed noted mixed results, none of the studies considered the inventory turnover in days on performance of construction and allied, energy and petroleum companies listed at NSE, Kenya.

2.4.3 The effect of average payment period on performance

Mathuva (2010) investigated the influence of working capital management on corporate profitability in Kenya. The study used a sample of 30 Nairobi Securities Exchange listed firms for the period 1993 - 2008. Average payment period, average collection period and inventory conversion period were used as measures of working capital. He applied pooled OLS and the fixed effects regression models and the study found that average payment period highly and positively influenced profitability in these firms. It was argued that the longer the firms took to pay their creditors the more profitable the firms were.

Study by Nzioki et al. (2013) on management of working capital and its effects on profitability on NSE listed manufacturing companies using annual financial data from 2006-2010 and employing diagnostic research design and multiple regression and correlation analysis revealed a positive correlation between gross operating profit with the average payment period and average collection period, and a negative correlation with the cash conversion cycle (CCC).

Malik and Bukhari (2014) carried out a research in Pakistani cement, chemical and engineering sectors on the impact of working capital management (WCM) on corporate performance by obtaining data from the companies' annual financial reports from 2007-

2011. Pooled ordinary least squares method was used to estimate the relationship between the measures of working capital management and performance. The study findings established that average payment period negatively and significantly associate to ROE whereas cash conversion cycle positively and significantly relate with return on equity.

Solomons (2014) studied SMEs listed on AltX, a division of the Johannesburg Stock Exchange from 2000-2013. Cash conversion cycle, average payment period and stockholding period variables represented working capital management. Return on assets measured profitability. Applying correlation and regression analysis, the study found that APP positively influenced profitability.

Ponsian, Chrispina, Tago and Mkiibi (2014) studied effect of working capital management on profitability of manufacturing firms listed in Dar es Salaam Stock Exchange. Annual financial statement data from 2002 - 2012 were used and analyzed by correlation and OLS regression. The study found that there was a highly positive and significant relationship between APP and profitability. The finding implied that the longer the firm took to pay its creditors, then the more profitable the firm was. Withholding creditors' payments was meant to take advantage of the available cash for the working capital needs.

From the above literature, Malik and Bukhari (2014) Pakistan cement and chemical engineering sectors study from 2007-2011 applying pooled ordinary least square, showed a strong negative relationship between average payment period and profitability. Contrary studies by Solomons (2014) on SMEs listed on AltX Johannesburg Stock Exchange from 2000-2013 using correlation and regression, Ponsian et al (2014) study of Dar es Salaam Stock Exchange listed manufacturing firms from 2002-2012 using correlation and OLS regression, Mathuva (2010) study of 30 NSE listed firms from 1993-2008 using pooled OLS and the fixed effects regression models, Study by Nzioki et al. (2013) on NSE listed manufacturing companies from 2006-2010 using diagnostic research design and multiple regression and correlation analysis revealed a highly positive and significant relationship between APP and profitability.

According to studies reviewed, researches done in different parts of the world by different research designs and population sizes using pooled ordinary least square found negative relationships between APP and profitability while studies done in other areas by different research designs and population sizes using correlation and regression, OLS regression, pooled OLS and the fixed effects regression , diagnostic research design and multiple regression and correlation revealed positive relationships between APP and profitability. Studies reviewed established differing opinions; however, studies of average payment period on performance of construction and allied, energy and petroleum companies listed at NSE, Kenya had not been done.

2.4.4 The effect of cash conversion cycle on performance

Lazaridis and Tryfonidis (2006) conducted a research on the relationship between working capital management and profitability using a sample of 131 companies listed on Athens Stock Exchange (ASE) for the period of 2001-2004. Using regression analysis and descriptive statistics they found a significant negative relationship between CCC and gross operating profit. The findings reveal that managers can create profits for their companies by handling correctly the cash conversion cycle and keeping each component (accounts receivable, accounts payable and inventory) to an optimal level.

Mohamad and Saad (2010) investigated relationships between working capital management and profitabilty. They used Bloomberg's database of 172 listed companies randomly selected from Bursa Malaysia main board from 2003-2007. Applying correlations and multiple regression analysis, they found that current assets to total asset ratio shows positive significant relationship with Tobin Q, ROA and ROI. Cash conversion cycle, current asset to current liabilities ratio and CLTAR illustrate negative significant relations with Tobin Q, ROA and ROI

Hasan, Halil, Arzu and Salih (2011) in a study to establish effect of working capital management on profitability used panel data of companies in the Istanbul Stock Exchange for the period 2005 – 2009. Applying correlation and regression analysis, the study revealed that reducing the cash conversion cycle (CCC) a measure of working capital management positively affects return on assets (ROA) a measure of profitability.

Ademola (2014) analyzed WCM and profitability of selected listed manufacturing Nigerian companies using survey research design and secondary data from 2002-2011. Using descriptive statistics, multiple regression and correlation analyses indicated that WCM, CCC and profitability are positively related while debtors' collection, creditors' payment and stock conversion periods relate negatively to profitability.

Akoto et al (2013) researched on the impact of working capital management and profitability of 13 Ghanaian listed manufacturing firms from 2005 - 2009. Using panel data methodology and regression analysis the results revealed negative relationship between profitability and accounts receivable days whereas cash conversion cycle, current asset ratio, size and current asset turnover relate positively to profitability.

