EFFECT OF WORKING CAPITAL MANAGEMENT ON EFFICIENCY OF COMMERCIAL AND SERVICES FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

BY

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DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

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

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DEDICATION

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LIST OF ABBREVIATIONS

ACP	Average Collection Period
APP	Average Payment Period
CCC	Cash Conversion Cycle
CMA	Capital Market Authority
ICP	Inventory Conversion Period
NSE	Nairobi Securities Exchange
ROA	Return on Assets
SPSS	Statistical Package for Social Sciences
WCM	Working Capital Management

ABSTRACT

The management of working capital is a key managerial concern, managers realize there is no substitute for WCM regardless of the firm size, asset base and profitability, the only fact is that only firms with effective WCM decisions will survive and keep their operations running. Poor liquidity management leads to a situation where the firm is unable to achieve its maturing obligations. Consequently, this could lead to lost business opportunity which definitely would impact on the efficiency of the firm. The aim of this study was to ascertain the effect of working capital management on efficiency of commercial and service firms quoted at Kenya NSE. The population for the study was all the 12 commercial and service companies quoted at the NSE. This study independent variable was working capital management as characterized by ACP, ICP and APP. The control variables for this study were capital structure as calculated by considering the debt ratio, liquidity as represented by current ratio while the organisation size was characterized by natural logarithm of total assets. Efficiency was the dependent variable and was measured by the ratio of total expenditure to total revenue. Secondary data was collected over a 5-year time frame (January 2013 to December 2017) annually. Descriptive cross-sectional research design was employed for the study and the relationship between variables established using multiple linear regression analysis. Data analysis was undertaken using the SPSS software. The results of the study produced R-square value of 0.259 which means that about 25.9 percent of the variation in efficiency of commercial and service firms quoted at the NSE can be explained by the six selected independent variables while 74.1 percent in the variation of efficiency of commercial and service firms listed at the NSE was associated with other factors not covered in this research. It came to the researcher's attention that the independent parameters had a strong correlation with efficiency of commercial and service firms listed at the NSE (R=0.509). The model was fit to explain the association between the selected variables after conducting the F test. The findings also showed that inventory conversion period produced negative and statistically significant values for this study. Average collection period and capital structure produced negative but statistically insignificant values while average payables period, firm size and liquidity produced positive but statistically insignificant values for this study. Top management of commercial and service firms should monitor inventory conversion period when making their capital management decisions as it has a statistical significance on efficiency of commercial and service firms listed at the NSE.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The concept of Working Capital Management (WCM) has always been aimed at achieving two major corporate goals; to maximize efficiency and firm liquidity. If this two are achieved, the main goal of a firm which is to maximize shareholder's wealth will be achieved (Mullins, 2009). Based on WCM implications on both liquidity and efficiency of a firm, finance managers appreciate that WCM demands a careful inquiry since its role in the overall corporate strategy is a fundamental part of creating value to shareholders (Howarth & Westhead, 2003). Efficient WCM demands maintenance of sufficient level of current assets and liabilities to facilitate achievement of optimal efficiency levels and ultimately achievement of the main goal which is shareholder wealth maximization.

The current study was based on three theories namely; liquidity preference theory, trade-off theory and stakeholders' theory. Keynesian liquidity preference theory advocates for the necessity of liquidity to facilitate daily activities of a firm. On the other hand tradeoff theory and stakeholder theory interrogate the balance between current assets, current liabilities, profitability and liquidity. Stakeholders' theory guides managers to take into account all stakeholder interests, as no sets of interests dominate others. WCM decisions enable firms to realize optimal balance between liquidity and profitability (Gill, 2011). WCM is therefore consistent with value seeking and maximizing behavior; firms must therefore pay attention to all stakeholder interests and components of working capital.

Working capital needs vary from industry to industry, in Kenya, commercial and service firms incur substantial payables and upfront costs for goods and labor before

receiving any payments. Current assets constitute a considerable investment for these firms. This makes it a great concern for management, investors and other stakeholders for these firms to have a WCM unit. Dilemma for these firms is management of cash, inventory and payables as well as collection of receivables. WCM decisions are important for both commercial and service firms. Efficiency for these firms relies on Working capital management (Kaur, 2010).

1.1.1 Working Capital Management

Adeniji (2008) defined working capital as the money used by enterprises in their routine activities or operations. The working capital of a firm is ascertained as the surplus of short-term assets over short-term liabilities and it forms the necessary items for production of business merchandise for sale (Akinsulire, 2008). According to Finkler (2010), WCM refers to the management of current liabilities and assets to maximize results where current assets are those that will be spent or will be converted to cash in a span of a year and the obligations that will have to be paid within a year are the current liabilities. Thus implying that, working capital is short term assets and obligations.

Working capital is among the many imperative aspects finance managers ought to consider in making decisions relating to firms' usage of financial resources. Decisions regarding what resources and an optimal level of liabilities an organization ought to have determine the ability to meet operational obligations (Harris, 2005). Organizations that are doing well strive to have an optimum level of revenues and tied-up capital. Holding too much inventory impacts negatively on profit levels while holding little stock could deter an organization from satisfactorily meeting client needs; this calls for a need to an equitable working capital for business going concern.

Therefore, WCM is an integral feature of organizational operations and has a huge effect on both short-term and long term efficiency (Akoto, Awunyo & Angwor, 2013).

Cash Conversion Cycle (CCC) is an important parameter used in gauging the effectiveness of WCM decisions, it is the time between purchases for input resources and the time cash is collected from credit sales less the payables period. It is the time resources of the firm are tied up in the business cycle (Deloof, 2003). Moreover, the presence of WCM can also be measured through firm's periodic liquidity analysis. In this analysis, liquidity position can be recognized by the risk and return characteristics (Weinraub & Visscher, 1998). Therefore, the underlying factor of the risk and returns tradeoff is the working capital management decisions. In terms of liquidity analysis, firms can be seen in two ways; aggressive firms which are guided by the principle of high risk, high return working capital investment and financing policies; and moderate or matching where there is lower risk and return strategies, also referred to as conservative firms (Pinches 1991).

1.1.2 Firm Efficiency

Firm efficiency is the ability of a firm to minimize waste and maximize resource capabilities so as to offer to its customer's quality products and services (Kalluru & Bhat, 2009). It involves the identification of wasteful resources and processes that affects productivity and growth of organizations profits. Firm efficiency entails redesigning new work processes that improves productivity and quality (Darrab & Khan, 2010). According to Cooper and Rhodes (1978), firm efficiency is the maximum ratio of weighted outputs to weighted inputs.

Firm efficiency is determined through calculating the ratio of the actual productivity over the highest anticipated productivity. The highest possible productivity equates to the desired performance. According to Hackman (2008), the steps involved in analyzing the productivity and efficiency analysis is linked to production economics, which seeks to examine and generalize the description of technology in responding to the questions. One may be curious to determine the firm's efficiency before committing a specific amount of inputs and during the scaling of its operations. It is equally important to understand the trend of the company's capability over time. Finally, one might be curious to compare the performance of the firm against its competitors.

There are several ratios of measuring firm efficiency. To begin with, total asset turnover ratio can be used and this ratio gives the organisation capability to products or services sales in relation to the investments done in acquisition of the organisation assets. This is calculated by dividing net sales on the average organisations assets. Secondly we can use the organisation total fixed-asset turnover ratio which is analogous to total asset turnover ratio except only that it's only the organisation fixed assets that are used in computing this ratio. Fixed-asset turnover is computed by dividing the net sales by the average net fixed assets.

