EFFECT OF CAPITAL EXPENDITURE ON WORKING CAPITAL MANAGEMENT AMONG MANUFACTURING FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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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

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

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
CCC	Cash Conversion Cycle
CAPEX	Capital Expenditure
CMA	Capital Markets Authority
EOQ	Economic Order Quantity
FA	Fixed Asset
FCF	Free Cash Flow
NLB	Net Liquid Balance
NPPE	Net Property Plant and Equipment
NSE	Nairobi Securities Exchange
ROA	Return on Assets
SPSS	Statistical Package for Social Sciences
VIF	Variance Inflation Factors
WCM	Working Capital Management
WCR	Working Capital Requirement

ABSTRACT

Corporate finance focuses on investment decisions, dividend decisions, financing and WCM decisions. Working capital is usually considered circulating capital that is normally used to identify the assets that change with relative speed from a form to another for example from cash, to raw materials, which are converted to work-in-progress, completed products, sales of complete goods and finally end with generation of cash from receivables. Optimal level of working capital improves firm value, hence trading-off liquidity and profitability. WCM practices would be determined internally by firm-specific variables and externally by macroeconomic factors. These determinants may not have clearly and sufficiently been recognized and are likely to be the main cause of deficiencies and inefficiencies in management of working capital in public and private sectors, both locally and internationally leading to the recent high rate of business failure. The objective of this research study was assessing how capital expenditure impacts WCM of NSE listed manufacturing firms. The population for the research was all the 9 NSE listed manufacturing firms. Predictor variable in this research was capital expenditure operationalized as the ratio of net fixed assets plus depreciation to total assets. The control variables included profitability given by return on assets, leverage as given by total debt to total assets and firm size given by natural log of total assets on an annual basis. WCM was the dependent variable given by ratio of current assets to current liabilities. Secondary data was collected over five years (January 2015 - December 2019) annually. Descriptive cross-sectional design was used for the research to assess the relation between the study variables. Analysis was made using SPSS version 24. Findings produced an R-square value of 0.433, meaning that 43.3 percent of changes in WCM among manufacturing firms was the result of the four independent variables while 56.7 percent changes in WCM of NSE listed manufacturing firms was the result of other factors which are not highlighted. This research showed independent variables had a moderate association with firm's values (R=0.658). ANOVA show the F statistic was substantial at 5% level with p=0.000. This implies that the overall regression was appropriate to explain the influence of the independent variables on WCM. Findings also showed that capital expenditure has a substantial negative influence on WCM while profitability and firm size is positive and statistically significant to WCM of NSE listed manufacturing firms. Financial leverage produced statistically insignificant influence for this study. The recommendation is that manufacturing firms listed at the NSE should focus on having a tradeoff between the benefits of capital expenditure and the risks of liquidity while at the same time enhancing profitability positions and firm size as these three have a significant influence on their WCM.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The three main corporate finance decisions relate to capital structure, budgeting and Working Capital Management (WCM). Because the profitability and liquidity of an entity are tied to working capital, it has hence become a crucial aspect of corporate finance that required efficient management (Valipour, Javed & Kobra, 2012). The key goal of WCM is the achievement of an optimum liquidity and profitability level which is dependent on the availability of cash, inventory and other current assets. This optimum level is necessary to maximize the value of a firm and thereby a balance between liquidity and profitability is necessary. Management that heavily invest on working capital lowers a firm's profitability and incurs an opportunity cost of funds (Afza & Nazir, 2017). Capital expenditure (capex) is theoretically expected to be one of the determinants of WCM as investment in long term assets means reduction in liquidity which in turn determines the type of financing required by a firm (Appuhami, 2008).

Trade off theory, operating cycle theory and free cash flow theory are key theories that guide an effective working capital management. The theories put an emphasis on the need to have an optimum working capital level. Trade off theory by Myers (1984) is the anchor theory for this study as it laid foundation for WCM. The theory postulates that firms have to balance between the benefits of capital expenditure and the risks associated with illiquidity. By engaging in capital expenditures, liquidity of a firm decreases and therefore this theory suggests a negative relationship between the study variables. Baumol (1952) and Tobin (1956) stated that an optimal cash balances just like inventory models have costs tied to them which are related to the sourcing

and maintenance, aside from the advantages that firms gain from having optimum levels of cash. Baumol (1952) formulated the Economic Order Quantity (EOQ) of managing inventory. The model seeks to strike a balance between the marginal ordering and holding costs of inventory to a minimal level. Brigham and Ehrhardt (2012) had a similar opinion when they made the observation that the two goals associated with the management of inventory are to make sure that they sustain operations and hold the cost of ordering and carrying inventories at the minimal level.

Manufacturing firms' listed at the NSE success is heavily dependent on financial managers' ability to manage the compositions of working capital (Filbeck & Krueger, 2018). In managing working capital, a company has the choice on whether to use an aggressive or conservative management policy. Several of manufacturing firms listed at the NSE such as Mumias Sugar ltd, Unga Group limited and Eveready East Africa Ltd were put under statutory management resulting from the tightening of their cash flows making it difficult for the companies to retain relations with suppliers and have consistency in supplies. This results in loss of customers to competitors thereby worsening the cash position, which results into receivership (CMA, 2020). There is hence a need to establish factors that influence WCM among these firms and capital expenditure is hypothesized to be one of the factors.

1.1.1 Capital Expenditure

Capex refers to resources utilized by a company to purchase or upgrade tangible assets including machinery, buildings or execute new projects (McConnell & Muscarella, 2014). It is mostly anticipated that capital expenditures will produce future economic benefits that will be in use for more than one financial or tax year (Ross, Westerfield & Jordan, 2010). According to Kochhar and Hitt (2018), Capex is

the acquiring of capital assets or fixed assets which are in the form of manufacturing plants and machinery that is projected to be in use over a long period. A firm needs to have strategic assets which are maintained in order to have future benefits. These assets are also a condition for maintaining sustainable competitive advantage (Kochhar, & Hitt, 2018).

Any capex acquisition needs to yield a profitable return on investment for investors to treat it as a necessary expense for an organization (Vogt, 2017). Capex comprise of the deployment of enormous sums of money, and it affects the business over a lengthy period. Additionally, the resources to acquire a fixed asset must be paid out instantly, while the returns or benefits accumulate over a long period. Since the benefits are centred on future prospects and the capability to predict the future is imperfect, substantial effort ought to be made to appraise investment options as comprehensively as possible (Boehlje, & Ehmke, 2016).

There is no clarity on the operationalization of Capex in finance. Researchers and practitioners define Capex in relation to the statement of financial position as Gross Property, Plant and Equipment or Net Property, Plant and Equipment (NPPE). NPPE explanations vary widely and usually bring confusion. For instance, Ross, Westerfield and Jordan (2010) defined Capex as the change in Net Fixed Assets plus depreciation whilst Graham, Smart and Megginson (2010) defines Capex less depreciation as equal to change in Fixed Assets (FA) where the change in FA is the change in Gross Fixed Assets. This results in Capex being labelled as change in Gross Fixed Assets plus Depreciation. The use of net expenditure (meaning acquisition of FA minus sales of FA by Ross, Westerfield and Jordan (2010) creates confusion as the use of term net is

simply referring to subtraction of the sales of FA while others may interpret it as referring to change in NPPE for the calculation of Capex.

1.1.2 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 have an optimal working capital level. These assertions imply that 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, 2018). 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, 2011).