From the cited literature, Lazaridis and Tryfonidis (2006) study of 131 Athens listed stock exchange companies from 2001-2004 using regression and descriptive statistics , Mohamad and Saad (2010) study of Bloomberg's data base Malaysia 172 listed companies from 2003-2007 applying correlation and multiple regression, Hasan, Halil, Arzu and Salih (2011) panel data study of Istanbul stock exchange listed companies from 2005-2009 using correlation and regression and Ademola (2014) study of selected listed Nigerian manufacturing companies from 2002-2011 using survey research design, descriptive statistics, multiple regression and correlation analysis found negative relationship between cash conversion cycle and profitability. Contrary, Akoto et al (2013) studied 13 Ghanaian listed manufacturing firms from 2005-2009 using panel data methodology and regression analysis revealed cash conversion cycle, current asset ratio, size and current asset turnover relate positively to profitability and a negative relationship between profitability and accounts receivable days .

Based on the work reviewed, studies done using regression analysis and descriptive statistics, correlation and multiple regressions, survey research design in various parts of the world for different years using different research designs and population sizes found negative relationships between CCC and profitability. Contrary, another study done in a different area for different years, using panel data methodology and regression, different research design and population size revealed cash conversion cycle, current asset ratio, size and current asset turnover relate positively to profitability. The above reviewed

studies revealed varied conclusions; none of the studies considered cash conversion cycle on performance of construction and allied, energy and petroleum companies listed at NSE, Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section sheds light on the proposed research design, study area, target population, sampling size and techniques, sources of data, data collection procedure, data analysis method, model specification and final presentation of the study's findings.

3.2 Research design

A research design is simply the roadmap of conducting an empirical study (Kothari, 2008). In this study a researcher used diagnostic and descriptive research designs. Diagnostic research design showed cause-effect relationships while descriptive research design described and explained conditions and characteristics of the relationships.

3.3 Study area

The study was based only on companies listed at Nairobi Securities Exchange, Kenya. Kenya is in Eastern Africa and lies on geographic coordinates of $1^0$0'0"N and $38^0$0'0"E.

3.4 Target population

Population referred to all the members of a real or hypothetical set to which one wished to generalize the results of the research. The population under the study comprised 9 companies listed in Nairobi Securities Exchange from 2000-2016. See appendix I.

3.5 Sampling size and sampling techniques

The study used 9 companies: Stratified sampling method was used to sample 2 sectors considered under this study from all sectors listed at NSE, Kenya. Census survey method was used for 5 companies in the construction and allied sector and 4 companies in the energy and petroleum sector. The choice of secondary data is due to the fact that data from such a source is accurate and free from bias.

3.6 Data collection

3.6.1 Sources of data

Secondary data were used in the study. They were extracted from published annual reports and financial statements of the construction and allied, energy and petroleum companies listed in the NSE covering the years 2000 - 2016. Other information were

obtained from the NSE hand books and CMA information documents for the period of reference. The specific financial statements from which data were extracted included the income statements, statements of financial position, cash flow statements and notes to the accounts. The researcher used a document review guide to extract and compile the required data for analysis from the financial statements.

3.6.2 Data collection procedure

Approval letter was obtained from the School of Graduate Studies of Maseno University specifying that the researcher was a student who was expected to carry out the research in partial fulfillment of the requirement for the award of the degree of master of business administration of Maseno University. Based on the letter content, permission was granted by Chief Executive Officer NSE and CMA. The researcher explained that information obtained would be only for the purpose of the research. The researcher reviewed specific financial statements which included the income statements, statements of financial position, cash flow statements and notes to the accounts. The researcher used a document review guide to extract and compile the required data for analysis from the financial statements. The different accounting variables needed for the study were extracted from each financial year of the company and included data on sales, cost of sales, profit after tax, total equity, accounts receivables and accounts payables, inventories, current assets, financial assets and current liabilities. The data mentioned above were applied to calculate the sales turnover, return on equity, average collection period, the inventory turnover period in days, average payment period and cash conversion cycle.

3.7 Data analysis method

The data collected were analyzed using correlations and regressions to establish the relationship between average collection period, inventory turnover period in days, average payment period, cash conversion cycle and sales turnover and return on equity. In regression analysis model output, coefficient of determination (r^2) value were used to determine the variation in dependent variables explained by the independent variables (WCM) components. According to Kothari (2004), regression analysis is concerned with the study of how one or more variables affect changes in another variable. SPSS software version 20 was used for analyzing data of different variables of the study.

3.7.1 Model specification

The economic model used in the study (which was in line with what is mostly found in the literature) was given as: Performance = f (working capital management); performance is measured by the following: Sales turnover (SalesT) and ROE (return on equity) while working capital management is measured by (ACP); (ITP); (APP); (CCC) ; intervening variables are (GVP, ECON). Thus, that led to formulation of two separate models each represented a measure of Organizations' Performance.

Model I: $SalesT = \alpha + \beta_1 ACP + \beta_2 ITP + \beta_3 APP + \beta_4 CCC + \varepsilon$

Model II: $ROE = \alpha + \beta_1 ACP + \beta_2 ITP + \beta_3 APP + \beta_4 CCC + \varepsilon$

Where: α is constant and β_1, β_2, β_3 and β_4 are coefficients to estimate, and ε is the error term. ROE (Return on equity) = Net income (Profit after tax)/Equity; ACP is Average Collection Period (Accounts Receivables/Net Sales*365), ITP is Inventory Turnover Period in days (Inventory/Cost of Sales*365);
EOQ is Economic Order Quantity ($\sqrt{2cd/ip}$);

Where c = delivery cost per batch, d = annual demand, p = cost per item and i = stock holding cost per annum expressed as a fraction of stock value.

APP is Average Payment Period (Accounts Payable/Purchases*365),

CCC is Cash Conversion Cycle (ACP + ITP – APP),

GVP are Government Policies affecting firms' performance; ECON are Economic Policies affecting firms' performance.

3.7.2 Data presentation

Data were presented using summary tables.

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND DISCUSIONS

4.1 Introduction

This chapter describes the data analysis, presentation and discussions of the findings. Regression and correlation analysis were used to analyze the data so as to answer the research specific objectives. The results were presented in the form of summary tables.