Another ratio for measuring firm efficiency is revenue turnover. The ratio is used for purposes of measuring an organisation capability to spend given its investment in generating revenue. It is calculated as the ratio of total expenditure to average total revenue. These ratios show whether the firm is managing operational cost efficiently which will ultimately have an influence upon its performance (Rao & Lakew, 2012). The current study will use revenue turnover as a measure of firm efficiency.

1.1.3 Working Capital Management and Firm Efficiency

Tradeoffs exist between working capital and efficiency and firms need to recognize and understand these tradeoffs and implement strategies that take them into account. Aggressive investment in current assets and current liabilities is negatively related to efficiency and positively related to liquidity of an organisation. Further, conservatism speculation in working capital results in low liquidity and higher efficiency although it could result in unmet customer demands. WCM therefore, involves management of these tradeoffs to ensure optimization of firm efficiency and liquidity. The prime objective of WCM is to ensure smooth operations simultaneously reducing costs and increasing revenues by improving operational responsiveness (Afza & Nazir, 2009).

Although a company's primary purpose is to achieve profits, there is the need to maintain optimal levels of efficiency and liquidity in daily operations to guarantee business continuity, growth and survival (Eljelly, 2004). Ricci and Vito (2000), conform that the prime objective of WCM is regulation of current assets of a company so that equilibrium is achieved between the profitability and the efficiency associated to that profitability. The degree of investment in working capital determines strongly the efficiency of a company. WCM decisions influence a firm's primary revenue streams and financing costs for short term capital requirements. It is therefore imperative for financial managers to make efficient and effective WCM decisions to realize optimal firm efficiency (Howorth & Westhead, 2003).

Peel and Wilson (1996) noted that there is a negative association between efficiency and WCM. The authors further noted that working capital management is a relevant aspect for financial managers who commit much time and resources looking for an ideal or optimum equilibrium of risk and return as well as profitability and liquidity so

as to maximize wealth for the owners. Gill, Biger and Mathur (2010) established significant link between the CCC and performance, measured using GPM. The findings implied that firm's management can increase firm's productivity by optimally managing working capital. Overall from these studies done in the past, there is a relationship between WCM and organizational success in a variety of markets. There are various conclusions, with most of them pointing to an inverse association between organizational profitability and WCM.

1.1.4 Commercial and Services Firms Listed at the NSE

Commercial and service sector refers to a category of enterprises that provide services to commercial and retail customers. Some of the businesses listed under this category include expressly limited, Nation Media Group (NMG), Kenya Airways (KQ); The Standard Group (SG), Uchumi Supermarket (US), Scan Group, Hutchings Biemer (HB), Atlas Development and Support services (ADSS), TPS Eastern Africa and Longhorn Publishers (LP) (NSE, 2018). Despite the assertion by Peng (2000) that the financial system plays a substantial function in the growth process, particularly in the financial intermediation process, it is of great importance for firms to redefine their strategies to achieve efficiency and thus ultimately a financial system of their firms.

Commercial and service industry is a major player in growth and development of the Kenyan economy through creation of employment opportunities, increasing the gross domestic product and an increase in economic gains in the foreign exchange markets for the better part of the post-colonial period (UNCTAD, 2008). Contribution of these two sectors to the country's economy has been even larger, with a rise of 10 percent from 55 percent in 1980 to 65 per cent by 2006 in its share of total wage employment (CBK, 2014). The key contribution of the services segment to the Kenyan economy is

very important to the trade balance. According to UNCTAD (2008), the annual export of services account for around 50% for period since 1980.

To increase their efficiency, commercial and services firms should efficiently manage their working capital components in order to minimize costs and maximize profits in their operations. Working capital have a vital role in the development of organisation long term strategies which enhances efficiency in service provision in all sectors of the economy (Siddiquee, 2009). Determining the optimal composition and level of working capital and specific trade credit relative to trade payables can enable an organisation to have a performance edge over its competitors (Haq & Zaheer, 2011).

1.2 Research Problem

The management of working capital is a key managerial concern, managers realize there is no substitute for WCM regardless of the firm size, asset base and profitability, the only fact is that only firms with effective WCM decisions will survive and keep their operations running. WCM decisions affect the efficiency of a firm, its risk and as a result its value (Smith, 1980). Poor liquidity management leads to a situation where the firm is unable to achieve its maturing obligations. Consequently, this could lead to lost business opportunity which definitely would impact on the efficiency of the firm. In extreme situations, where the firm is not to achieve its obligations to external parties, there could be litigation charges and fines involved which impact on the cost of the firm (Pandey, 1997). Rafuse (1996) identified poor WCM as the main factors of business failure in growing firms.

The commercial and service firms in Kenya need a keen attention in order to make meaningful contribution to Kenya's economy. WCM is one of the factors expected to contribute to the efficiency of these firms and in essence their value. In the recent

past, Kenya has experienced inability of some commercial and service firms to carry their activities properly and some of them ended up closing shop. Uchumi and Kenya Airways are two examples of firms in this sector that has been struggling and this study seeks to investigate whether WCM has an effect on efficiency of commercial and service firms listed at the NSE.

Empirical evidence is varied on the impacts of capital management and is mostly inconsistent. Gill, Biger and Mathur (2010) on their study on the relationship that exists between WCM and profitability came to a conclusion that there was a significant relationship statistically between the two. The study was done on 88 listed companies in the New York Stock Exchange. Ani, Okwo and Ugwunta (2012) did a research on impacts of WCM on profitability using five top brewery companies in the world and her study showed that the different working capital components have impacts on beer brewery firms' profitability. Oladipupo and Okafor (2013) basing their study on 12 listed manufacturing firms in Nigeria Stock Exchange found the relationship between WCM and profitability statistically insignificant and was at 95% confidence level. The study was done between 2002 and 2006. Onodje (2014) carried a study on the final results of an effective working capital management strategy in the manufacturing sector in Nigeria and established that efficient working capital and debt management are critical in improved manufacturing company's performance.

Locally, Nyarangi (2016) majored on the role of WCM on organisation financial performance in the manufacturing companies listed at the NSE and established that WCM had a fundamental significance on the organisation financial performance. Mwangi (2016) focused on the effect of WCM on performance of Kenyan water service providers and found that ROA has a positive relationship with current ratio

but negative relationship to payable ratio, firm size, and collection efficiency. Mohamed (2016) sought to investigate how WCM decisions affect the financial operations of smallholder tea companies in Kenya and found a significant effect between the study variables. Awunya (2017) studied on the impacts of WCM policies on the firm's financial performance at NSE and found that both aggressive financing policy and conservative investment policy have an insignificant positive effect on financial performance of firms. From the foregoing, it is clear that although there are many studies done on working capital management, majority of these studies have focused on other sectors different from commercial and service. Although the study by Awunya considered the commercial and service firms, her focus was on financial performance while the current study focused on firm efficiency. This study was an attempt to give an explanation to the research question; what is the effect of working capital management on efficiency of commercial and services firms listed at the Nairobi Securities Exchange?

1.3 Objectives of the Study

To determine the effect of working capital management on efficiency of commercial and services firms listed at the Nairobi Securities Exchange

1.4 Value of the Study

The research findings will be used as a reference by scholars, students and researchers who might want to undertake studies in the same field. The study will also help both researchers and scholars in identifying research gap in this field which will prompt and guide them in executing further studies.