1.1.3 Capital Expenditure and Working Capital Management

Free Cash Flow (FCF) hypothesis by Jensen (1986) postulates that when firms have made significant FCF and the firms do not have gainful investment projects available, firm managers tend to misuse the FCF, which consequently raises agency costs. Critics of the FCF hypothesis claim that it nurtures short termism by discouraging investment that would bring profit in the long-run. Based on the observation by Brush, Bromile and Hendrickx (2000) managers' personal-interest inspires wastefulness and ineffectiveness when there is surplus FCF. This theory explains the how capital expenditure impacts working capital management in that FCF help firms have funds for capital expenditure which in turn influences WCM.

Miercarz, Osiichuk and Behr (2018) posits that in times of insufficient internally generated and external cash flows, for capital investments, companies normally rely

on cash reserves and an increase in trade payables to finance this expenditure. Confirming the assumptions made by the financing constraints theory, investments in working capital have been found to have an inverse relation to the degree of financial constraints, and are positively related to the fluctuations in operational cash flow and external finance availability. For companies that are cash-strapped, , capital expenditures is more likely to have a negative impact on investments in working capital.

Valipour, Javed and Kobra (2012) studied how capital expenditure impacts WCM of listed Tehran firms. In this study, the net liquidity balance and WCR were used as indicators of WCM. They conducted the study in two phases; in the first one, an examination of the impact that capex had on net liquidity balance was examined and in the second one the impact that expenditure had on WCM requirements was examined. The findings showed that capex positively impact on WCR.

1.1.4 Manufacturing Firms Listed at the Nairobi Securities Exchange

The NSE which was formed in 1954 is responsible for the listing of firms and issuing of securities bought and sold by individual and institutions both local and foreign through the services of stockbrokers or dealers. The mandate of NSE is to oversee its members and provide a trading platform for the listed securities. The NSE provides the main hub for trading in the secondary market. It provides a trading floor which though available is not commonly in use after being replaced by the automated trading system. Through a wide area network, members trade at the comfort of their offices. The system is efficient, transparent and can handle large volumes of transactions at the same time. There are currently 9 manufacturing and allied companies quoted at the NSE (NSE, 2020).

Some manufacturing and allied listed companies have faced working capital management issues in the recent past. A good example is Mumias Sugar that have experienced financial crisis due to the lack of liquidity despite the government involvement to support the company. The company is not able to settle down farmer's debts hence loss of raw materials and significant drop in sugar production (CMA, 2020). Other manufacturing firms listed at the NSE such as Eveready East Africa Ltd and Unga group have also had WCM issues and therefore the need to investigate whether capital expenditure has a significant influence on WCM of NSE listed manufacturing and allied firms.

To increase their value, manufacturing firms listed at the NSE should efficiently manage their working capital in order to minimize costs and maximize profits in their operations. Capital expenditure decisions are critical in the overall strategy of the firm so as to maximize shareholder wealth in firms (Siddiquee & Khan, 2009). Over the past years, several listed firms have had financial problems that have led to their suspension from trading, shutting down some of the operations or being put under receivership. Their inability to meet payments to suppliers of goods and bank commitments has been proposed as one of the reasons. Such firms include Unga Group Ltd and Mumias Sugar Co. Ltd.

1.2 Research Problem

The art of balancing profitability and firm liquidity mostly determine the failure or success of a firm by how well it manages its disposable resources and how efficient a firm is with regards to managing operations of the firm. (Mathuva, 2015). This has led to many firms investing both resources and time seeking to establish a suboptimal level of operation where they will not have tied up their assets thereby compromising

the investment quality. So as to ensure that firms investment continue to offer sustainable returns, they ought to maintain an optimal level of working capital. When firm has an over investment in working capital it results to too much of the firm finances being committed thereby necessitating a firm to fund its operations using external borrowing that is costly while on the contrast under investment in working capital result to lower returns and slowed growth (Deloof, 2003). Kim, Mauer and Sherman (2018), Opler (2009), and Wu (2011) postulate a negative relation between capital expenditure and the WCR. Because of these reasons, companies that experience a high rate of growth allocate their surplus time in the management of capital expenditure.

Some manufacturing and allied firms listed at the NSE have faced WCM issues in the recent past. A good example is Mumias Sugar that have experienced financial crisis due to the lack of liquidity despite the government involvement to support the company. The company is not able to settle down farmer's debts hence loss of raw materials and significant drop in sugar production. Other manufacturing firms listed at the NSE that have experienced issues in the recent past include Unga Group limited and Eveready East Africa Ltd that are under statutory management in the last 10 years resulting from a constrained cash flow position making it difficult for the companies to maintain relations with suppliers and consistency in supply (CMA, 2020). There is therefore need to establish factors that influence WCM among these firms and capital expenditure is hypothesized to be one of the factors.

Empirically, Valipur et al. (2012) focused on the interrelationship between capital expenditure and WCM and found a substantial positive relation between the two. Aamir and Shah (2018) studied the effect that capex has on management of working

capital among 96 listed companies in Pakistan and found that capital expenditure has no substantial impact on working capital requirement and NLB. Placing reliance on firm-level panel data from a developing economy, Mielcarz, Osiichuk and Behr (2018) explores the impact of fixed capital expenditure on WCM practices. The study findings indicate a significant negative relationship between capital expenditure and WCM. These studies were done in different settings and therefore the results cannot be applied to the current context. Further the studies arrive at contradicting results and therefore a conceptual gap.

Locally, Gitau (2012) focused on how capital expenditure impacts WCM among NSE listed firms. A substantial negative relation was found between NLB and capital expenditure. Further, a substantial negative relation was also found between WCR and capital expenditure. Other studies conducted locally have mainly focused on the effect of WCM on profitability (Nyarangi, 2016; Wamugo, Kosimbei & Muathe, 2014), effect of WCM on value of firms (Oduori, 2017; Awuondo, 2018), or effect that WCM has on financial performance (Awunya, 2017). The lack of consensus among previous researchers is reason enough to conduct further study. Additionally, very few studies have been done locally before on capital expenditure and WCM among manufacturing firms listed at the NSE which is the gap the current study is based on and seeks to answer the research question; what is the effect of capital expenditure on working capital management among manufacturing firms listed at the NSE?

1.3 Research Objective

To study the effect of capital expenditure on working capital management among NSE listed manufacturing firms.

1.4 Value of the Study

Findings will add to theories on capital expenditure and WCM. Additionally, findings will also be beneficial to future researchers in the WCM field to provide literature in building up the course of study. It will benefit scholars and finance students who may utilize findings in their academic prospects.

The stakeholders of the manufacturing sector consider this research very useful as it will generate vital information in management of the industry. These stakeholders include investors, managers in the sector and the legislative authorities in the sector. The management of NSE listed manufacturing firms will derive the most out of this since it illuminates ways in which they can utilize capital expenditure as a channel to improve WCM in their firms.

To the government and key policy makers, inferences made from the research will assist them in guiding and formulating policies and guidelines that will assist NSE listed manufacturing firms and other manufacturing firms in general to adopt capital expenditure strategies meant to enhance their WCM and therefore improve sector performance.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter evaluates the theories on which the study is based. Additionally, a review of prior studies done on the topic will be discussed. The additional sections of the chapter are determinants of WCM, summary of literature review and research gaps and a conceptual framework showing how the variables relate.

2.2 Theoretical Framework

This section is a review theories explaining decisions of firms regarding liquidity. The theoretical reviews covered are; trade off theory, free cash flow theory and the operating cycle theory.

2.2.1 Trade off Theory

The most important goal of a firm is the maximization of profits while making sure that a favorable level of liquidity is maintained. Attempting to raise profits by lowering the level of liquidity can be more harmful to a business (Shin & Soenen, 1998). The trade-off Model describes how a firm determines its optimal cash holding level on the basis of a comparison between the marginal costs and benefits of holding cash. A heavy investment in current assets will certainly result in a low ROA of the entity since an overinvestment in these assets will yield insufficient returns.