4.2 Data analysis and presentation

4.2.1 Average collection period on sales turnover

Regression analysis was used to determine the effect of average collection period on sales turnover. Table 4.2 shows the contribution of average collection period in explaining sales turnover. The model summary, adjusted R square = 0.080 shows that the proportion of variance in the sales turnover that is explained by average collection period is 8%. Also, R square = 0.088 and ANOVA table 4.3 reveal that 8.8% variations in sales turnover could be explained by the variations in the average collection period.

Table 4.2: Model summary of average collection period on sales turnover

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.297[a]	.088	.080	43231884.573

a. Predictors: (Constant), ACP. Source: Research data, 2017

Table 4.3: ANOVA of average collection period on sales turnover

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	21004368764880348.000	1	210043687648 80348.000	11.238	.001[b]
	Residual	21680351786 9995424.000	116	186899584370 6857.000		
	Total	23780788663 4875776.000	117			

a. Dependent Variable: Sales turnover

b. Predictors: (Constant), ACP. Source: Research data, 2017

Table 4.4 reveals that a unit change in average collection period leads to -327,419.609 change in sales turnover as shown by unstandardized coefficients. Also, standardized coefficient shows that a change of one standard deviation in average collection period leads to -0.297 standard deviation change in sales turnover which is significant (Beta = -0.297 and p value=0.001<0.05)

Table 4.4: Regression coefficients of average collection period on sales turnover

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficient	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	55033411.186	7079659.656		7.773	.000
	ACP	-327419.609	97668.392	-.297	-3.352	.001

a. Dependent Variable: Sales turnover. Source: Research data, 2017

4.2.2 Inventory turnover in days on sales turnover

Regression analysis was used to deduce a model that could be used to explain the effect of inventory turnover in days on sales turnover. Table 4.5 shows the contribution of inventory turnover period in explaining sales turnover. The model summary, adjusted R square=0.292 shows that the proportion of variance in the sales turnover that is explained by inventory turnover in days is 29.2%. Also, R square=0.298 and ANOVA table 4.6 reveal that 29.8% variations in sales turnover could be explained by the variations in the inventory turnover in days.

Table 4.5: Model summary of inventory turnover in days on sales turnover

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.546[a]	.298	.292	37931924.013

a. Predictors: (Constant), ITP. Source: Research data, 2017

Table 4.6: ANOVA of inventory turnover in days on sales turnover.

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	70903506954725616.000	1	709035069547 25616.000	49.279	.000[b]
	Residual	166904379680150176.000	116	143883085931 1639.500		
	Total	237807886634875776.000	117			

a. Dependent Variable: Sales turnover, b. Predictors: (Constant), ITP. Source: Research data, 2017

Table 4.7 reveals that a unit change in inventory turnover in days leads to -747,018.852 change in sales turnover as shown by unstandardized coefficients. Standardized coefficient shows that a change of one standard deviation in inventory turnover in days leads to -0.546 standard deviation change in sales turnover which is significant (Beta=-0.546 and p value=0.000<0.05)

Table 4.7: Regression coefficients of inventory turnover in days on sales turnover.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficient	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	91171739.547	8677725.864		10.506	.000
	ITP	-747018.852	106414.933	-.546	-7.020	.000

a. Dependent Variable: Sales turnover. Source: Research data, 2017

4.2.3 Average payment period on sales turnover

Regression analysis was used to determine the effect of average payment period on sales turnover. Table 4.8 shows the effect of average collection period in explaining sales turnover. The model summary, adjusted R square=0.086 shows that the proportion of variance in the sales turnover that is explained by average payment period is 8.6%.

Further, R square=0.094 and ANOVA table 4.9 reveal that 9.4% variations in sales turnover could be explained by the variations in the average payment period.

Table 4.8: Model summary of average payment period on sales turnover

Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.306[a]	.094	.086	43100856.839

a. Predictors: (Constant), APP. Source: Research data, 2017

Table 4.9: ANOVA of average payment period on sales turnover

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	22316558842641832.000	1	223165588426 41832.000	12.013	.001[b]
	Residual	21549132779 2233952.000	116	185768386027 7879.000		
	Total	23780788663 4875776.000	117			

a. Dependent Variable: Sales turnover, b. Predictors: (Constant), APP

Source: Research data, 2017

Table 4.10 reveals that a unit change in average payment period leads to -220,890.845 change in sales turnover as shown by unstandardized coefficients. Standardized coefficient shows that a change of one standard deviation in average payment period leads to -0.306 standard deviation change in sales turnover which is significant (Beta=-0.306 and p value=0.001<0.05).

Table 4.10: Regression coefficients of average payment period on sales turnover.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficient	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	57078393.284	7405771.688		7.707	.000
	APP	-220890.845	63730.893	-.306	-3.466	.001

a. Dependent Variable: Sales turnover. Source: Research data, 2017

4.2.4 Cash conversion cycle on sales turnover

Regression analysis was used to determine the effect of cash conversion cycle on sales turnover. Table 4.11 shows the effect cash conversion cycle has on sales turnover. The model summary, adjusted R square=0.024 shows that the proportion of variance in the sales turnover that is explained by average payment period is 2.4%. Also, R square=0.032 and ANOVA table 4.12 reveal that 3.2% variations in sales turnover could be explained by the variations in the cash conversion cycle.

Table 4.11: Model summary of cash conversion cycle period on sales turnover

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.180[a]	.032	.024	44539252.604

a. Predictors: (Constant), CCC. Source: Research data, 2017

Table 4.12: ANOVA of cash conversion cycle on sales turnover.

