

THE RELATIONSHIP BETWEEN CAPITAL EXPENDITURE AND  
WORKING CAPITAL MANAGEMENT: A CASE OF FIRMS LISTED ON  
THE NAIROBI SECURITIES EXCHANGE.

BY

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## DECLARATION

I declare that this is my original work and has not been presented for award of any degree in any university.

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## DEDICATION

This research project is dedicated to my parents MR&MRS Jeremiah Gitau, who have been my constant source of inspiration. To my husband Francis George and to my son Brian Makau for their unconditional love and unwavering, support during the entire MBA study period.

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## LIST OF ABBREVIATIONS

AGM-----Annual General Meeting

ANOVA-----Analysis of Variance

CAPEX-----Capital Expenditure

FIEX-----Financial Expenditure

NLB-----Net Liquidity Balance

NSE-----Nairobi Securities Exchange

OPEX-----Operating Expenditure

WCM-----Working Capital Management

WCR-----Working Capital Requirement



## ABSTRACT

Kenya is a developing country and the demand for goods and services is increasing all the time due to accelerated population growth rate which creates lot of growth opportunities. Due to these growth opportunities, capital expenditures are more likely to be increased but it happens only when the firms have required funds for investment. In this study, efforts were made to find out whether the funds generated by firms' operations are enough to be used in such big investments. Furthermore, due to efficient working capital management a firm can generate a handful amount of most liquid assets to be used in such an activity.

In order to find out the relationship between capital expenditures and working capital management, Net Liquidity Balance (NLB) and Working Capital Requirement (WCR) were used as proxies for Working Capital Management. A sample of 39 firms listed at Nairobi Securities Exchange was used. The study eliminated 16 firms in banking, financial institutions and insurance sector since the definition of working capital for these firms is different from the one being investigated in this study. The study covered a period of five years from 2006 to 2010.

Regression model was used for analyzing the relationship between Capital Expenditure and Working Capital Management for the sample firms. A significant negative relationship was found between NLB and Capital Expenditure, which implies that these firms don't increase the balance of most liquid assets when faced with capital expenditure since they don't have enough internally generated funds to be used in long term fixed investments. Furthermore, a significant negative relationship is also found between WCR and Capital expenditure, which implies that these firms are efficiently managing the nonfinancial components to enhance their cash, balances to be used in speculative and operational activities.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

Capital expenditure has been treated as part of the strategic investment decisions and it is one of the important financial decisions that a firm makes to increase its value or size (Brailsford and Yeoh 2004; Akbar et al. 2008).

Whenever a firm makes an expenditure that generates a cash flow benefit for more than one year, this is a capital expenditure. Examples include the purchase of new equipment, expansion of production facilities, buying another company, acquiring new technologies, launching a research & development program, etc.

Woolridge and Snow (1990) have treated capital expenditures as production capacity expansion, plant modernization and capital budget changes as capital expenditure. Capital expenditures often involve large cash outlays with major implications on the future values of the company. Additionally, once a firm commit to making a capital expenditure it is sometimes difficult to back-out. It has been found that managers spend a considerable time on day-today working of capital decisions since current assets are short-lived investments that are continually being converted into other asset types (Rao, 1989).

In the case of current liabilities, the firm is responsible for paying obligations mentioned under current liabilities on a timely basis. Liquidity for the on-going firm is reliant, rather, on the operating cash flows generated by the firm's assets. As a result, working capital management of a company is very critical area in the field of financial management (Joshi, 1994). It involves the decisions about the amount and composition of current assets and the financing of these assets. The decision-making process on the level of different working capital components has become frequent, repetitive, and time-consuming. Joshi (1994) emphasized that corporations are looking for new ways to

stimulate growth, improve financial performance, and reduce risk in today's challenging economic climate. Funds tied up in working capital can be seen as hidden reserves that can be used to fund growth strategies, such as capital expansion. Cash flows locked in stock and receivables can be freed up by understanding the determinants of working capital.

According to Mwangi (2010), many organizations that have earned profits over the years have shown the efficient management of working capital (WCM). The successful management of working capital is essential for short-run corporate solvency or the survival of any organization. Especially, efficient WCM will lead a firm to react quickly and appropriately to unanticipated changes in market variables, such as interest rates and raw material prices, and gain competitive advantages over its rivals

The way of managing working capital efficiently varies from firm to firm since it depends on industry, the nature of the business, business policy, strategy, etc. Thus, it is very important for an organization to understand the way to manage working capital efficiently. Broadly, industry characteristics, firm-specific characteristics, and the financial environment are recognized as determining factors of working capital. However, still, there are firms that are struggling to manage working capital since they don't have a sufficient understanding of the determining factors of working capital.