The firm should set an acceptable level of current assets on the basis of all the factors involved in the daily conduct of operations. In this case, a choice has to be made by the firm on whether to adopt a conservative risk-return trade-off which constitutes a low-risk and low-return approach or an aggressive policy which constitutes high-risk and high-return (Carpenter & Johnson, 1983). Knowing that profitability rank

correlation is inversely related to liquidity rank correlation, the conclusion drawn from this is therefore is, a rise in liquidity lowers profitability levels (Pandey, 2010). In this study, the model will be useful in understanding and explaining the need for manufacturing firms to maintain favorable balances between capital expenditure and liquidity. Managing the trade-off between capital expenditure benefits and liquidity is a critical aspect of WCM decisions.

2.2.2 Free Cash Flow Theory

The notion of Free Cash Flow (FCF) was initially suggested by Jensen (1986), where FCF was described as net cash flow after subtracting all the needs of positive NPV ventures. Jensen (1986) submits that when there are surplus FCF, the severity of the agency conflict between firm shareholders and firm managers is higher. The reason for the conflict is that when there is excess cash in the firm, there is no need for the management to raise cash from the capital market. This gives firm management the freedom to spend/ invest without being monitored by capital providers as would have been the case if such funds were raised from the capital market. Shareholders would rather have such excess funds distributed back to them through share repurchase programs or as dividends if the growth opportunities for the firms are limited and the funds could not be prudently invested elsewhere. Management on the other hand would waste the surplus funds in unprofitable investments, administrative waste and managerial perks.

FCF hypothesis postulates that when firms have made significant FCF and the firms do not have gainful investment projects available, firm managers tend to misuse the FCF, which consequently raises agency costs. Critics of the FCF hypothesis claim that it nurtures short termism by discouraging investment that would bring profit in the

long-run (Cornett, Hovakimian, Palia & Tehranian, 2009). This study is related to the FCF hypothesis because, based on the observation by Brush et al. (2000), managers' personal-interest inspires wastefulness and ineffectiveness when there is surplus FCF. This theory explains the impact that capital expenditure has on WCM in that FCF help firms have funds for capital expenditure which in turn influences WCM.

2.2.3 Operating Cycle Theory

Operational cycle theory was developed from works of Weston and Brigham (1979). This theory is based on the firm's operational cycles. It recommends that the liquidity flow concept is produced by expanding the stability of potential liquidation esteem extent to include remuneration justification measures of a firm's operating activities. The incorporation of records receivables and stock turnover measure in operating cycle gives a clearer liquidity outlook management than reliance on the current as well as analysis of dissolvability's proportion markers (Weston & Brigham, 1979). Records receivable turnover is a points out the quantity of times in which the normal receivables venture of a firm is converted into money. Alterations of credit as well as accumulation strategy openly impact the normal exceptional debtors adjust put up regarding a company's annual deals.

Operating cycle is given by adding day's stock exceptional period to sales outstanding days. Average outstanding accounts receivable balance to the company's yearly sales is directly affected by any change in credit and collection policy. Increase in credit sales leads to rise in receivables which results to lower receivables turnover and an extended receivable collection period which implies reduced level of liquidity. Higher present and basic analysis proportion is brought out in an unavoidable manner by the

choice those outcomes in a company putting up bigger normal receivable speculation over a more drawn out day and age (Richards & Laughlin 1980).

The operating cycle hypothesis is criticized by Richards and Laughlin (1980) on the premise of neglecting liquidity necessities enforced on a company when measuring present liabilities commitments. However, this theory has relevance to this study for its idea that effective capital expenditure will ensure smooth operating cycles which in turn enhance firm value.

2.3 Determinants of Working Capital Management

There are many determinants of WCM among manufacturing firms and other firms in general. These factors are usually found in almost every sector of the economy. They include capital expenditure, profitability, financial leverage and firm size.

2.3.1 Capital Expenditure

Free Cash Flow (FCF) hypothesis by Jensen (1986) postulates that when firms have made significant FCF and the firms do not have gainful investment projects available, firm managers tend to misuse the FCF, which consequently raises agency costs. Critics of the FCF hypothesis claim that it nurtures short termism by discouraging investment that would bring profit in the long-run. Based on the observation by Brush Bromile and Hendrickx (2000) managers' personal-interest inspires wastefulness and ineffectiveness when there is surplus FCF. This theory explains how capital expenditure impacts working capital management in that FCF help firms have funds for capital expenditure which in turn influences WCM.

Miercarz, Osiichuk and Behr (2018) posits that in times of insufficient internally generated and external cash flows, for capital investments, companies normally rely on cash reserves and an increase in trade payables to finance this expenditure.

Confirming the assumptions made by the financing constraints theory, investments in working capital have been found to have an inverse relation to the degree of financial constraints, and are positively related to the fluctuations in operational cash flow and external finance availability. For companies that are cash-strapped, capital expenditures is more likely to have a negative impact on investments in working capital.

2.3.2 Profitability

Profitability is defined as the net profit which is retained from the activities related to business and its decisions. It is a reflection of the efficiency and effectiveness of the operations conducted and also it reveals the impact of asset management liquidity and the company results liability (Lian, Ramakrishnan, Vaicondam & Hishan 2017). Suwanna (2012) defined profitability as a major factor for survival in the highly competitive market share. Efficiency in managing working capital is among the critical ingredients which facilitate the profits gained by an organization.

Tapa and Hussin (2016) posits that investors will invest in companies with higher profitability as they are believed to be better when it comes to holding working capital which can then be used to pay dividends and cushion them from bankruptcy. Mansoori & Muhammad (2012) in an analysis of the determinants of WCM among firms in Singapore, utilized the random and fixed effects and found that firm size, operating cash flow, capital expenditure and GDP had negative correlation to WCM. They however found that more profitable firms have extended cash conversion cycles.

2.3.3 Leverage

This is a firm's proportion of debt to assets. The ratio of the two affects the cost of capital and a firm’s liquidity position (Pandey, 2010). The debt amount a firm has sets

out the WCM practices of a firm. Jensen (1986) stated that debt financing reduces moral hazard behavior by lowering the cash available to managers. This raises the pressure to perform and improves a firm's profitability and working capital. Companies with high leverage are in a better position to manage their working capital. Several researchers have done studies on the association between WCM and leverage and found out that leverage that is high lowers the conflicting interests that management and shareholders have and improves WCM hence resulting in a positive relationship.

Baker (1976) studied the relation between leverage and WCM. Using data from a 10 year period, he measured influence using the proportion of value to aggregate resources. A low leverage prediction would signify increased use of obligatory capital as opposed to obligation to value or to aggregate resources. He also measured benefits using net income. Inference drawn from the study suggested that conditions in the industry have an impact on a company's WCM decisions. It was also concluded that organizations with a higher obligation capital had more working capital.

2.3.4 Firm Size

The economies of scale that a firm enjoys is determined by its size. The larger the size of a firm the lower the average scale of production and the lower the efficiency of the firm resulting from the economies of scale. This therefore means that the larger the firm, the higher the return on asset. Larger firms can however suffer from loss of control of operational strategic activities by management which in turn would lower their efficiency (Mule, Mukras & Nzioka, 2015).

Large firms command a greater market power and greater diversification which means they are more likely to experience an organizational slack in times of boom.

The size of the firm also determines the level of cash flow made to investments. To measure the size of a firm, a consideration of the number of employees, amount of property and sales volume has to be made (Salman &Yazdanfar, 2012).