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	76934640226 76789.000	1	769346402267 6789.000	3.878	.051[b]
	Residual	23011442261 2198976.000	116	198374502251 8956.800		
	Total	23780788663 4875776.000	117			

a. Dependent Variable: Sales turnover, b. Predictors: (Constant), CCC. Source: Research data, 2017

Table 4.13 reveals that a unit change in cash conversion cycle led to -130,873.323 change in sales turnover as shown by unstandardized coefficients. Further, standardized coefficient shows that a change of one standard deviation in cash conversion cycle leads to -0.180 standard deviation change in sales turnover which is moderately significant (Beta= -0.180 and p value= 0.051≥0.05).

Table 4.13: Regression coefficients of cash conversion cycle on sales turnover.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficient	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	40245532.387	4780508.920		8.419	.000
	CCC	-130873.323	66455.831	-.180	-1.969	.051

a. Dependent Variable: Sales turnover. Source: Research data, 2017

The equations represented by the models suggested in the conceptual framework can be represented by the use of unstandardized coefficients as follows:

Average collection period (Model 1)

SalesT= 55,033,411 - 327,420 ACP

Inventory turnover period (Model 2)

SalesT= 91,171,740 - 747,019 ITP

Average payment period (Model 3)

SalesT= 57,078,393 - 220,891 APP

Cash conversion cycle (Model 4)

SalesT= 40,245,532 - 130,873 CCC

The above equations mean that even without studies related to average collection period, inventory turnover period, average payment period and cash conversion cycle, sales turnover are expected to be 55,033,411; 91,171,740; 57,078,393 and 40,245,532 respectively.

4.2.5 Average collection period on ROE

Regression analysis was used to determine the effect of average collection period on return on equity. Table 4.14 shows the contribution of average collection period in explaining return on equity (ROE). The model summary, adjusted R square=0.018 shows

that the proportion of variance in the ROE that is explained by average collection period is 1.8%. Also, R square=0.026 and ANOVA table 4.15 reveal that 2.6% variations in ROE could be explained by the variations in the average collection period.

Table 4.14: Model summary of average collection period on ROE.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.163[a]	.026	.018	.465541

a. Predictors: (Constant), ACP

Table 4.15: ANOVA of average collection period on ROE.

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.683	1	.683	3.152	.078[b]
	Residual	25.140	116	.217		
	Total	25.824	117			

a. Dependent Variable: ROE

b. Predictors: (Constant), ACP. Source: Research data, 2017

Table 4.16 reveals that a unit change in average collection period leads to -0.002 change in return on equity as shown by unstandardized coefficients. Also, standardized coefficient shows that a change of one standard deviation in average collection period leads to -0.163 standard deviation change in ROE which is insignificant (Beta= -0.163 and p value=0.078>0.05)

Table 4.16: Regression coefficients of average collection period on ROE.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficient	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.176	.076		2.312	.023
	ACP	-.002	.001	-.163	-1.775	.078

a. Dependent Variable: ROE. Source: Research data, 2017

4.2.6 Inventory turnover in days on ROE

Regression analysis was used to deduce a model that could be used to explain the effect of inventory turnover in days on sales turnover. Table 4.17 shows the contribution of inventory turnover in days in explaining sales turnover. The model summary, adjusted R square=0.009 shows that the proportion of variance in the return on equity that is explained by inventory turnover in days is nil. Also, R square=0.017 and ANOVA table 4.18 reveal that 1.7% variations in sales turnover could be explained by the variations in the inventory turnover in days.

Table 4.17: Model summary of inventory turnover in days on ROE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.132[a]	.017	.009	.467681

a. Predictors: (Constant), ITP. Source: Research data, 2017

Table 4.18: ANOVA of inventory turnover in days on ROE

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.451	1	.451	2.064	.154[b]
	Residual	25.372	116	.219		
	Total	25.824	117			

a. Dependent Variable: ROE

b. Predictors: (Constant), ITP. Source: Research data, 2017

Table 4.19 reveals that a unit change in inventory turnover in days leads to 0.002 change in return on equity as shown by unstandardized coefficients. Standardized coefficient reveals that a change of one standard deviation in inventory turnover in days leads to 1.32 standard deviation change in ROE which is insignificant (Beta=1.32 and p value=0.154>0.05).

Table 4.19: Regression coefficients of inventory turnover in days on ROE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.076	.107		-.714	.477
	ITP	.002	.001	.132	1.437	.154

a. Dependent Variable: ROE. Source: Research data, 2017

4.2.7 Average payment period on ROE

Regression analysis was used to determine the effect of average payment period on return on equity (ROE). Table 4.20 shows the effect of average payment period in explaining ROE. The model summary, adjusted R square=0.009 shows that the proportion of variance in the return on equity that is explained by average payment period is nil. Further, R square=0.018 and ANOVA Table 4.21 reveal that 1.8% variations in ROE could be explained by the variations in the average payment period.

Table 4.20: Model summary of average payment period on ROE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.134[a]	.018	.009	.467568

a. Predictors: (Constant), APP. Source: Research data, 2017

Table 4.21: ANOVA of average payment period on ROE

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.464	1	.464	2.121	.148[b]
	Residual	25.360	116	.219		
	Total	25.824	117			

a. Dependent Variable: ROE

a. Predictors: (Constant), APP. Source: Research data, 2017

Table 4.22 establishes that a unit change in average payment period leads to -0.001 change in ROE as shown by unstandardized coefficients. Standardized coefficient shows that a change of one standard deviation in average payment period leads to -0.134 standard deviation change in ROE which is insignificant (Beta=-0.134 and p value=0.148>0.05)

Table 4.22: Regression coefficients of average payment period on ROE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficient	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.163	.080		2.030	.045
	APP	-.001	.001	-.134	-1.456	.148

a. Dependent Variable: ROE. Source: Research data, 2017

4.2.8 Cash conversion cycle on ROE

Regression analysis was used to determine the effect of cash conversion cycle on ROE. Table 4.23 shows the effect cash conversion cycle had on ROE. The model summary, adjusted R square = 0.002 shows that the proportion of variance in the ROE that is explained by cash conversion cycle is nil. Also, R square = 0.011 and ANOVA table 4.24 reveal that 1.1% variations in ROE could be explained by the variations in the cash conversion cycle.