Value of this study is to the various managers who are tasked with the management of commercial and services firms listed at the NSE; this study provides useful

information and recommendations to assist them in making more informed management decisions leading to shareholders' wealth maximization. The study increases the pool of knowledge available to assist both commercial and services firms and other firms seeking to improve their efficiency and ensure sustainability.

The outcome of this study will also aid the various regulatory agencies such as CMA and NSE when developing legislation and regulatory framework around companies' working capital management decisions. The regulators will thus consider this study as they formulate policies that will create a favorable environment for investors.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter reviews theories that form the foundation of this study. In addition, previous empirical studies that have been carried before on this research topic and related areas are also discussed. The other sections of this chapter include determinants of firm efficiency, conceptual framework showing the relationship between study variables and a summary of the literature reviewed.

2.2 Theoretical Framework

This section presents review of relevant academic theories which explains the working capital management decisions of firms. The theoretical reviews covered are; Keynesian liquidity preference theory, stakeholder theory and the trade-off theory.

2.2.1 Keynesian Liquidity Preference Theory

This theory was formulated by a scholar John Keynes in 1936 and it laid a foundation for WCM. In this theory, Keynes argues that holding all other factors constant, investors will have a preference for liquid investments as opposed to illiquid investments and will seek a premium for investments that will take longer to mature. Liquidity is the expediency of holding cash. An individual or firm will hold money for various reasons at a given time (Bitrus, 2011). Based on the theory, firms hold cash or inventory to meet their transaction, speculative, precaution, and compensation motives.

The transaction motive involves the firm's need to hold cash or money for purposes of meeting current transactions for business exchanges. Firms need to hold cash so as to be able to pay for current needs such as transport, raw materials, wages among others.

Precautionary motive is whereby firms have to keep cash as security for unanticipated emergencies. Any given firm will set aside some money to manage hardships or to benefit from unforeseen deals. Speculative motive is whereby firms maintain assets in liquid form to benefit from prospective adjustments in the interest rates or bond prices (Pandey, 1997).

Keynesian liquidity preference theory is relevant for this study since the necessity of liquidity to facilitate daily activities of a firm cannot be ignored. However, Gakure et al., (2012) noted a significant negative association between the liquidity of an organisation and its overall financial performance. Firms have to ensure they minimize the total cost of liquidity and cost of illiquidity, WCM objective being enhancing both liquidity and firm efficiency (Pandey, 1997).

2.2.2 Stakeholders' Theory

Stakeholders' theory was made an integral part the management discipline in 1970 and gradually advanced by Freeman (1984). According to Freeman (1984) a stakeholder is any person or group that has an interest in a company and can influence or be influenced by company objectives and actions. Corporate governance highlights interests of other stakeholders as one of its key principles and therefore firms should be managed not only for shareholders but also for stakeholders of a firm including customers, investors, creditors and suppliers. This theory proposes that a company is an organization with various stakeholders and the aim of the company is to generate and increase value for its stakeholders.

According to March and Simon (1958), stakeholders supply firms with critical resources and in return expect their interest to be fulfilled. Customers are a revenue base for large firms and expect value for money in return through certainty and

quality goods and services and not obsolete goods. Suppliers and creditors provides a firm with raw materials for production this calls for fair pricing for their material and further calls for better terms of trade. A number of stakeholders have an interest tracking the financial performance, liquidity and WCM of a firm. With enhanced financial performance employees and management receive remunerations and reputation, while investors and shareholders benefit from enhanced financial returns. All these stakeholder interests can be satisfied through efficient WCM decisions.

The relevance of stakeholder theory to WCM could be viewed from the perspective of the company executives who make decisions and design systems to manage working capital so that stakeholder interests are satisfied. Stakeholders' theory centers on managerial decision making and discerns that the concerns of all stakeholders have inherent value, and all these interests are assumed to be crucial (Friedman & Miles, 2006).

2.2.3 Trade-Off Theory

This theory was proposed by Myers (1984) and it suggests that the most crucial goal of a firm is to maximize profits but it also has to ensure that it maintains favorable liquidity at all times. An attempt to increase profits by writing down liquidity can result in detrimental results to the firm (Shin & Soenen, 1998). Trade-off model shows that a firm determines its optimal level of holding cash based on a comparison of the marginal costs and the benefits of holding cash. Investing heavily in currents assets in certainty will translate to low ROA of the firm since over investing in current assets will not bring sufficient returns.

The firm must settle on the level of current assets to maintain based on all factors that are involved in its daily operations. In such a case, the firm can either choose to adopt

the conservative risk-return trade-off which entails lower risk and lower return or choose the aggressive working capital policies which entail higher risk and higher return (Carpenter & Johnson, 1983). Given that rank correlation of profitability has an inverse relationship with the rank correlation of liquidity, therefore be concluded that a rise liquidity cause the level of profitability to decrease (Pandey, 2010). In the current study, the tradeoff model will help in understanding and explaining why commercial and services firms listed at the NSE need to maintain a favorable balance between profitability and efficiency. Managing the trade-off between profitability and efficiency is crucial and key to WCM decisions.

2.3 Determinants of Firm Efficiency

A firm's efficiency can be impacted by factors either internal or external to the firms that define the level of output. The internal factors are different for each firm and determine its efficiency. Managerial decisions together with the board are the major sources of these factors. Some of the internal factors are WCM, capital structure, the size of the firm, liquidity, management efficiency, capital, market power among others. Management has no control of external factors. They are factors that the firm does not have control over them but rather they need to develop strategies to deal with them (Athanasoglou, Brissimis & Delis, 2005).

2.3.1 Working Capital Management

WCM decisions play an essential function in determining the firm's efficiency. Company executives can create value for shareholders by efficiently managing working capital (Shin & Soenen, 1998). This can be achieved by putting in place proper credit policies, inventory turnover levels, and appropriate payment periods and in general, efficient management of the CCC at large (Filbeck & Krueger 2005).

Howarth and Westhead (2003) proposed that WCM has to be managed efficiently since it plays a big role towards the key strategy of any firm which is to create value for its shareholders. Efficient WCM decisions ensure minimum costs and risks to the firm and that cash is trapped in the business cycle for a short time resulting in increased revenues hence increased shareholder's wealth.

Deloof (2003) argues that most organisation put substantial amount as the working capital and by and large uses trade payables as the major source of operational finances. This therefore calls for a prudent effect on the business performance and can be major determinant of organisation operational efficiency. As indicated by Tryfonidis and Lazaridis (2006) operating efficiency will show the response of the management in terms of the management of the organisation working capital.

2.3.1 Capital Structure

According to the international prudential regulation, capital ratio is a vital tool for determining capital adequacy and should examine the firms' safety and soundness. The reduction of costs by highly capitalized firms significantly reduces their funding costs, which significantly influences their efficiency. Alternatively, highly capitalized firms do not utilize external funds which improve their efficiency. Furthermore, if we factor in the conventional risk return hypothesis, firms with lower capital ratios will have higher efficiency compared to better-capitalized firms. Bourke (1989) report a positive and significant relationship between capital structure and efficiency.

Usage of debt comes with some agency costs like the existence of constraints put by the firm providing debt on how an organization is to run its affairs (Lee, 2009). This may bring about inflexibility in undertaking some projects even if they promise

greater return on equity (Amato & Burson, 2007). This may negatively influence the overall performance of the organization which will in turn affect its efficiency.