2.4 Empirical Review

The section reviews previous literature conducted on the empirical relationship between capital expenditure and WCM. Most of the studies available focused on related concepts and contexts to the current study but not the exact study variables.

2.4.1 Global Studies

Valipour, Javed and Kobra (2012) studied how capital expenditure impacts WCM of Tehran listed Firms. In achieving this objective, a consideration of the net liquidity balance and working capital requirements as indicators of WCM was made. The study was done in two phases; in the first one an examination of the impact that capex has on net liquidity balance was made and in the second one, the study considered how expenditure affected WCR. Capital expenditure was hence found to positively impact WCR.

Rahman, Uddin and Ibrahim (2012) studied how capital expenditure impacts WCM of cement, sugar, and energy sectors in Pakistani companies from 2004 to 2010. The net liquidity balance and WCR of the companies were utilized as indicators of working capital management. A negative substantial relation was found between net liquidity balance and WCR with capex. This result was attributed to the fact that the companies could not increase their liquid assets while making capital investments. The companies lacked internally generated funds to supplement their fixed investments and failed to efficiently manage the non-financial components that would increase cash.

Abbadi and Abbadi (2013) investigated the factors determining working capital among industrial firms in Palestine. They formulated an econometric model and made an estimation of parameters using panel data of 11 listed industrial companies in Palestine from 2004 to 2011. Working capital was selected as the endogenous variable and other financial and economic variables like cash conversion cycle, capital expenditure, leverage, farm size, return on assets, interest rate on loans and economic growth as exogenous variables. The findings showed that cash conversion cycle, return on assets and capital expenditure are positive substantial determinants of working capital, while leverage and firm size were also substantial but negative to WCR. Economic variables like rate of interest and real growth rate have no substantial impact on WCM. The findings also showed that firms in Palestine keep a significant amount of working capital attributed to a long cash conversion cycle (over six months) and more conservative policies owing to unstable economic and political climate.

Aamir and Shah (2018) studied how capital expenditure impacts WCM. The study's main objective was to analyze the impact that capital expenditure had on WCM using the fixed effect model on 96 listed companies. Data from 2007 to 2010 was obtained for the study. The study considered the impact that different expenditures such as capital, finance and operating expenditures had on working capital. NLB and Working Capital Requirement (WCR) were used to indicate WCM. From the findings, capital expenditure was insignificant to working capital requirements and NLB. Operating expense was substantially negatively related to NLB while being positively related to WCR. Finance expense was negatively related to NLB and substantially positively related to WCR.

Miercarz et al. (2018) explored how fixed capital expenditure impacts working capital management practices. When experiencing insufficient When facing an insufficient flow of internally generated and external funds for making capital investments, companies usually finance capex using cash reserves and increasing trade payables. Considering the assumptions made by the financing constraints theory, working capital investments have an inverse relation to the number of financing constraints, and have a positive relation to fluctuations in operating cash flow and external finance availability. For firms experiencing financial constraints, capital expenditure is more likely to be negatively related to working capital investments.

2.4.2 Local Studies

Gitau (2012) sought to establish how capital expenditure impacts WCM. Net Liquidity Balance (NLB) and Working Capital Requirement (WCR) were used to indicate WCM. The study sampled 39 NSE listed firms. 16 firms in the banking sector, financial institutions and insurance sector were excluded from the sample since working capital for the firms being studied was different from them. The period for the study was five years from 2006 to 2010. A regressed model was used in analysis of the relation between capex and WCM for the sample. A substantial negative relation was found between NLB and Capex, and this implied that the firms don't increase their liquid asset balance when faced with capital expenditure because they lack sufficient internally generated funds that would be utilized in long term fixed investments. Additionally, a substantial negative relation was found between WCR and Capex, implying that the firms were efficiently managing the non-financial components that would enhance their cash, balances that would be utilized in speculative and operational transactions.

Wamugo, Kosimbei and Muathe (2014) studied the effects of WCM on profitability of Non-Financial Companies. A census of 42 NSE listed companies was taken. The data was obtained from the NSE hand books for 2006 to 2012. Feasible Generalized Least Square regression showed that a substantial positive relation between ROA and return on equity resulting from an aggressive financing policy. The limitation of this policy is that it fails to segregate findings on the effects of WCM on performance of every sector. What favors companies in the manufacturing industry may not possibly favor the commercial and service companies owing to the nature of their operations.

Oduori (2017) sought to establish how working capital levels impact firm value of listed agricultural manufacturing companies in Kenya. The study used a descriptive design on a population of interest for this study was seven listed agricultural manufacturing companies that were in operation during the period 2012 to 2016. The study found out that the variations in the three determinants of working capital levels explained the changes in the firms' value by 69.3% depicting the model as statistically significant and therefore concluded that there existed significant association between the working capital levels and firms' value of listed agricultural manufacturing companies in Kenya. Also, working capital levels had a positive and important effect on value of the firm in agricultural manufacturing industry.

Awunya (2017) studied WCM impact on performance of NSE listed commercial and service firms. Financial statements of 9 commercial and service firms that had obtained a listing at NSE were collected for five years (2012-2016) with 45 observations. Descriptive and linear regression analysis method was used to analyze data. The WCM policies that were part of the analysis included current liabilities, current assets and total assets in respect to ROA. The findings of the study indicated

that both conservative investment policy and aggressive financing policy was insignificantly but positively related to profitability while leverage was negatively but significantly related to profitability. In addition, firm size and profitability had a weak positive relation. This study did not address the how liquidity and firm value are related which is the aim of this study.

Awuondo (2018) sought to establish approaches to working capital management used by NSE listed firms in the construction and allied sector in Kenyato determine how these approaches influence market value (Tobin`s Q). The study was a correlation design that utilized secondary quantitative panel data set from five listed firms in the from 2010 to 2016. The findings of the study indicated that NSE listed Construction and Allied sector firms utilized different degrees of working capital and financing strategies with a substantial impact on their market value indicated by Tobin`s Q. Model 1 showed a substantial negative relation between Tobin`s Q and the aggressive working capital investment approach used. Model 2 showed a positive relation between Tobin`s Q and extent of aggressive working capital financing method.

2.5 Summary of the Literature Review and Research Gaps

Several theories have explained the predicted relation between capital expenditure and WCM. These are; Keynesian liquidity preference theory, free cash flow theory and operating cycle theory. A number of the key factors in WCM have been discussed. Various studies have been done globally and locally on capital expenditure and WCM with findings being discussed in the chapter.

From the review, it is notable that most researchers have focused on the influence of WCM on accounting profitability measures. The few studies that have focused on

how capex impacts WCM and have arrived at contradictory findings. Valipur et al. (2012) focused on the interrelationship between capital expenditure and working capital management and found that there exist a substantial positive relationship between firm's capital expenditure and NLB. It means that an increase in capital expenditure impacts management of working capital positively. Aamir and Shah (2018) studied the impact that capital expenditure has on WCM capital among 96 listed companies in Pakistan and found that it has no substantial relations with working capital requirement and NLB. Mielcarz et al. (2018) findings indicate a substantial negative relation between capital expenditure and WCM. Rahman et al. (2012) found a negative substantial relation between net liquidity balance and WCR with capital expenditure. Gitau (2012) found a substantial negative relation between NLB and capital expenditure. Further, a substantial weak relation was found between WCR and Capital expenditure