Table 4.23: Model summary of cash conversion cycle period on ROE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.103[a]	.011	.002	.469321

a. Predictors: (Constant), CCC.

Source: Research data, 2017

Table 4.24: ANOVA of cash conversion cycle on ROE

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.273	1	.273	1.240	.268[b]
	Residual	25.550	116	.220		
	Total	25.824	117			

a. Dependent Variable: ROE. Source: Research data, 2017

b. Predictors: (Constant), CCC.

Table 4.25 establishes that a unit change in cash conversion cycle leads to 0.001 change in ROE as shown by unstandardized coefficients. Also, standardized coefficient shows that a change of one standard deviation in cash conversion cycle leads to 0.103 standard deviation change in ROE which is not significant (Beta=0.103 and p value=0.268>0.05)

Table 4.25: Regression coefficients of cash conversion cycle on ROE.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficient	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.035	.050		.704	.483
	CCC	.001	.001	.103	1.114	.268

a. Dependent Variable: ROE. Source: Research data, 2017

The equations represented by the models suggested in the conceptual framework can be represented by the use of unstandardized coefficients as follows:

Average collection period (Model 5)

ROE= 0.176 - 0.002 ACP

Inventory turnover period in days (Model 6)

ROE= -0.076 + 0.002 ITP

Average payment period (Model 7)

ROE= 0.163 - 0.001 APP

Cash conversion cycle (Model 8)

ROE= 0.035 + 0.001 CCC

The above equations mean that even without average collection period, inventory turnover period, average payment period and cash conversion cycle studies, ROE are expected to be 0.176, -0.076, 0.163 and 0.035 respectively.

4.2.9 Correlation Analysis

In summary, correlations result of all variables in table 4.26 shows a significant negative correlation between sales turnover and average collection period (R= -0.297, p value=0.001<0.01), a significant negative correlation between sales turnover and inventory turnover in days (R= -0.546, p value=0.000<0.01), a significant negative correlation between sales turnover and average payment period (R= -0.306, p value=0.001<0.01 and a significant negative correlation between sales turnover and cash conversion cycle (R= -0.180, p value=0.051≥0.05).

On the other hand, it shows a negative insignificant correlation between return on equity (ROE) and average collection period (R= -0.163, p value=0.078>0.05), insignificant positive correlation between ROE and inventory turnover in days (R=0.132, p value=0.154>0.05), insignificant negative correlation between ROE and average payment period (R= -0.134, p value=0.148>0.05) and insignificant positive correlation between ROE and cash conversion cycle (R=0.103, p value=0.268>0.05).

Table 4.26: Pearson's correlations coefficient results (N=118)

Correlations

		SALEST	ROE	ACP	ITP	APP	CCC
SALEST	Pearson Correlation	1	-.038	-.297**	-.546**	-.306**	-.180
	Sig. (2-tailed)		.687	.001	.000	.001	.051
	N	118	118	118	118	118	118
ROE	Pearson Correlation	-.038	1	-.163	.132	-.134	.103
	Sig. (2-tailed)	.687		.078	.154	.148	.268
	N	118	118	118	118	118	118
ACP	Pearson Correlation	-.297**	-.163	1	.230*	.486**	.287**
	Sig. (2-tailed)	.001	.078		.012	.000	.002
	N	118	118	118	118	118	118
ITP	Pearson Correlation	-.546**	.132	.230*	1	.225*	.461**
	Sig. (2-tailed)	.000	.154	.012		.014	.000
	N	118	118	118	118	118	118

APP	Pearson Correlation	-.306**	-.134	.486**	.225*	1	-.561**
	Sig. (2-tailed)	.001	.148	.000	.014		.000
	N	118	118	118	118	118	118
CCC	Pearson Correlation	-.180	.103	.287**	.461**	-.561**	1
	Sig. (2-tailed)	.051	.268	.002	.000	.000	
	N	118	118	118	118	118	118

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

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

Source: Research data, 2017

4.2.10 Descriptive Statistics

Table 4.27 provides the descriptive statistics for all the variables. It shows the number of observations for all variables was 118, their minimum, maximum, mean and standard deviation. The sales turnover has a minimum of 883,740 shillings, a maximum of 222,440,715 shillings, mean of 35,404,883.08 shillings and standard deviation of 45,083,766.9 shillings. ROE has a minimum of -4.680, a maximum of 0.518, mean of 0.06431 and standard deviation of 0.469803.

The mean average collection period is 59.95 days with a standard deviation of 40.922 days. On average, firms take 74.65 days to sell their inventories with a standard deviation of 32.954 days. On average, the firms take 98.12 days to pay their creditors with a standard deviation of 62.523 days. Finally, cash conversion cycle has a mean of 36.9873 days and a standard deviation of 61.96078 days.

Table 4.27: Descriptive statistics of variables

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SALEST	118	883740	222440715	35404883.08	45083766.919
ROE	118	-4.680	.518	.06431	.469803
ACP	118	10	241	59.95	40.922
ITP	118	8	150	74.65	32.954
APP	118	14	365	98.12	62.523
CCC	118	-258.00	209.00	36.9873	61.96078
Valid N (listwise)	118				

Source: Research data, 2017

4.2.11 Combined independent variables on sales turnover

Table 4.28 shows that when the combined independent variables; ACP, ITP, APP and CCC were regressed on sales turnover, it generated a coefficient R square of 0.344. This implied that 34.4% of sales turnover could be explained by explanatory variables while 65.6% could be explained by dimensions not covered in this study. Also, the model shows that the proportion of variance in sales turnover explained by independent variables is shown by adjusted R square (0.321) which is 32.1%.