2.3.2 Liquidity

Liquidity is defined as the degree in which an entity is able to honor debt obligations falling due in the next twelve months through cash or cash equivalents for example assets that are short term can be quickly converted into cash. Liquidity results from the managers' ability to fulfill their commitments that fall due to creditors without having to liquidate financial assets (Adam & Buckle, 2003).

According to Liargovas and Skandalis (2008), liquid assets can be used by firms for purposes of financing their activities and investments in instances where the external finance is not forthcoming. Firms with higher liquidity are able to deal with unexpected or unforeseen contingencies as well as cope with its obligations that fall. Almajali et al., (2012) noted that firm's liquidity may have high impact on efficiency of firms; therefore, firms should aim at increasing their current assets while decreasing their current liabilities as per his recommendation. However, Jovanovic (1982) noted that an abundance of liquidity may at times result to more harm.

2.3.3 Management Efficiency

Management efficiency is a key internal factor that qualitatively measures and establishes the operational efficiency of a firm. The ability of the management to efficiently utilize the resources of the firm, their ability to maximize funding and their ability to efficiently allocate those funds are some of the ways of assessing the management efficiency (Kusa & Ongore, 2013).

Management efficiency is a qualitative measure and determinant of operational efficiency and it can be assessed by looking at the quality of the staff, the effectives

and efficiency of the internal controls, the discipline within the organization and the effectiveness of the management systems (Athanasoglou, Sophocles & Matthaois, 2009). The quality of the management has an influence on the level of operating expenses which affects the bottom line of a firm hence management efficiency significantly affects the operational efficiency of firms (Kusa & Ongore, 2013).

2.3.4 Firm Size

The most fundamental question underlying firm policy is at what size is firm efficiency maximized. The expansion of the size of the firm increases its efficiency up to a certain level where any further increase becomes harmful since bureaucratic and other managerial issues and challenges set in. Hence the relationship between size and efficiency is nonlinear in nature. We utilize the logarithm of the assets of the firm (logarithm) and their square so as to curb this likely non-linear association (Yuqi, 2007).

Burca and Batrinca (2014) asserts that the relationship existing between size and financial performance is positive in the sense that more resources are available in larger firms, better risk diversification strategies, complex information systems and are able to manage expenses well compared to small firms. This might have a huge significance effect on the organisation financial performance of insurance companies in different ways for example large firms may be advantaged compared to smaller firms as they can be able to exploit economies of scale and scope; as such they are more efficient in their operations and as a result reap higher level of profits.

2.3.5 Age of the Firm

According to Sorensen and Stuart (2000), company's age may have an effect on firms' efficiency. They further noted that older firms may have organizational inertia

which tends to make them inflexible which may result to their inability to appreciate the changes that occur in changing environment. However, Liargovas and Skandalis (2008), noted that older firms may have more skills because they have been in operation longer thus have more experience having enjoyed the benefits that come from learning and aren't easily prone to the liabilities that result from newness, therefore they tend to have performance that is superior as compared to newer firms.

According to Loderer, Neusser, and Waelchli (2009), the relationship that exists between the age of a company and efficiency is positive. However, it has also been observed that a firm's efficiency may at times decline as companies grow older due to the fact that old age may lead to knowledge, abilities and skills being obsolete thereby resulting to decay in organizations. Agarwal and Gort (2002) this may explain why some older companies are usually taken over.

2.3.6 Macro-Economic Factors

A number of studies have been undertaken to ascertain the effect of macroeconomic factors on efficiency of companies. The factors are monetary aggregates, rate of interest, investment level in the economy, consumer price index, producer price index, GDP growth, inflation, financial depth and the degree of market efficiency. Kwon and Song (2011) carried out a research on mergers in the Korean market. He found out that the global financial crisis has a significant negative effect on the cumulative abnormal returns of the acquiring company when a merger announcement is made. He also stated that it may be possible that investors are more aversive to large cash outflows during a period of crisis. Flannery and Protopapadakis (2002) pointed out that inflation and money supply are well documented as the two macro-economic factors that have a significant effect on firm efficiency.

2.4 Empirical Review

Deloof (2003) argues that majority of organisations put in place huge sums as working capital and trade payables are used as the main sources of organisation finances. Therefore, how it is managed can have a major influence on the firm's efficiency. Tryfonidis and Lazaridis (2006) indicated that operating efficiency will show the response of the management in terms of the management of the working capital of an organisation.

2.4.1 Global Studies

Deloof (2003) set out to determine if WCM had an effect on corporate profitability in a study that focused on Belgian firms between 1960 and 1992. The study considered the average collection period, inventory conversion period as indicators of credit policy and inventory management respectively. Cash conversion cycle was the main indicator of WCM. He concluded that management can boost profits by lowering the the period used for collection, the inventory conversion period, and the entire cash conversion period. The stated research was however conducted in a different context.

Falope and Ajilore (2009) did a study on a sample of 50 firms which were listed at the Nigeria Stock Exchange using data between 1996 and 2005. This study used cross section and time series data which was gathered and econometrics was used in a pooled regression. The study established a negative correlation on the organisation profitability and inventory turnover which was measured in days, average payment period and CCC. They also observed that there was no notable difference in the influence of WCM for both large and small firms. This study was also conducted in a different context and thus its findings cannot be generalized in the local context.

Kulkanya (2012) studied on the established significance of WCM on organisation financial performance of firms listed at Thai stock exchange. The analysis was carried on a sample of 255 listed firms between the year 2007 and year 2009

A negative relationship was established between the operating profits and the inventory conversion duration plus the receivables collection duration. It was established that the best ways that managers can improve and enhance performance is by shortening the cash conversion period as low as practically possible, receivables collection period and inventory conversion period but cannot increase profitability by extending the deferral period for payables. Although this study considered concepts similar to the current study, it was conducted in a different context.

Oladipupo and Okafor (2013) investigated the degree by which WCM influences a firm's profitability and dividend payout ratio. The researchers analyzed data between 2002 and 2006 for 12 manufacturing firms that are listed at the Nigeria Stock Exchange. Data analysis utilized ordinary least squares (OLS) regression technique and Pearson product moment correlation technique. The results showed that a shorter CCC and debt ratio led to a higher level corporate profitability. Additionally, leverage level showed a negative but substantial impact on a firm’s profitability. Their study shows that WCM has a statistically insignificant impact on corporate profitability at a 5% confidence level. This study concepts and context are different from those of the current study.

Ponsian, Kiemi, Gwatako and Halim (2014) did a research on the role of an organisation working capital management and firms profitability. They were majorly aiming at examining the WCM and profitability’s statistical significance. They did their study using a sample of 3 listed manufacturing firms in the Dares salaam Stock

exchange between 2002 and 2012 where they made 30 observations. They based their data on quantitative analysis and used Pearson's correlation and regression analysis. They found out that there existed a positive relationship between WCM and profitability of the firm. Their second finding was that there was also a negative relationship between liquidity and profitability in that liquidity decreases with increase in profitability. They also found out the existence of a highly significant negative relationship between average collection period and profitability. This study is different from the current study in terms of context and in the measurement of the study concepts.