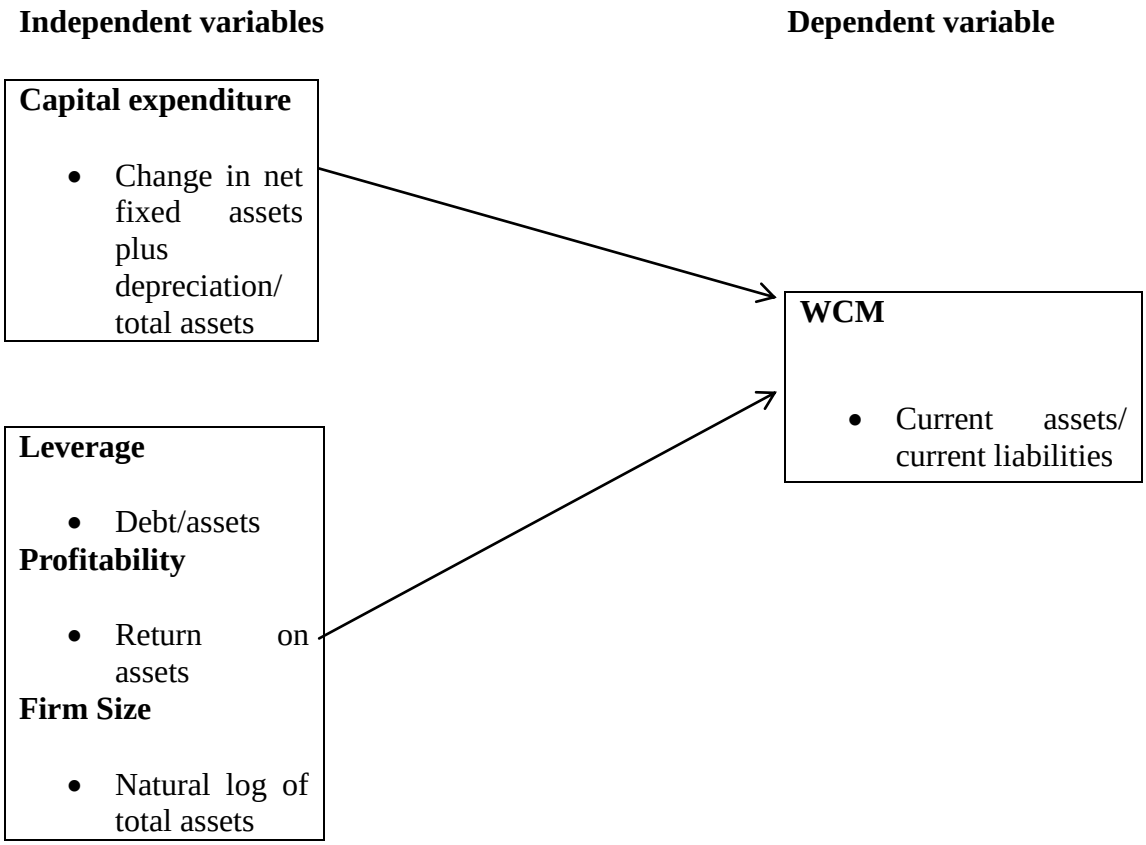
Further, most of the studies have been done in different countries and different sectors. This provides more gap on the context of manufacturing firms since the current study was interested on the interaction between capital expenditure and WCM among manufacturing firms. Furthermore the above reviewed studies measured the relation between the variables which necessitates further study on how an interactive model can be used in determining the cumulative interaction of the study variables under working capital management practices.

Several conceptual and methodological research gaps are also found in the analysis of issues from this chapter. The conceptual gaps include lack of consensus on the operationalization of the WCM practices as a study variable. Empirically, the relation between working capital management and capital expenditure has no conclusion yet.

This study has provided a chance for an empirical study to be undertaken. Methodological gaps include lack of consensus in the operationalization methods used in the previous literature to measure working capital management.

2.6 Conceptual Framework

This is an illustration of the relation of factors identified in the study. Factors considered here are capital expenditure and WCM. The independent variable was capital expenditure given by the change in net fixed assets plus depreciation divided by total assets. The control variables were leverage given by debt to assets ratio, profitability given by return on assets and firm size given by natural log of total assets. The response variable, WCM, was given by current assets to liabilities.



Source: Researcher (2020)

Figure 2.1: The Conceptual Model

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

To ascertain how the working capital management of NSE listed manufacturing firms is affected by capital expenditure; a methodology was required in outlining how the research was done. Sections included in this chapter are; design, data collection, diagnostic tests and analysis.

3.2 Research Design

The research utilized a descriptive cross-sectional design in determining how capital expenditure and WCM of manufacturing firms quoted at the NSE relate. This design was appropriate since the researcher seeks to describe the nature of affairs as they are (Khan, 2008). It is also appropriate because the nature of the phenomenon being studied and how they relate is of major interest to the researcher. Additionally, a descriptive research provided an accurate representation of the variables that aided in providing a response to the research query (Cooper & Schindler, 2013).

3.3 Population

This is the totality of observations of interest from a collection such as persons or events as specified by a research investigator (Burns & Burns, 2008). The population comprised of the entire 9 manufacturing firms listed at the NSE between 1st January 2015 to 31st December 2019 (see Appendix I). Due to the population's small size, there was no sampling.

3.4 Data Collection

This study relied exclusively on secondary data. Published annual statements of the firms being studied were drawn from Capital Markets Authority and individual firm's

annual reports between 1st January 2015 and 31st December 2019 and provided secondary data recorded in a data collection sheet. The finalized report was annual information concerning the predictor variables and the response variable for the 9 NSE listed manufacturing firms.

For the dependent variable (working capital management) the specific data collected was cash and cash equivalents, marketable securities, account receivables, account payables and other short term liabilities. For the independent variables, the specific data was as follows; capital expenditure- net fixed assets and depreciation, profitability- net income and total assets, leverage- total debt and total assets, and firm size- total assets.

3.5 Diagnostic Tests

In determining the viability of the study model, the paper carried out several diagnostic tests, which included normality test, stationarity test, test for multicolinearity, test for homogeneity of variances and the autocorrelation test. Normality tests the presumption that the residual of the response variable have a normal distribution around the mean. The test for normality was done by the Shapiro-wilk test. In the case where one of the variables was not normally distributed it was transformed and standardized using the logarithmic transformation method. Stationarity test was used to assess whether statistical properties like mean, variance and autocorrelation structure vary with time. Stationarity was obtained using augmented Dickey Fuller test. In case, the data fails the assumption of stationarity, the study used robust standard errors in the model (Khan, 2008).

Autocorrelation measures how similar a certain time series is in comparison to a lagged value of the same time series in between successive intervals of time. This was

measured by the Durbin-Watson statistic and incase the assumption was violated the study employed robust standard errors in the model. Multicollinearity occurs when an exact or near exact relation that is linear is observed between two or several predictor variables. Variance Inflation Factors (VIF) and the levels of tolerance were used. Any multicolinear variable should be dropped from the study and a new measure selected and substituted with the variable which exhibits co-linearity. Heteroskedasticity tests if the variance of the errors from a regression is reliant on the independent variables. The study assessed for heteroskedasticity using the Levene test and incase, the data fails the assumption of homogeneity of variances the study used robust standard errors in the model (Burns & Burns, 2008).

3.6 Data Analysis

In undertaking the data analysis it was facilitated by the SPSS software version 23.The findings were quantitatively presented through tables and graphs. Further, Descriptive statistics were used in summarizing the data obtained from the firms. Frequencies, measures of central tendency, percentages and dispersion were used in reporting the data which was in tabular forms. Inferential statistics included; Pearson correlation, multiple regressions, ANOVA and coefficient of determination.

3.6.1 Analytical Model

The regression model below was used:

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

Where: Y = Working capital management given by the ratio of current assets and liabilities

β_0 =y intercept of the equation.