### **1.1.1 Capital Expenditure**

Brailsford and Yeoh (2004) defined capital expenditure as an outlay of cash to acquire or upgrade business assets. A capital expenditure is considered to be deductible, because it represents an improvement to the business, and it is deducted over the expected life of the item, rather than all at once as in the case of repair or maintenance expenditures.

A capital expenditure, according to Joshi (1994), is also sometimes referred to as capital spending or a capital expense and many publicly traded companies list their capital expenditures for the year in annual reports, so that stockholders can see how the company is using their money in long term planning. Most companies engage in capital

expenditures yearly, in an attempt to constantly upgrade and improve facilities, vehicles, and equipment.

Engaging in capital expenditure is a routine way to improve and expand a business, whether done on small or large scale. Large corporations may acquire additional companies, as in the case of an oil and gas giant which purchases another petroleum company, while smaller businesses may consider the purchase of a printer to be a capital expenditure. In general, allowances are made in the budget of the company for capital expenditures, including unexpected ones involving the replacement of items which are no longer able to be repaired (Joshi, 1994).

Working capital management is traditionally rated by current ratio, quick ratio, and net working capital. According to Shulman and Cox (1985), these traditional ratios don't consider the going concern of the company and net working capital does not measure the correct value of liquidity. WCR is measured in order to evaluate the management of working capital, and NLB is considered with the capability of raising and allocating capital respectively. This study adopts the WCR and NLB proposed by Shulman and Cox (1985) as indicators for working capital to evaluate the relationship between capital expenditure and working capital.

Joshi (1984) demonstrated that more growth opportunities and more fluctuations of future cash flows will increase the cash balance and short-term investments of a company. Thus expected cash flows and growth opportunities have a positive correlation with NLB. When a company has growth opportunities, it needs to acquire fixed assets relevant to future growth plans. Thus, incurred or expected capital expenditure is positively correlated with NLB. With growth opportunity, a company can increase the holding cash, since it manages working capital efficiently. Under such circumstances, terms to pay operation-related liabilities are lengthened and operation-related receivables can be accelerated in collection, causing less demand on working capital. Expected capital expenditure is negatively related to WCR, and firms with a higher growth rate pay more attention on the management of capital expenditure.

### **1.1.2 Working capital management**

Working capital management involves the relationship between a firm's short-term assets and its short-term liabilities. The goal of working capital management is to ensure that a firm is able to continue its operations and that it has sufficient ability to satisfy both maturing short-term debt and upcoming operational expenses. The management of working capital involves managing inventories, accounts receivable and payable, and cash. (Mwangi, 2010)

Kithii (2008) emphasised that organizations are generally focused on cash, accounts payable and supply chain issues. On the hand, external issues like the legal and business environment, or internal mechanisms like organization structure, information systems, can significantly impact working capital. Owing to market pressures, companies are led to paying a lot of attention to producing good quarterly results quarter after quarter. Undue focus on this may sometimes produce a flattering but inaccurate snapshot of working capital performance. This also happens in companies that have a marked seasonality of operations with working capital requirements varying widely from quarter to quarter.

The success of a firm depends ultimately, on its ability to generate cash receipts in excess of disbursements. The cash flow problems of many small businesses are exacerbated by poor financial management and in particular the lack of planning cash requirements (Jarvis et al, 1996).

While the performance levels of small businesses have traditionally been attributed to general managerial factors such as manufacturing, marketing and operations, working capital management may have a consequent impact on small business survival and growth (Kargar and Blumenthal, 1994).

The management of working capital is important to the financial health of businesses of all sizes. The amounts invested in working capital are often high in proportion to the total assets employed and so it is vital that these amounts are used in an efficient and effective way. However, there is evidence that small businesses are not very good at managing their working capital. Given that many small businesses suffer from undercapitalisation, the importance of exerting tight control over working capital investment is difficult to overstate (Joshi, 1994).

### 1.1.3 Relationship between Capital expenditure and working capital

Capital Expenditure and Working Capital Management relationship has been analyzed in few studies with reference to Thailand and Pakistani firms; however, no study has been conducted with reference to Kenyan Firms. Few studies have analyzed the impact of WCM on performance of firm such as Raheman and Nasr, 2007; Raheman et. al., 2010a & 2010b, but the relationship between Capital Expenditure and Working Capital Management is still unexplored.

One of the important study on the relationship between corporate investment and working capital management has been conducted by Appuhami (2009) based on a sample of 82 firms listed on Thailand stock exchange during period 2000 to 2005. He found that Net Liquidity Balance (NLB) was positively related to corporate investments while relationship between Working Capital Requirement (WCR) and Corporate Investments was negative and both relationships were significant. These findings explained that in Thailand firms increased their most liquid assets levels (NLB) while doing corporate investments and these investments were also increased when the firms had excessive liquidity than the required levels. The findings also implied that in presence of any growth opportunities firms efficiently managed WCR and by doing so firms enhanced NLB during growth period.