2.4.2 Local Studies

Wamugo, Kosimbei and Muathe (2014) carried a study on the role of WCM on organisation profitability of Non-Financial firms. A census survey involving 42 non-financial firms listed in the NSE was taken. The data were extracted from the NSE hand books for the duration between year 2006 and year 2012. The study used the Feasible Generalized Least Square regression model which revealed a positive and a significant relationship between ROA and return on equity resulting from an aggressive financing policy. The limitation of this policy is its failure to segregates their findings on the effects of WCM on performance per industry. What favors manufacturing companies many not necessarily favor the commercial and service companies because of the nature of their business?

Nyarangi (2016) investigated the impacts of WCM decisions and the overall organisation profitability of firms in the manufacturing sector and allied organisations at the NSE. ROA was taken as an indicator of financial performance. Secondary data was collected from six mentioned firms. This study focused on the time period after

the financial crisis of 2008, covering seven years 2009-2015. Using Pearson's Bivariate Correlation, multiple regression and ANOVA analysis, the study finds direct relationship between WCM and organisation financial performance of the organisation under study. ACP and CCC had a negative significant relationship with the financial performance represented by ROA. However, the relationships of ICP and APP with ROA were statistically insignificant with ICP having a negative relationship with ROA and APP having a positive relationship with ROA. The current study will be different from this study in that it will focus on firm efficiency and it will also be conducted in a different context (commercial and service firms).

Mwangi (2016) sought to find out the effect of WCM on the performance of Kenyan water service providers. The study population was made of 65 urban area water service providers in the country as at year 2015. Secondary data which was collected from audited financial statements by Kenya National Audit Office (KENAO) and Wasreb reports was used in this study. Data was analyzed using inferential statistics, that is, correlation and statistical regression analysis modelling. Findings revealed a strong positive relationship between ROA and the organisations current ratio but showed an inverse relationship to payable ratio, firm size, and collection efficiency. This was an indication that both payable ratio, firm size, and collection efficiency were indirectly proportional to ROA, in which case an increase in any of; payable ratio, firm size, and/or collection efficiency, would cause a decrease ROA and vice versa. This study focused in different concepts and context. While this study addressed water service providers in Kenya, the current study will focus on commercial and service firms listed at the NSE.

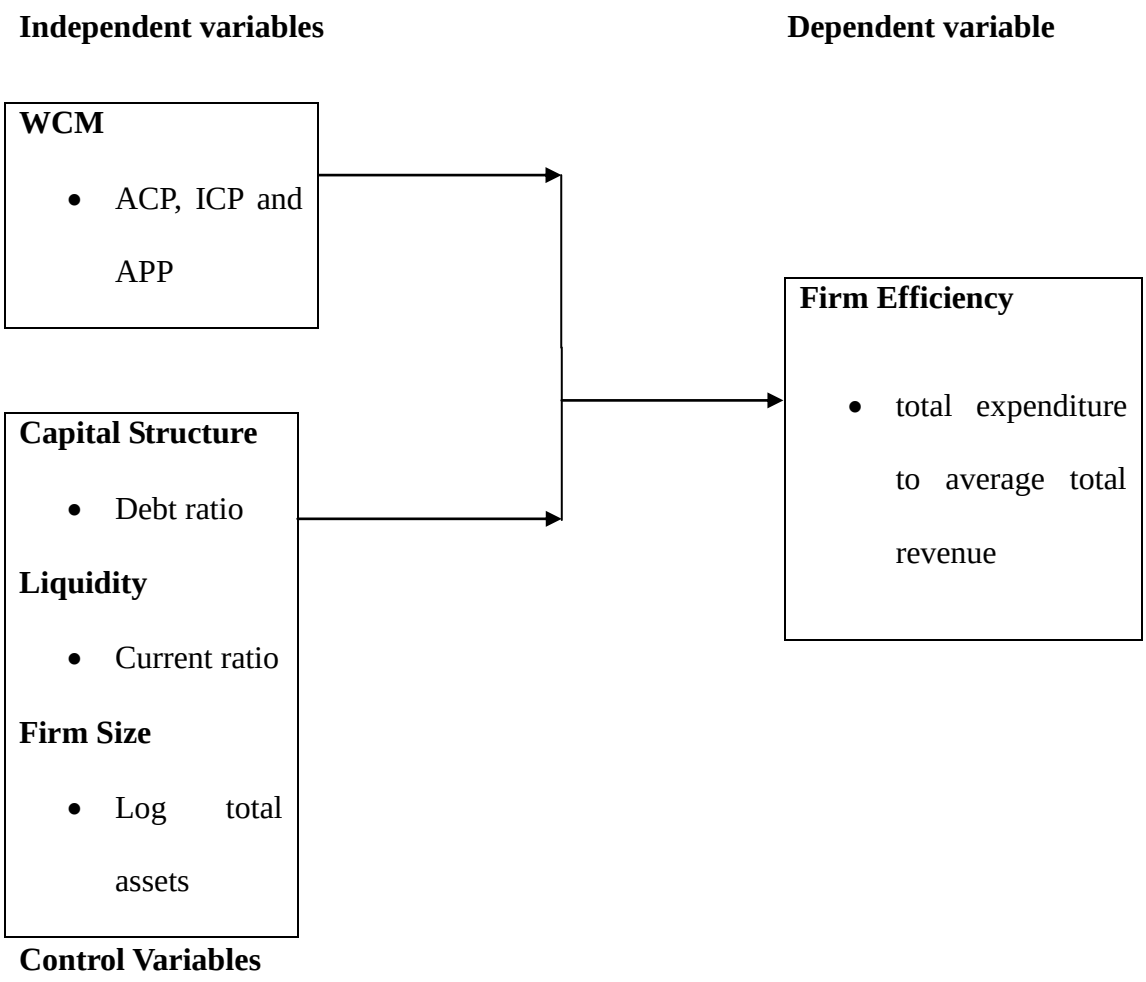
Mohamed (2016) sought to investigate how WCM decisions affect the financial operations of smallholder tea companies in Kenya. Using a correlation design, information was retrieved from publications of financial reports within a 5-year period (2011-2015) to achieve study objectives. A bivariant regression analysis was used to establish the trend between the study variables. From the findings, there is a positive correlation between the actual ROA of the smallholder tea firms over the period of the study, and the return predicted by the regression model, considering that the coefficient of multiple correlation stands at 0.485. The regression model explains approximately 23.5% of the variation in the smallholder tea firms' return on assets over the period covered by the study.

Awunya (2017) examined how WCM affects organisations financial performance a case of commercial banks and other financial firms listed at NSE. Audited statements of financials of 9 firms listed at the NSE were collected for a period of five years (2012-2016) with 45 observations. Data was analyzed through descriptive and linear regression analysis. The components of working capital management policies that were analyzed include current assets, current liabilities and total assets in respect to ROA. The study findings indicated that both conservative investment policy and aggressive financing policy had an insignificant positive effect on profitability while leverage had a negative and significant effect on profitability. In addition, firm size and profitability had an insignificant positive relationship. Although this study focused on the same context like the current study, it failed to address the effect of WCM decisions on firm efficiency and this is the gap the current study will leverage on.

2.5 Conceptual Framework

The conceptual framework is a diagrammatic representation of how the factors identified are related to each other. The elements given consideration here are firm efficiency and working capital management.

Figure 2.1: The Conceptual Model



Source: Researcher (2018)

The independent variable is the WCM as measured by Average Conversion Period (ACP), Inventory Conversion Period (ICP) and Average Payment Period (APP). The control variables were capital structure as measured by debt ratio, firm size as measured by natural logarithm of total assets and liquidity as measured by the current ratio. Firm efficiency was measured by revenue turnover.