β_1, β_2, β_3, β_4 =are the coefficient of the independent variables

X_1 = Capital expenditure given by change in net fixed assets plus depreciation divided by total assets

X_2 = Profitability given by the ratio of net income to total assets

X_3 = Financial leverage given by the ratio of total debt to total assets

X_4 = Firm size given by natural log of total assets

ε =error term

3.6.2 Tests of Significance

Parametric tests were carried out by the researcher in establishing the model's statistical significance and that of its parameters. The F-test will be used in the determination of the significance of the general model using the Analysis of Variance (ANOVA) model and a t-test determined how significant the individual variables were.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND FINDINGS

4.1 Introduction

The chapter presents analysis of data from CMA to establish how capital expenditure influences manufacturing firms' value. The findings on the regression, descriptive and correlation analysis were shown in form of tables as per below sections.

4.2 Descriptive Analysis

The statistics produces a representation of the mean, minimum and maximum values of variables presented including the standard deviations. Table 4.1 below displays the characteristics of each variable. An output of each variable was extracted using SPSS software for a five-year time frame (2015 to 2019) on an annual basis

Table 4.1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
WCM	44	.0029	9.4	2.070	1.8993
Capital expenditure	44	.0008	111.0	9.711	23.4944
Profitability	44	-1.2214	.3673	.026368	.2812690
Financial leverage	44	.0970	1.9	.570	.3310
Firm Size	44	4.9	7.9	6.580	.8307
Valid N (listwise)	44				

Source: Research Findings (2020)

4.3 Diagnostic Tests

Diagnostic tests were completed before running the regression model. Multicollinearity test was carried out on the data collected. VIF value together with the Tolerance of the variable was applied. Results where tolerance value exceeds 0.2 and the value of VIF is below 10 means that mullticollinearity is nonexistent. The analysis found a tolerance value exceeding 0.2 and a VIF value of below 10 meaning that there was no multicollinearity existing.

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Table 4.2: Multicollinearity Test for Tolerance and VIF

	Collinearity Statistics	
Variable	**Tolerance**	**VIF**
Capital expenditure	0.398	2.513
Profitability	0.388	2.577
Leverage	0.376	2.659
Firm size	0.386	2.591

Source: Research Findings (2020)

In testing normality, the researcher used the Shapiro-Wilk test and Kolmogorov-Smirnov tests. A p-value of greater than 0.05, would lead to rejection of the null hypothesis by the researcher. Table 4.3 below shows the outcomes.

Table 4.3: Normality Test

		Shapiro-Wilk	
WCM	Statistic	Df	Sig.
Capital expenditure	.881	44	.723
Profitability	.892	44	.784
Leverage	.918	44	.822
Firm size	.874	44	.812

Source: Research Findings (2020)

The

The normality test results revealed a p- value of higher than 0.05 hence rejecting the null hypothesis and accepting the alternative hypothesis which means the normality test revealed the data was normally distributed. This data was henceforth suitable for usage in guiding parametric tests like ANOVA, regression analysis along with Pearson's correlation.

In testing the autocorrelation in the Durbin Watson test was applied for serial correlation which is a major challenge in panel analysis of data and it has to be factored in so as to attain the right model requirement. A DW statistic of 1.695 implied there is no serial correlation as it was within the accepted limit of 1.5 to 2.5

Table 4.4: Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.658[a]	.433	.375	1.5016	1.695

a. Predictors: (Constant), Firm Size, Profitability, Capital expenditure, Financial leverage
b. Dependent Variable: WCM

Source: Research Findings (2020)

In nature, most economic variables are non-stationary and earlier to running a regression analysis. In testing for existence of stationary or not unit root tests were undertaken using Augmented Dickey-Fuller (ADF). The reason for this was to ensure that the regression outcomes were not biased due to use of non-stationary data.

Table 4.5: Stationary Test

Variable name	ADF test	1% Level	5% Level	10% Level	Prob
WCM	-3.753547	-4.23497	-3.540328	-3.202445	0.0312
Capital expenditure	-4.262276	-4.23497	-3.540328	-3.202445	0.0093
Profitability	-4.522157	-4.23497	-3.540328	-3.202445	0.0420
Firm size	-3.98997	-3.55267	-2.91452	-2.59503	0.0043
Leverage	-2.78574	-2.25267	-1.53674	-1.04693	0.0381

Source: Research Findings (2020)

As indicated in Table 4.5 below there were stationary at (i.e. absence/presence of unit roots) 1%, 5% and 10% level of significance. Hence, differentiating some variables was not necessary.

4.4 Correlation Analysis

Correlation analysis shows whether there is a relationship amongst two variables. The relation ranges from strong negative correlation to perfect positive correlation. This

study utilized Pearson correlation to analyze how manufacturing firms' WCM and the independent variables for this study (capital expenditure, profitability, leverage and firm size) are related.

The study found out that capital expenditure, profitability and firm size were positively but not significantly correlated with the manufacturing firms' WCM given by (r = .131, p = .398; r = .190, p = .218; r = .212, p = .168) in that order. Financial leverage exhibited a positive substantial correlation with WCM shown by (r = .634, p = .000). In spite of the independent variables having a relationship it was not quite significant to determine multicollinearity because the R value were less than 0.70. This exhibited that multicolliniearity did not exist amongst the predictor variables therefore suggested the appropriateness to establish WCM in the regressed model.

Table 4.6: Correlation Analysis

		WCM	Capital expenditure	Profitability	Financial leverage	Firm Size
WCM	Pearson Correlation	1				
	Sig. (2-tailed)					
Capital expenditure	Pearson Correlation	.131	1			
	Sig. (2-tailed)	.398				
Profitability	Pearson Correlation	.190	.044	1		
	Sig. (2-tailed)	.218	.776			
Financial leverage	Pearson Correlation	.634**	.087	.345*	1	
	Sig. (2-tailed)	.000	.574	.022		
Firm Size	Pearson Correlation	.212	.338*	.091	.146	1
	Sig. (2-tailed)	.168	.025	.556	.345	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
c. Listwise N=44

Source: Research Findings (2020)

4.5 Regression Analysis

The predictor variables against that WCM was regressed icluded; capital expenditure, profitability, leverage and firm size. At significance level of 5% a regression analysis was conducted. Critical value given by F – table was compared with the resulting figure from the regression model. Table 4.7 shows the findings.

Table 4.7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.658[a]	.433	.375	1.5016	1.695

a. Predictors: (Constant), Firm Size, Profitability, Capital expenditure, Financial leverage
b. Dependent Variable: WCM

Source: Research Findings (2020)

R square alternatively referred as the coefficient of determination indicates changes in response variable as a result of changes in predictor variables. According to the outcomes in 4.7 above, R square of 0.433 was found, indicating that 43.3% of the variance in WCM of manufacturing firms stems from variations in capital expenditure, profitability, leverage and firm size. Other variables not considered in the model considered justify for 56.7% of these changes in WCM. Additionally, the outcomes uncovered that the independent variables shown a strong relationship with WCM as supported by a 0.658 correlation coefficient (R). A durbin-watson statistic of 1.695 shown non-existence of autocorrelation because it was more than 1.5.

Table 4.8: Analysis of Variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	67.174	4	16.794	7.448	.000[b]
	Residual	87.937	39	2.255		
	Total	155.112	43			

a. Dependent Variable: WCM

b. Predictors: (Constant), Firm Size, Profitability, Capital expenditure, Financial leverage

Source: Research Findings (2020)

The significance figure is 0.000 that is lower than p=0.05. This indicates appropriateness of the model in estimating how capital expenditure, profitability, leverage and firm size influence WCM of NSE listed manufacturing firms.