Table 4.28: Model summary of combined independent variables on sales turnover

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.586[a]	.344	.321	37158691.764

a. Predictors: (Constant), CCC, ACP, ITP, APP. Source: Research data, 2017

The ANOVA table 4.29 also shows regression sum of square of 81781060414901652 out of total variations of 237807886634875776. Dividing the first by the latter shows that 34.4% of variation in sales turnover is explained by the model. Significance value of F (0.000) statistics is less than 0.05 meaning the variation in dependent variable explained by the model is not by chance and is statistically significant.

Table 4.29: ANOVA of combined independent variables on sales turnover

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	81781060414901952.000	4	204452651037 25488.000	14.807	.000[b]
	Residual	15602682621 9973824.000	113	138076837362 8087.000		
	Total	23780788663 4875776.000	117			

a. Dependent Variable: SALEST

b. Predictors: (Constant), CCC, ACP, ITP, APP. Source: Research data, 2017

Table 4.30 reveals that at zero change of independent variables, sales turnover will be 102,835,212.62. Every unit change in ACP led to -153,504.840 change in sale turnover.

A unit change in ITP caused decline in sales turnover by -692,419.493. A unit change in APP led to decline in sales turnover by -76,066.47 and finally every unit change in CCC led to increase in sales turnover by 25,050.898. However, all the relationships were insignificant.

Table 4.30: Regression coefficients for combined independent variables on sales turnover.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	102835212.621	9463875.115		10.866	.000
	ACP	-153504.840	624862.844	-.139	-.246	.806
	ITP	-692419.493	642799.776	-.506	-1.077	.284
	APP	-76066.417	624098.051	-.105	-.122	.903
	CCC	25050.898	628748.038	.034	.040	.968

a. Dependent Variable: SALEST. Source: Research data, 2017

4.2.12 Combined independent variables on ROE

Table 4.31 shows that the combined regression of independent variables; ACP, ITP, APP and CCC on ROE yielded a coefficient R square of 0.066.This implied that 6.6% of ROE could be explained by explanatory variables while 93.4% could be explained by other dimensions not covered in this study. Also, the model shows that the proportion of variance in ROE explained by independent variables is shown by adjusted R square (0.033) which is 3.3%.

Table 4.31: Model summary of combined independent variables on ROE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.258[a]	.066	.033	.461915

a. Predictors: (Constant), CCC, ACP, ITP, APP. Source: Research data, 2017

The ANOVA table 4.32 also shows regression sum of square of 1.713 out of total variations of 25.824. Dividing the first by the latter shows that 6.6% of variations in ROE is explained by the model. Insignificance value of F statistics (0.098) is more than 0.05 meaning the variation in dependent variable explained by the model is by chance and is statistically insignificant.

Table 4.32: ANOVA of combined independent variables on ROE

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.713	4	.428	2.008	.098[b]
	Residual	24.110	113	.213		
	Total	25.824	117			

a. Dependent Variable: ROE

b. Predictors: (Constant), CCC, ACP, ITP, APP. Source: Research data, 2017

The table 4.33 reveals that at zero change of independent variables, ROE will be 0.044. Every unit change in ACP led to -0.006 change in ROE. A unit change in ITP caused decline in ROE by -0.001. A unit change in APP led to increase in ROE by 0.003 and finally, every unit change in CCC led to increase in ROE by 0.004. All corresponding independent variables ACP, ITP, APP and CCC did not have significant influence on ROE.

Table 4.33: Regression coefficients of combined independent variables on ROE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.044	.118		.377	.707
	ACP	-.006	.008	-.484	-.716	.476
	ITP	-.001	.008	-.079	-.140	.889
	APP	.003	.008	.401	.389	.698
	CCC	.004	.008	.503	.488	.626

a. Dependent Variable: ROE. Source: Research data, 2017

4.3 Discussion

The first objective of the study was to determine the effect of average collection period on the firms' performance. The study revealed that variations in sales turnover explained by ACP was 8.8%, a unit change in ACP led to -327,419.609 change in sales turnover. It revealed a significant negative relationship between ACP and sales turnover (R=-0.297, p value=0.001<0.01). This is consistent with Falope and Ajilore (2009) study which found a significant negative relationship between net operating profit, ACP and APP. Mathuva (2009), Kwasi (2010) and Akoto et al (2013) studies also found negative relationships between ACP and profitability. The study also found that variations in ROE explained by ACP was 2.6%, a unit change in ACP led to -0.002 change in ROE. It found insignificant negative relationship between ACP and ROE (R=-0.163, p value=0.078>0.05) which was in agreement with Gakure, Cheluget, Onyango and Keraro (2012) study which found the effects of all independent variables except APP not statistically significant with a profitability. The result of the study implied that firms applied short average collection period for quick collection of money for reinvestments that helped to generate products for more sales. Shortening the ACP normally shortens CCC, improves liquidity and finally profitability. Descriptive statistics established that firms received payments on sales after an average of 59.95 days with a standard deviation of 40.922 days.

The second objective of the study was to establish the effect of inventory turnover in days on the firms' performance. The study established that variations in sales turnover explained by ITP was 29.8%, a unit change in ITP led to -747,019.852 change in sales turnover. It revealed a significant negative relationship between inventory turnover in days and sales turnover (R=-0.546, p value=0.000<0.01) which is consistent with the findings of Shah and Sana (2006), Shama and Kumar (2011), Madisheti and Kibona (2013) and Muturi et al (2015) who found significant negative relationships between ITP and profitability. This implied that firms took short period to convert inventories to sales and avoid tied up related costs. It established that variations in ROE explained by ITP was 1.7%, a unit change in ITP led to 0.002 change in ROE. Also revealed in the study, was insignificant positive relationship between ITP and ROE (R=0.132, p value=0.154>0.05) which was consistent with the study of Gakure et al (2012) who found the effects of independent variables except APP not to be statistically significant. The

results implied that firms held a lot of inventories to cater for adequate production. Descriptive statistics revealed that firms took on average 74.65 days to sell inventories with a standard deviation of 32.954 days.