2.6 Summary of the Literature Review

A number of theoretical frameworks have explained the theoretically expected relationship between WCM and firms' performance. The theories covered in this review are; Keynesian liquidity preference theory, operating cycle theory and trade-off theory. From the foregoing, it is clear that although there are many studies done on working capital management, majority of these studies have focused on other sectors different from commercial and service; Nyarangi (2016) focused on the listed manufacturing firms, Mwangi (2016) focused on water service providers while Mohamed (2016) focused on smallholder tea companies in Kenya.

Although the study by Awunya (2017) considered the commercial and service firms, her focus was on financial performance while the current study will focus on firm efficiency. This study will attempt to give an explanation to the research question; what is the effect of WCM on efficiency of firms listed at the Nairobi Securities Exchange, both commercial and services?

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

In order to determine the effect of working capital management on firm efficiency of listed commercial and service firms, a research methodology was necessary to outline how the research was carried out. This chapter has four sections namely; research design, data collection, diagnostic tests and analysis of data.

3.2 Research Design

This study employed a descriptive cross-sectional research design to investigate the effects of WCM on efficiency of commercial and services firms. Descriptive design was utilized. This method was appropriate for the study as the researcher was familiar with the phenomenon under investigation but want to know more in terms of the nature of relationships between the study variables. In addition, a descriptive research aims at providing a valid and accurate representation of the study variables and this helps in responding to the research question (Cooper & Schindler, 2008).

3.3 Population

The population of the study comprised of all the 12 listed commercial and service firms as at 31st December 2017.

3.4 Data Collection

It is always a regulatory requirement for firms listed at the NSE to report their values annually to the Capital Markets Authority. The study secondary data was collected from the annual statements of the account published by the Central Bank for the period contained from January 2013 to December 2017 on an annual basis and were captured in a data collection sheet. The end result was information detailing working

capital management and firm efficiency. The specific data collected was firms' inventory, receivables, payables, credit sales, sales revenue, total expenses, current liabilities, long term liabilities, current assets and equity.

3.5 Data Analysis

SPSS version 22 was utilized for data analysis purposes. Both descriptive and inferential statistics was carried out. Descriptive statistics employed mean, standard deviation, minimum and maximum. In inferential statistics, both regression and correlation analysis were carried out. Correlation analysis involved determining the extent of relationship between the study variables while regression analysis involved establishing the cause and effect between the dependent variable (firm efficiency) and independent variables: working capital management, capital structure, firm size and liquidity.

3.5.1 Diagnostic Tests

Linearity show that two variables X and Y are connected by a mathematical equation Y=bX in which b is a constant number. The linearity test was acquired using the scatterplot testing or F-statistic in ANOVA. Stationarity test is a process where the statistical properties such as mean, variance and autocorrelation structure do not change with time. Stationarity was obtained from the run sequence plot. Normality tests is done to establish whether responses are normally distributed around the mean. This was determined by Shapiro-walk test or Kolmogorov-Smirnov test. Autocorrelation is the measurement of the similarity between a certain time series and a lagged value of the same time series over successive time intervals. It was tested using Durbin-Watson statistic (Khan, 2008).

Multicollinearity is said to occur when there is a nearly exact or exact linear relation among two or more of the independent variables. This was tested by the determinant of the correlation matrices, which varies from zero to one. Orthogonal independent variable is an indication that the determinant is one. If the result is zero it is indication that there is a complete linear dependence. Variance Inflation Factors (VIF) and tolerance levels were also carried out to show the degree of multicollinearity (Burns & Burns, 2008).

3.5.2 Analytical Model

Using the collected data, the researcher conducted a regression analysis to establish the extent of the relationship between working capital management and firm efficiency. The study applied the following regression model:

$$Y= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon.$$

Where: Y = Efficiency of commercial and service organisation listed at the NSE as indicated by ratio of total expenditure to average total revenue.

β_0 =y intercept of the regression equation.

β_1 to $\beta_{6,}$=are the slope of the regression

X_1 = ACP as measured by average accounts receivables/Net credit sales*365

X_2 = ICP as measured by average inventory / Cost of sales *365

X_3 = APP as measured by Average Accounts payables/ Cost of sales *365

X_4 = Capital structure given as long term debt divided by shareholder's equity

X_5= Firm size as given by natural logarithm of total assets

X_6= Liquidity as given by current assets divided by current liabilities

ε =error term

3.5.3 Tests of Significance

The researcher carried out parametric tests to establish the statistical significance of both the overall model and individual parameters. Significance of the overall model was established using F test which was obtained from the analysis of variance while a t-test was used to establish statistical significance of individual variables.

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

Chapter four represents study's findings established on the objectives of research. This chapter focused on collected data analysis from CMA to determine the impact of working capital management on efficiency of commercial and service firms quoted at the NSE. Using descriptive statistics, correlation analysis and regression analysis, the results of the study were presented in form of tables for easy interpretation.

4.2 Diagnostic Tests

The researcher carried out diagnostic tests on the collected data. A Multicollinearity test was carried out in this study. For multiple regressions to be applicable there should not be strong relationship among variables. As shown in the table below, the study variables had the accepted tolerance values >0.2 and the accepted VIF values <10 as shown in table 4.1 which is an indication that there was no Multicollinearity among the study independent variables.

Table 4.1: Multicollinearity Test for Tolerance and VIF

	Collinearity Statistics	
Variable	**Tolerance**	**VIF**
ACP	0.360	1.346
ICP	0.368	1.372
APP	0.402	1.417
Capital Structure	0.310	1.326
Firm Size	0.380	1.367
Liquidity	0.706	1.627

Source: Research Findings (2018)

Shapiro-walk test and Kolmogorov-Smirnov test was used in normality test. The null hypothesis for the test was that the secondary data wasn't normal. If the p-value recorded was more than 0.05, the researcher would reject it. The test findings are as illustrated in table 4.2.

Table 4.2: Normality Test

Efficiency	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
ACP	.165	55	.300	.880	55	.784
ICP	.165	55	.300	.880	55	.784
APP	.168	55	.300	.862	55	.716
Capital structure	.149	55	.300	.857	55	.853
Firm size	.156	55	.300	.906	55	.822
Firm Liquidity	.172	55	.300	.869	55	.723

Source: Research Findings (2018)

This study carried the statistical Kolmogorov-Smirnova and Shapiro-Wilk test which gave acceptable results of o-values which were greater than 0.05 an implication that the study data used was normally distributed and this led to the rejection of the null hypothesis. The data was therefore suitable for other statistical modelling as indicated in the methodology.

The study further tested autocorrelation using the Durbin Watson recommended test. A statistic of 1.894 was established all the variables were normally distributed.

Table 4.3: Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.509[a]	.259	.167	1.2746094	1.894

a. Predictors: (Constant), Liquidity, APP, ICP, ACP, Firm size, Capital structure

b. Dependent Variable: Efficiency

Source: Research Findings (2018)

4.3 Descriptive Analysis

Descriptive statistics gives a presentation of the mean, maximum and minimum values of variables applied together with their standard deviations in this study. Statistical package SPSS version 23 was used to generate the descriptive data for five years which was between year 2013 and year 2017 on an annual basis. Efficiency had 0.5759 as mean with a 1.3961 standard deviation. ACP, ICP and APP had means of 1.8284, 1.8361, 2.2480 and standard deviations of 0.3751, 0.7609 and 0.3178 respectively. Capital structure produced a mean of 0.2735 and a standard deviation of 0.3653. Firm size produced a mean of 9.5871 while the standard deviation was 0. 8295. Finally liquidity gave a mean of 1.5244 with a 0.8772 standard deviation.