Coefficients of determination were employed to indicate the relationship direction between the predictor variables and the manufacturing firms' WCM. The p-value under sig. column was employed to indicate how significant the relation between the response and the predictor variables are. The 95% confidence level, implies a p-value lower than 0.05. Consequently, a p-value lower than 0.05 shows an insignificant relationship amongst the predictor and response variable. Results are illustrated on table 4.9

Table 4.9: Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.711	1.989		3.375	.002
	Capital expenditure	-.025	.004	-.745	-6.797	.000
	Profitability	.007	.003	.287	2.344	.026
	Financial leverage	.393	.304	.172	1.293	.204
	Firm Size	.006	.000	.389	2.506	.018

a. Dependent Variable: WCM

Source: Research Findings (2020)

From the findings, financial leverage, and all the other three predictor variables gave substantial values for the research (high t-values, $p < 0.05$). Capital expenditure exhibited a significant negative influence while profitability and firm size exhibited a positive substantial influence on WCM. Financial leverage had a positive but weak value for this study as shown by a p value higher than 0.05.

The equation below was determined:

$Y = 6.711 - 0.025X_1 + 0.007X_2 + 0.006X_3$

Where,

Y = WCM

X_1= Capital expenditure

X_1= Profitability

X_1= Firm size

From the model above, the constant = 6.711 indicates that if the chosen independent variables (capital expenditure, profitability, leverage and firm size) were held constant or rated zero, WCM would be 6.711. Raising capital expenditure by a unit would lower WCM by 0.025 while increasing profitability or firm size by a unit would lower WCM by 0.007 and 0.006 respectively while financial leverage was not found to be statistically significant.

4.7 Discussion of Research Findings

The research aimed on ascertaining how capital expenditure influence WCM of manufacturing firms listed at NSE. Capital expenditure was the dependent variable given by the ratio of change in net fixed assets plus depreciation to total assets. The control variables were profitability given by ROA, firm size given by natural log of total assets and leverage calculated as debt to assets ratio. WCM was response variable that the research endeavored to justify given by current ratio.

As indicated by Pearson correlation coefficients for the variables the leverage has a positive substantial correlation with WCM of manufacturing firms. The study also showed a positive but weak correlation between profitability and firm size with WCM of NSE listed manufacturing firms. Capital expenditure exhibited a positive but statistically weak association with WCM of NSE listed manufacturing firms.

The model summary showed that: capital expenditure, profitability, leverage and firm size explains 43.3% variations in the dependent variable as shown by R^2 indicates that those factors which are not included in the model justify 56.7% of variations in WCM. Since the p value was less than 0.05 it showed that the model was appropriate at 95%. This means that the used model is fit in forecasting and explaining how the WCM of manufacturing firms is affected by the independent variables.

The findings are in tandem with Aamir and Shah (2018) who studied how capital expenditure impacts WCM. The study's main objective was to analyze the impact of capital expenditure on WCM using the fixed effect model on 96 listed companies. Data from 2007 to 2010 was obtained for the study. The study considered the impact that different expenditures such as capital, finance and operating expenditures had on working capital. NLB and Working Capital Requirement

(WCR) were used to indicate WCM. From the findings, capital expenditure was insignificant to working capital requirements and NLB. Operating expense was substantially negatively related to NLB while being positively related to WCR. Finance expense was negatively related to NLB and substantially positively related to WCR.

The findings are also in line with Gitau (2012) who sought to establish how capital expenditure impacts WCM. Net Liquidity Balance (NLB) and Working Capital Requirement (WCR) were used to indicate WCM. The study sampled 39 NSE listed firms. 16 firms in the banking sector, financial institutions and insurance sector were excluded from the sample since working capital for the firms being studied was different from them. The period for the study was five years from 2006 to 2010. A regressed model was used in analysis of the relation between capex and WCM for the sample. A substantial negative relation was found between NLB and Capex, and this implied that the firms don't increase their liquid asset balance when faced with capital expenditure because they lack sufficient internally generated funds that would be utilized in long term fixed investments. Additionally, a substantial negative relation was found between WCR and Capex, implying that the firms were efficiently managing the non-financial components that would enhance their cash, balances that would be utilized in speculative and operational transactions.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter reviews the results from the previous chapter, it further derives conclusions as wells as the limitations encountered during the study. In addition, recommends policies that can enforce to boost the expectations of manufacturing firms towards attaining of optimal WCM. Finally, the chapter gives suggestions of areas where further studies can be done.

5.2 Summary of Findings

The objective of this research was to assess how capital expenditure influence WCM of NSE listed manufacturing firms. The selected variables for investigation included capital expenditure, profitability, leverage and firm size. A descriptive cross-sectional design was selected to complete the research. Secondary data was gathered from CMA and an analysis made using SPSS. Yearly data for 9 manufacturing firms for five years from 2015 to 2019 was obtained from the manufacturing firms' reports.

From correlation analysis, financial leverage had a positive and statistically substantial correlation with WCM of manufacturing firms. The research also showed a positive but weak correlation between profitability and firm size with WCM of NSE listed manufacturing firms. Capital expenditure exhibited a positive but weak association with WCM of NSE listed manufacturing firms.

From the results of regression analysis, R square was found to be 0.433, a revelation that 43.3% of the changes in WCM of NSE listed manufacturing firms stems from variations in capital expenditure, profitability, leverage and firm size. Alternative

factors beyond those in the model justify for 56.7% of the changes in WCM. The findings showed a strong correlation between the selected predictor variables and manufacturing firms' value (R=0.658). Results from the ANOVA test showed that the F computed at 5% significance level was higher than the critical value while the p value was 0.000 implying that the model was statistically substantial to predict how the four selected independent variables impact WCM of NSE listed manufacturing firms.

Regression results indicate that by holding the independent variables (capital expenditure, profitability, leverage and firm size) constant or rated zero, WCM would be 6.711. A unit increase in capital expenditure would lower WCM by 0.025 while a unit increase in profitability or firm size would increase WCM by 0.007 and 0.006 respectively while financial leverage was not found to be statistically substantial.

5.3 Conclusion

Findings of this study show that the listed manufacturing firms' WCM is significantly influenced by capital expenditure. This research shows that a unit increase in this variable significantly decreases the WCM of manufacturing firms. Profitability was found to be positively and significantly related to WCM and therefore this study shows that increasing profitability increases WCM to a significant extent. The study also showed that firm size was statistically significant in determining WCM and hence the conclusion was that firm size has a profound effect on WCM of listed manufacturing firms. Further, the study found that financial leverage has a positive but not statistically significant impact on WCM and therefore concludes that leverage is not a significant determiner of WCM.

The conclusion is that the independent variables selected for this study capital expenditure, profitability, leverage and firm size to a larger extent has a notable influence on the WCM of NSE listed manufacturing firms. These variables have a notable impact on the WCM of manufacturing firms given that the p value in ANOVA is less than 0.05. The fact that that selected independent variables explain 43.3% of changes in WCM implies that 56.7% of variations in WCM of manufacturing firms are as a result of other factors not considered in the model.

This study agrees with the findings of Rahman, Uddin and Ibrahim (2012) who studied how capital expenditure impacts WCM of cement, sugar, and energy sectors in Pakistani companies from 2004 to 2010. The net liquidity balance and WCR of the companies were utilized as indicators of working capital management. A negative substantial relation was found between net liquidity balance and WCR with capital expenditure. This result was attributed to the fact that the companies could not increase a majority of their liquid assets while making capital investments. The companies lacked internally generated funds to supplement their fixed investments and failed to efficiently manage the non-financial components that would increase cash.