The third objective which was to examine the effect of average payment period on the firms' performance revealed that variations in sales turnover explained by APP was 9.4%, a unit change in APP led to -220,890.86 changes in sales turnover. It also revealed that APP had a significant negative relationship with sales turnover (R=-0.306, p value=0.001<0.01). This was consistent with the findings of Malik et al (2014) who in their study to compare effect of working capital management of Pakistani cement, chemical and engineering firms using pooled ordinary least square, found significantly negative relationships. This study further, revealed that variations in ROE explained by APP was 1.8%, a unit change in APP led to -0.001 change in ROE. It also established that APP had a negative insignificant relationship with ROE (R=-0.134, p value=0.148>0.05) which concurred with Gakure et al (2012) who found the effects of independent variables except APP not to be statistically significant. The findings implied that firms could have speeded up payments to suppliers that might had increased profitability because firms often received substantial discounts for prompt payments. Also, profitable firms take shorter period to pay their creditors. Descriptive statistics revealed that firms waited on average of 98.12 days to pay for their purchases with a standard deviation of 62.523 days

Fourthly, in determining the effect of cash conversion cycle on firms' performance, the study established that variations in sales turnover explained by CCC was 3.2%, a unit change in CCC led to -130,873.32 changes in sales turnover. It also found that cash conversion cycle significantly and negatively relate to sales turnover (R=-0.180, p value=0.051≥0.05) which concurred with Lazaridis and Tryfonidis (2006), Kwasi (2010), Mohamad and Saad (2010), Hasan et al (2011) and Nzioki et al (2013) studies. This implied that firms applied short CCC for less funds to be tied up in working capital, leaving more funds for reinvestments, generating sales and profitability. This study found that variations of ROE explained by CCC was 1.1%, a unit change in CCC led to 0.001 change in ROE. Also found was that CCC insignificantly and positively relate to ROE

(R=103, p value=0.268>0.05) which concurred with the study Gakure et al (2012) implying that firms held more inventories associated to high production that catered for seasonality effect and helped to avoid the costs of stock out and price fluctuations. Descriptive statistics revealed that firms' cash conversion cycle was 36.99 days with a standard deviation of 61.96 days.

Finally, the result of the regression of combined independent variables; ACP, ITP, APP and CCC on sales turnover yielded a coefficient R square of 0.344. This meant that 34.4% of sales turnover could be explained by explanatory variables, while 65.6% could be explained by dimensions not covered in this study. At zero change of independent variables, sales turnover will be 102,835,212.6. Every unit change in ACP led to -153,504.840 change in sale turnover. A unit change in ITP caused decline in sales turnover by -692,419.493. A unit change in APP led to decline in sales turnover by -76,066.47 and finally every unit change in CCC led to positive increase in sales turnover by 25,050.898. Significant value of F (0.000) statistics is less than 0.05 meaning the variation in dependent variable explained by the model is not by chance and is statistically significant.

The regression of combined independent variables; ACP, ITP, APP and CCC on ROE yielded a coefficient R square of 0.066. This meant that 6.6% of ROE could be explained by explanatory variables, while 93.4% could be explained by other variables not covered in this study. At zero change of independent variables, ROE will be 0.044. Every unit change in ACP led to -0.006 change in ROE. A unit change in ITP caused decline in ROE by -0.001. A unit change in APP led to increase in ROE by 0.004. Insignificant value of F statistics (0.098) is more than 0.05, meaning the variation in dependent variable explained by the model is by chance and is statistically insignificant.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMENDATIONS

5.1 Introduction

This chapter presents a summary of study findings, conclusions, recommendations based on the study findings and suggestions for further research.

5.2 Summary of the findings

In the first objective to determine the effect of average collection period on the firms' performance. The study revealed that variations in sales turnover explained by ACP was 8.8%, a significant negative relationship between ACP and sales turnover. It also found that variations in ROE explained by ACP was 2.6%, insignificant negative relationship between ACP and ROE. The result of the study meant that as ACP shortens, sales turnover increases. This implied that firms applied short average collection period for quick collection of money for reinvestments that helped to generate products for more sales. Shortening the ACP normally shortens CCC, improves liquidity and finally profitability. Descriptive statistics established that firms received payments on sales after an average of 59.95 days with a standard deviation of 40.922 days.

The second objective of the study which was to establish the effect of inventory turnover in days on the firms' performance established that variations in sales turnover explained by ITP was 29.8%, a significant negative relationship between inventory turnover period in days and sales turnover which implied that firms took short period to convert inventories into sales. It established that variations in ROE explained by ITP was 1.7%, insignificant positive relationship between ITP and ROE implying that firms held a lot of inventories to cater for adequate production. Descriptive statistics revealed that firms took on average 74.65 days to sell inventories with a standard deviation of 32.954 days.