Table 4.4: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Efficiency	55	.0373	1.1372	0.575882	1.3961390
ACP	55	.8515	2.3780	1.828353	.3751072
ICP	55	-.3242	2.9381	1.836056	.7609286
APP	55	1.5683	2.8519	2.248024	.3177862
Capital structure	55	.0000	1.6600	.273455	.3653472
Firm size	55	7.6541	11.2602	9.587173	.8294952
Liquidity	55	.0827	3.3886	1.524364	.8772459
Valid N (list wise)	55				

Source: Research Findings (2018)

4.4 Correlation Analysis

The research made use of the Pearson correlation of service and commercial firms quoted at the NSE and the independent variables for this study (working capital management, capital structure, firm size and liquidity).

A weak negative and statistically significant correlation was established by this research ($r = -.474$, $p = .000$) between inventory conversion period and efficiency of commercial and service firms. The rest of the variables were found to have insignificant correlations with efficiency of commercial and service firms as shown by p values that were more than 0.05.

Table 4.5: Correlation Analysis

		Efficiency	ACP	ICP	APP	Capital structure	Firm size	Liquidity
Efficiency	Pearson Correlation	1	-.072	-.474**	-.007	-.137	.098	-.121
ACP	Pearson Correlation	-.072	1	.033	.222	-.016	-.072	.154
ICP	Pearson Correlation	-.474**	.033	1	.172	.094	-.192	.071
APP	Pearson Correlation	-.007	.222	.172	1	-.346**	-.198	-.007
Capital structure	Pearson Correlation	-.137	-.016	.094	-.346*	1	.102	-.375**
Firm size	Pearson Correlation	.098	-.072	-.192	-.198	.102	1	.290*
Liquidity	Pearson Correlation	-.121	.154	.071	-.007	-.375**	.290*	1

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

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

c. List wise N=55

Source: Research Findings (2018)

4.6 Regression Analysis

Efficiency of commercial and service companies listed at the NSE was regressed against six predictor variables; ACP, ICP, APP, capital structure, firm size and liquidity. The study developed model at 95% confidence level.

Table 4.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.509[a]	.259	.167	1.2746094	1.894

a. Predictors: (Constant), Liquidity, APP, ICP, ACP, Firm size, Capital structure

b. Dependent Variable: Efficiency

Source: Research Findings (2018)

From the outcome in table 4.6 above, the value of R square was 0.259, a discovery that 25.9 percent of the deviations in efficiency of commercial and service firms quoted at the NSE are caused by changes in ACP, ICP, APP, capital structure, liquidity and firm size of the firms. Also, the results revealed that there exists a strong relationship among the selected independent variables and the efficiency of commercial and service companies by the correlation coefficient (R) equal to 0.509.

Table 4.7: Analysis of Variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	27.275	6	4.546	2.798	.020[b]
	Residual	77.982	48	1.625		
	Total	105.257	54			

a. Dependent Variable: Efficiency

b. Predictors: (Constant), Liquidity, APP, ICP, ACP, Firm size, Capital structure

Source: Research findings (2018)

A 0.020 significance value was established and was less than p=0.05 an indication that the model was okay in estimating ACP, ICP, APP, capital structure, liquidity and firm size affects efficiency of commercial and service companies listed at the NSE.

The researcher used t-test to determine the significance of each individual variable used in this study as a predictor of efficiency of commercial and service firms listed at the NSE. As such, a p-value above 0.05 shows that a statistically insignificant association between the dependent and the independent variables. The findings are as indicated in table 4.8.

Table 4.8: Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.941	2.817		.689	.494
	ACP	-.140	.490	-.037	-.285	.777
	ICP	-.802	.246	-.437	-3.266	.002
	APP	.170	.630	.039	.270	.788
	Capital structure	-.588	.591	-.154	-.996	.324
	Firm size	.140	.236	.083	.595	.555
	Liquidity	.264	.243	.166	1.087	.282

a. Dependent Variable: Efficiency

Source: Research Findings (2018)

Based on the above results, it is evident that inventory conversion period produced positive and statistically significant values for this study (high t-value (-3.266), $p < 0.05$). Average collection period and capital structure produced negative but statistically insignificant values for this study as shown by p values that are more than 5%. Firm size, average payables period and liquidity produced positive but insignificant values for this study as shown by a high p value.

The following regression equation was estimated:

$Y = 1.941 - 0.802X_1$

Where,

Y = Efficiency

X_1= ICP

As shown in the straight line regression line above, the constant = 1.941 shows that if selected dependent variables (ACP, ICP, APP, capital structure, firm size and liquidity) were rated zero, commercial and service firms' efficiency quoted at the NSE would be 1.941. A unit increase in inventory conversion period would result to a decrease in efficiency of commercial and service companies listed at the NSE by 0.802. The other selected independent variables (ACP, APP, capital structure, firm size and liquidity) were found to be insignificant determiners of efficiency of commercial and service firms.

4.7 Discussion of Research Findings

The research purposed to explore the effect of working capital management on efficiency of commercial and service firms quoted at the NSE. WCM as measured by ACP, ICP and APP was the independent variable for this study. Capital structure as

measured by debt ratio, liquidity as measured by current ratio and firm size as measured by the natural logarithm of total assets were the control variables while efficiency of commercial and service companies listed at the NSE.

The computed correlation revealed that a negative and significant correlation exists between inventory conversion period and efficiency of service and commercial organisations. The association between average collection period and capital structure with efficiency of commercial and service firms was found to be weak, negative and insignificant. Average payables period, firm size and liquidity exhibited a weak positive and insignificant association with efficiency of commercial and service firms.

The findings of this study agree with Nyarangi (2016) who investigated the effects of WCM decisions on the profitability of manufacturing and allied firms listed at the NSE. ROA was taken as an indicator of financial performance and WCM variables included; average collection period (ACP), inventory conversion period (ICP), account payables period (APP) and the cash conversion cycle (CCC). Secondary data was collected from six listed manufacturing and allied firms in Kenya. The study focused on the time period after the financial crisis of 2008, covering seven years 2009-2015. Using Pearson's Bivariate Correlation, multiple regression and ANOVA analysis, the study finds a significant impact of WCM on the financial performance of the firms under study. ACP and CCC had a negative significant relationship with the financial performance represented by ROA. However, the relationships of ICP and APP with ROA were statistically insignificant with ICP having a negative relationship with ROA and APP having a positive relationship with ROA.

This study is in agreement with Mohamed (2016) who sought to investigate how WCM decisions affect the financial operations of smallholder tea companies in

Kenya. Using a correlation design, information was retrieved from publications of financial reports within a 5-year period (2011-2015) to achieve study objectives. Multiple regression analysis was used to assess the association between independent and dependent variables. From the findings, there is a positive correlation between the actual ROA of the smallholder tea firms over the period of the study, and the return predicted by the regression model, considering that the coefficient of multiple correlation stands at 0.485. The regression model explains approximately 23.5% of the variation in the smallholder tea firms' return on assets over the period covered by the study.