This study disagrees with Valipour, Javed and Kobra (2012) who studied how capital expenditure impacts the WCM of Tehran listed Firms. In achieving this objective, a consideration of the net liquidity balance and WCR as indicators of WCM was made. The study was done in two phases; in the first one an examination of the impact that capital expenditure has on net liquidity balance was made and in the second one, the study considered how expenditure affected WCR. Capital expenditure was hence found to positively impact working capital requirements.

5.4 Recommendations for Policy and Practice

The study showed the influence of capital expenditure on WCM as negative and statistically significant. Some of the recommendations of this study that will enable policy change include: NSE listed manufacturing firms should create a balance between the benefits of capital expenditure and the risks associated with illiquidity such as bankruptcy. This would help them to take advantage of returns associated with capital expenditure while at the same time cautioning them from the risks associated with lack of liquidity to meet maturing obligations.

The study showed that profitability was positive and substantial to WCM of manufacturing firms. The recommendation was that a thorough assessment of listed manufacturing firm's immediate profitability position should be done to make sure the companies operate at sufficient profitability levels that will improve WCM of firms. This is because profitable firms have been found to exhibit higher levels of liquidity compared to less profitable firms.

Firm size had a significant positive influence on WCM of NSE listed manufacturing firms. The research recommends that manufacturing firms should invest in both current and non-current assets that are required in running a firm as this will go a long way in enhancing WCM. Having operational equipment, functioning machines , motor vehicles as well as current assets will help firms enhance WCM.

5.5 Limitations of the Study

The focus was on some factors that are hypothesized to influence WCM of NSE listed manufacturing firms. Specifically, the study focused on four explanatory variables. In reality however, there are other variables that are likely to influence WCM of firms some which are internal such as management efficiency and age of the firm while

others are not under the control of management such as economic growth exchange rates, balance of trade, and unemployment rate among others.

The study adopted the analytical approach which is highly scientific. The research also disregarded qualitative information which could explain other factors that influence the association between capital expenditure and WCM of manufacturing firms. Qualitative methods such as focus group discussions, open ended questionnaires or interviews can help develop more concrete results.

The research concentrated on 5 years (2015 to 2019). It is not certain whether the findings would hold for a longer time frame. It is also unclear as to whether similar outcomes would be obtained beyond 2019. The study should have been executed over a longer time frame in order to incorporate major forces such as booms and recession.

In achieving the analysis of the data, the study used a multiple linear regression model. Because of the restrictions involved when using the model like erroneous and deceptive outcomes that lead to the value of the variable changing, it was therefore not possible the findings of the study to be generalized with accuracy. More so the result could be different if more data was added in the regression. Hence the model was another limitation.

5.6 Suggestions for Further Research

This study concentrated on WCM and capital expenditure of manufacturing firms quoted at the NSE and secondary data was relied on. Further research study that uses primary data such as questionnaires and interviews as well as covering all the listed firms is recommended.

The study did not exhaust all the independent variables influencing WCM of manufacturing firms and a recommendation is given that more studies be carried out to constitute other variables for instance ownership structures, industry practices, growth opportunities, political stability and age of the firm. Determining the impact of each variable on financial performance shall enable the policy makers to understand the tools that can be used to control performance.

The research only focused on the NSE listed manufacturing firms. The study's recommendations are that additional studies be carried out on other firms that operate in Kenya. Future studies can also focus on how capital expenditure influence other aspects other than WCM such as firm value, profitability, growth among others.

The attention of this study was drawn to the latest five years because it was the readily available information. Subsequent studies may cover big time frame like ten or twenty years which can be very impactful on this study by either complementing or disregarding the findings of this study. The advantage of a longer study is that it will enable the researcher to capture effects of business cycles such as booms and recessions.

Finally, this study was based on a multiple linear regression model, which has its own limitations like errors and misleading results resulting from a change in variable WCM. Future researchers should focus on models like the Vector Error Correction Model (VECM) in exploring the various relations between capital expenditure and WCM.

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APPENDICES

Appendix I: Manufacturing Firms Listed at the NSE

1. B.O.C Kenya Ltd
2. British American Tobacco Kenya Ltd
3. Carbacid Investments Ltd
4. East African Breweries Ltd
5. Eveready East Africa Ltd
6. Flame Tree Group Holdings Ltd
7. Kenya Orchards Ltd
8. Mumias Sugar Co. Ltd
9. Unga Group Ltd

Source: Nairobi Securities Exchange (2020)

Appendix II: Research Data

Firm	Year	Firm Size	Financial leverage	Capital expenditure	WCM	Profitability
BAT	2019	7.341	0.5571	0.0506	1.0870	0.1781
	2018	7.263	0.4924	0.0036	1.5911	0.2227
	2017	7.251	0.8749	0.0758	1.3180	0.1878
	2016	7.267	0.8488	0.0642	1.4132	0.2622
	2015	7.271	0.4892	0.0296	1.4512	0.2664
Carbacid	2019	6.545	0.1072	0.0063	5.6940	0.0777
	2018	6.528	0.0970	0.0079	9.4280	0.0866
	2017	6.519	0.1158	0.0196	7.0132	0.1002
	2016	6.489	0.1323	0.0216	7.0885	0.1219
	2015	6.473	0.1656	0.0245	4.5106	0.1325
Eveready	2019	5.395	0.5574	0.0067	1.5019	-1.2214
	2018	5.759	0.2372	0.0062	2.5325	-0.1947
	2017	5.888	0.2890	0.0049	2.6948	0.3531
	2016	6.035	0.5506	0.0029	0.4538	-0.1809
	2015	6.179	0.4666	0.0053	0.8578	0.3070
Unga Group	2019	7.027	0.4312	0.0898	1.9559	0.0512
	2018	6.997	0.4353	0.0190	2.1418	0.0789
	2017	6.976	0.5064	0.0837	1.6579	-0.0007
	2016	6.922	0.4194	0.0335	2.2986	0.0609
	2015	6.938	0.3824	0.0373	2.3685	0.0717
BOC Kenya	2019	6.299	0.2776	0.0419	1.9772	0.0108
	2018	6.331	0.2908	0.0343	1.8821	0.0151

Firm	Year	Firm Size	Financial leverage	Capital expenditure	WCM	Profitability
	2017	6.348	0.2770	0.0496	1.9539	0.0104
	2016	6.347	0.2366	0.0382	2.2831	0.0346
	2015	6.366	0.2615	0.0474	2.0635	0.0295
EABL	2019	7.940	1	0.1326	0.8795	0.1323
	2018	7.853	0.8365	0.1829	0.8349	0.0897
	2017	7.824	0.8202	0.0850	1.0069	0.1159
	2016	7.791	0.8878	0.0801	0.7707	0.1642
	2015	7.826	0.7937	0.0846	1.0229	0.1190
Mumias	2018	7.197	1.9142	0.0031	0.0290	-0.9623
	2017	7.382	0.9686	0.0008	0.1093	-0.2824
	2016	7.428	0.7179	0.0043	0.1807	0.0555
	2015	7.310	0.7097	0.0024	0.1879	-0.2273
FTG Holdings	2019	6.358	0.5366	110.9798	1.2125	0.0197
	2018	6.265	0.5580	34.3811	1.1436	0.0184
	2017	6.226	0.5648	57.9958	1.2907	0.0237
	2016	6.182	0.5272	38.7301	1.5305	0.0953
	2015	6.123	0.5613	59.9935	1.6410	0.1348
Kenya Orchards	2019	5.134	0.7601	27.8261	1.9784	0.0620
	2018	5.059	0.7884	31.6036	2.1138	0.0776
	2017	5.035	0.8577	64.3553	1.7132	0.0530
	2016	4.951	0.8909	-	2.0214	0.0422
	2015	4.896	0.9235	0.3175	2.0757	0.3673