The third objective which was to examine the effect of average payment period on the firms' performance revealed that variations in sales turnover explained by APP was 9.4%, a significant negative relationship between APP and sales turnover. It further, revealed that variations in ROE explained by APP was 1.8%, a negative insignificant relationship between APP and ROE. The findings implied that firms could have speeded up payments to suppliers that might had increased profitability because firms often

received substantial discounts for prompt payments. Also profitable firms take shorter period to pay their creditors. Descriptive statistics revealed that firms wait on average of 98.12 days to pay for their purchases with a standard deviation of 62.523 days

The fourth objective of determining the effect of cash conversion cycle on firms' performance, established that variations in sales turnover explained by CCC was 3.2%, a negative significant relationship between cash conversion cycle and sales turnover. This implied that firms applied short CCC for less funds to be tied up in working capital, leaving more funds for use in reinvestments, generating sales and profitability. This study found that variations of ROE explained by CCC was 1.1%, a positive insignificant relationship between CCC and ROE implying that firms held more inventories to cater for high production that catered for seasonality effect and avoided the costs of stock out and price fluctuations. Descriptive statistics revealed that firms' cash conversion cycle was 36.99 days with a standard deviation of 61.96 days.

Finally, the regression of combined ACP, ITP, APP and CCC on sales turnover yielded a coefficient R square of 0.344 implying that 34.4% of sales turnover could be explained by explanatory variables while 65.6% could be explained by variables not covered in this study. At zero change of independent variables, sales turnover will be 102,835,212.6. A unit change in ACP led to -153,504.840 change in sale turnover. A unit change in ITP changed sales turnover by -692,419.493. A unit change in APP changed sales turnover by -76,066.47 and every unit change in CCC led to change in sales turnover by 25,050.898. Significant value of F (0.000) statistics is less than 0.05 meaning the variation in dependent variable explained by the model is not by chance and is statistically significant.

The regression of combined ACP, ITP, APP and CCC on ROE yielded a coefficient R square of 0.066 meaning that 6.6% of ROE could be explained by explanatory variables while 93.4% could be explained by other variables not covered in this study. At zero change of independent variables, ROE will be 0.044. A unit change in ACP led to -0.006 change in ROE. A unit change in ITP changed ROE by -0.001. A unit change in APP changed ROE by 0.004. Insignificant value of F statistics (0.098) is more than 0.05,

meaning the variation in dependent variable explained by the model is by chance and is statistically insignificant.

5.3 Conclusions

In the first objective to determine the effect of average collection period on the firms' performance. The study established a significant negative relationship between ACP and sales turnover. The study established insignificant negative relationship between ACP and ROE meaning that the ACP did not affect ROE to a greater extent. This implied that firms applied short average collection period for quick collection of money for reinvestments that helped to generate products for more sales. Shortening the ACP normally shortens CCC, improves liquidity and finally profitability.

The second objective of the study which was to establish the effect of inventory turnover in days on the firms' performance established a significant negative relationship between ITP in days and sales turnover, implying that firms took short period to convert inventories to sales and avoided stock tied up costs. Also revealed was insignificant positive relationship between ITP in days and ROE, implying that although firms took long period to convert inventories to sales, such inventories held longer did not have significant effect on ROE.

The third objective which was to examine the effect of average payment period on the firms' performance revealed a significant negative relationship between APP and sales turnover, a negative insignificant relationship between APP and ROE, implying that firms could have speeded up payments to suppliers that might had increased profitability because firms often received substantial discounts for prompt payments. Also profitable firms take shorter period to pay their creditors

The fourth objective of determining the effect of cash conversion cycle on firms' performance, established that CCC significantly and negatively relate to sales turnover, implying that firms applied short CCC for less funds to be tied up in working capital, leaving more funds for use in reinvestments, generating sales and profitability. The study also found that CCC insignificantly and positively relate to ROE implying that firms held

more inventories associated to high production that catered for seasonality effect and helped to avoid the costs of stock out and price fluctuations.

Finally, when combined variables were regressed on sales turnover, ACP, ITP and APP had insignificant negative relationship while CCC had insignificant positive relationship with sales turnover. However, when combined variables were regressed on ROE, ACP and ITP had insignificant negative relationships while APP and CCC insignificantly and positively relate to ROE.

5.4 Limitations of the study

The study used information found in NSE and CMA Handbook manuals leading to unlisted companies left out of study. Regression analysis used in the study assumed linearity and that other factors were held constant, while in the real situations, environmental factors kept on changing. Other factors like management style, industrial norms, and economic changes among others were not considered. Umeme Company Ltd was also left out of the study due to incomplete data. Companies falling under the two sectors covered in this study were only nine which might not be representative for generalization of the findings. Time limitation did not allow the study to cover companies under other sectors of the economy.

5.5 Recommendations

Based on the objective one, the study established a significant negative relationship between ACP and sales turnover, insignificant negative relationship between ACP and ROE. The study recommends that ACP should be shortened to enable companies to collect receivables from their customers within the shortest possible period and plough back the amount collected in to the business to generate further sales.

Based on the objective two, the study revealed a significant negative relationship between ITP in days and sales turnover, insignificant positive relationship between ITP and ROE. The study recommends that managers should reduce inventory turnover period to convert

inventories into sales quickly and avoid tied up related costs and associated opportunity costs. The study further, recommends that firms should maintain levels of inventories that can cater for high production, seasonality effect and avoid the costs of stock out and price fluctuations.

Concerning the third objective, the study established that APP had a significant negative relationship with sales turnover, a negative insignificant relationship between APP and ROE. The study recommends that firms should speed up payments to suppliers to enjoy substantial discounts on prompt payments.

Based on the fourth objective, the study established that CCC significantly and negatively relate to sales turnover. The study recommends that managers should try to reduce cash conversion cycle to get money quickly for reinvestments. It also found that CCC insignificantly and positively relate to ROE. The study recommends that firms should maintain levels of inventories that cater for high production, seasonality effect and avoid the costs of stock out and price fluctuations.

5.6 Suggestions for further research

Due to factors that limited the study, it is suggested that mores studies should be conducted to cover companies not listed at NSE, companies' under cross border listings, companies under other sectors of the economy. Since there are other factor affecting firms' performance other than factors considered in this study, studies should be conducted to focus on factors such as government policies and economic cycles.

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