This study differs with Awunya (2017) who examined how WCM affects financial performance of firms listed at the NSE both commercial and service. Financial statements of 9 commercial and service firms listed at the NSE were collected for a period of five years (2012-2016) with 45 observations. Data was analyzed through descriptive and linear regression analysis. The findings of the study indicated that both conservative investment policy and aggressive financing policy had an insignificant positive effect on profitability while leverage had a negative and significant effect on profitability. In addition, firm size and profitability had an insignificant positive relationship.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This section summarizes the previous chapter's findings, conclusion and study limitations. The section also elucidates the policy recommendations that policy makers can implement to achieve the expected efficiency of commercial and service companies listed at the NSE. Suggestions for further research that can be useful to future researchers are as well presented.

5.2 Summary of Findings

The study sought to investigate the effect of working capital management on efficiency of commercial and service companies listed at the NSE. The independent variables for the study were working capital management components, capital structure, firm size and liquidity. The study adopted a descriptive cross-sectional research design. CMA reports were used to retrieve secondary data which were analyzed using SPSS software version 22. The study used annual data for the 12 commercial and service organisation at NSE for a period from January year 2013 to December year 2017.

From the results of correlation analysis, a weak negative and significant correlation exists between inventory conversion period and efficiency of service and commercial firms quoted at the NSE. The association between average collection period and capital structure with efficiency of commercial and service firms quoted at the NSE was found to be weak, negative and insignificant. The study also showed that there exist a weak positive and insignificant association between average payables period,

firm size and liquidity with efficiency of commercial and service firms listed at the NSE.

A unit increase in inventory conversion period would result to a decrease in efficiency of commercial and service companies listed at the NSE by 0.802. The other selected independent variables (ACP, APP, capital structure, firm size and liquidity) were found to be insignificant determiners of efficiency of commercial and service firms.

5.3 Conclusion

From the findings of the study, it can be concluded from the study that efficiency of commercial and service companies listed at the NSE is significantly affected by ACP, ICP, APP, capital structure, firm size and liquidity of the companies. ICP was found to have a negative and significant effect on efficiency of commercial and service firms and this implies that an increase in the inventory conversion period significantly reduces efficiency of commercial and service firms listed at the NSE.

The study found that ACP had a negative but insignificant impact on commercial and service firms' efficiency quoted at the NSE. The study therefore concludes that an increase in average collection period leads to a decrease in efficiency of service and commercial companies listed at the NSE but not to a significant extent. Capital structure was noted to have a negative but statistically insignificant association with efficiency of commercial and service companies listed at the NSE and this means an increase in leverage leads to a decrease in efficiency though not to a significant extent.

Average payables period was also found to have an insignificant positive effect on efficiency and this implies that an increase in average payables period increases efficiency of firms but not to a significant extent. Firm size was found to be a

statistically insignificant determinant of efficiency of commercial and service companies quoted at the NSE and therefore this study concludes that firm size does not significantly influence efficiency of commercial and service companies quoted at the NSE.

This study concludes that independent variables chosen for this study ACP, ICP, APP, capital structure, firm size and liquidity affect to a large extent efficiency of service and commercial firms. This finding concurs with the findings of this study are in line with Nyarangi (2016) who investigated the effects of WCM decisions on the profitability of manufacturing and allied firms listed at the NSE. Return on assets was taken as an indicator of financial performance and working capital management variables included; average collection period (ACP), inventory conversion period (ICP), account payables period (APP) and the cash conversion cycle (CCC). Secondary data was collected from six listed manufacturing and allied firms in Kenya. The study focused on the time period after the financial crisis of 2008, covering seven years 2009-2015. Using Pearson's Bivariate Correlation, multiple regression and ANOVA analysis, the study finds a significant impact of WCM on the financial performance of the firms under study. ACP and CCC had a negative significant relationship with the financial performance represented by ROA. However, the relationships of ICP and APP with ROA were statistically insignificant with ICP having a negative relationship with ROA and APP having a positive relationship with ROA.

5.4 Recommendations

Components of working capital management were found to have an influence on efficiency of commercial and service firms listed at the NSE. Specifically, inventory

conversion period was found to have a negative and significant effect on efficiency of commercial and service firms. This study recommends that firm managers and policy makers should work towards reducing inventory conversion period as high ICP will negatively impact on efficiency.

Capital structure was found to have an insignificant negative impact on efficiency of commercial and service companies quoted at the NSE. The research therefore recommends that when firms are setting their capital structure they should strike a balance between the tax savings benefit of debt and bankruptcy costs linked with borrowing. High levels of debt has been found to reduce efficiency of listed commercial and service firms from the findings of this study and so firm managers should maintain debt in levels that do not impact negatively on efficiency to ensure the goal of maximizing shareholders' wealth is attained.

The study found out that a positive relationship exists between efficiency and liquidity position. This study recommends that a comprehensive assessment of listed commercial and service firm's immediate liquidity position should be undertaken to ensure the company is operating at sufficient levels of liquidity that will lead to improved efficiency of firms. This is because a firm's liquidity position is of high importance since it influences the firm's current operations.

The study established that there was a positive influence of firm size on efficiency of commercial and service firms quoted at the NSE though not significant. This study recommends adequate measures should be put in place by managers of these firms to improve and grow their efficiency by increasing their assets. Listed commercial and service firms and all firms in general should work on increasing their assets that will

lead to an increase in efficiency because this translates to improved shareholder wealth which is the main goal of a firm.

5.5 Limitations of the Study

The research scope covered a five years' duration from year 2013 to year 2017. The study did not establish whether the study results would grasp for a lengthier research period. Further it is not clear whether alike results would result beyond year 2017. A longer duration would be more favourable as it would accommodate major economic conditions such as booms and recessions.

Another challenge is the boundaries to became the best of the information. For data analysis purposes, the researcher applied a multiple linear regression model. Due to the shortcomings involved when using regression models such as erroneous and misleading results when the variable values change, the researcher cannot be able to generalize the findings with certainty. If more and more data is added to the functional regression model, the hypothesized relationship between two or more variables may not hold.

5.6 Suggestions for Further Research

This study focused on working capital management and efficiency of service and commercial firms quoted at the NSE and relied on secondary data. The study was not exhaustive of the independent variables affecting efficiency of commercial and service firms quoted at the NSE and this study recommends that further studies be conducted to incorporate other variables like management efficiency, growth opportunities, corporate governance, industry practices, age of the firm, political stability and other macro-economic variables. Establishing the impact of each variable

on efficiency of service and commercial companies quoted at the NSE will enable policy makers know what tool to use when maximizing shareholder's wealth.

The study concentrated on the last five years since it was the most recent data available. Future studies may use a range of many years e.g. from 2000 to date and this can be helpful to confirm or disapprove the findings of this study. The study limited itself by focusing on listed commercial and service firms at the NSE. Finally, due to the shortcomings of regression models, other models such as the Vector Error Correction Model (VECM) can be used to explain the various relationships between the variables.

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APPENDICES

Appendix 1: Listed Commercial and Service firms at NSE

1. Atlas Development and Support Services
2. Express Ltd
3. Hutchings Biemer Ltd
4. Kenya Airways Ltd
5. Longhorn Kenya Ltd
6. Nation Media Group
7. Scangroup Ltd
8. Standard Group Ltd
9. TPS Eastern, Africa (Serena) Ltd
10. Uchumi Supermarket Ltd
11. Deacons (East Africa)
12. Nairobi Business Ventures