In another study Appuhami (2008) found that there were several determinants of Working Capital related to overall industry practices, firms' own policies and the financial environment. He found that the relationship between capital expenditure and NLB was positive and significant. It was

also found that other expenditures like operating; interest (finance) expenditures (FIEX) and operating cash flow (OCF) had significant relationship with NLB however, leverage (D/E), and performance (M/B) didn't have significant relationships with NLB. Furthermore, he also found that CAPEX were negatively related to WCR. Hence, it was concluded that Thailand firms modify their WCM policies according to CAPEX, OCF

and sales growth, etc. The reaction of stock market to the investment announcements by the firms was also investigated in few studies including Jones (2000) for the UK firms and Bino, et. al, (2000) for the sample of Spanish firms. With reference to Pakistan, Nazir and Afza (2009) analyzed the determinants of working capital requirement for 132 non-financial firms belonging to 14 different industries during period 2004-2007.

This study found some internal factors like operating cycle, leverage, Return on Assets and Tobin's q influenced the WCR. In another study Nazir and Afza (2009) made an investigation using sample of 204 firms listed on KSE and classified into 17 non-financial sectors to find whether profitability and

WCM policies were related. They found that firms following aggressive working capital policy earned negative returns; So Pakistani firm using such policy could earn excessive return and Pakistani Investors like those firms that use aggressive working capital financing policies

#### **1.1.4 Nairobi Securities Exchange**

Nairobi Stock Exchange was established by the British in the 1920s with no formal trading facilities. Formally, the Nairobi Stock Exchange was opened in 1954 as a stockbrokers' voluntary association. Till 1963 share trading was restricted among the British residents of Kenya. After Kenya's independence in 1963, share trading in Nairobi was made open to all.

As of now the Stock Exchange in Nairobi has emerged among the top four stock exchanges in sub-Sahara Africa. The functions of Nairobi Stock Exchange includes securities and stock trading, Information Services in the forms of Presentations to prospective issuers and investors, Initial Public offering (IPO) Workshop at the Kenya School of Monetary Studies, and presentation to policy makers and data Vending ([www.nse.co.ke](http://www.nse.co.ke)).

Legal requirements force firms to disclose their operational information. Firms generally disclose their operational information by business reports. Business reports include not only the financial statements and their footnotes, but also other information such as operational information, performance criteria, the information about the evaluation and

analysis, forward-looking information and other information regarding the firm, managers and shareholders. From this information, elements of capital budgeting and working capital can be easily identified. Disclosure of operational information of the firms has an importance in ensuring the decision of parties and/or information users who had to make decisions based on this information. (Ochieng, 2006)

## **1.2 Statement of the Problem**

The corporate finance literature has traditionally focused on the study of long-term financial decisions, particularly investments, capital structure, dividends or company valuation decisions. However, short-term assets and liabilities are important components of total assets and needs to be carefully analyzed. Management of these short-term assets and liabilities warrants a careful investigation since the working capital management plays an important role for the firm's profitability and risk as well as its value.

The maintenance of excessive levels of current assets can easily result in a substandard return on a firm's investment. However, firms with inadequate levels of current assets may incur shortages and have difficulties in smoothly maintaining day-to-day operations. (Mwangi, 2010)

Appuhamani (2008) investigated the impact of capital expenditure on the working capital management for firms listed in Thailand and discovered that capital expenditure actually has a great impact on the working capital management of the firms. He therefore concluded that firms listed in Thailand change their working capital management policies based on many factors such as capital expenditure, financial expenditure, operational expenditure etc.

Appuhami (2008) in his study recommended further researches to be conducted on the same topic in different countries so that working capital management policies can be compared between developing and developed countries in order to determine the correct working capital management policies

In Kenya several researches done on working capital have revolved on the relationship between working capital and firms' profitability, working capital management practices of various firms, relationship between working capital and systematic risk etc. For instance, Kithii (2008) carried out a study on the relationship between working capital management and profitability of listed companies on the NSE, Mwangi (2010) carried



out a study on the relationship between working capital management and the systematic risk of companies quoted on the NSE and Ochieng (2006) carried out a study on the relationship between working capital management and economic activities of firms listed on NSE.

These studies show a research gap in that no study has been conducted in Kenya analyzing the relationship between capital expenditure and working capital management; hence this study is an attempt to fill this research gap. The research problem to be analyzed in this study is whether the capital expenditure affect working capital management for firms listed on the NSE; hence the following research questions;

1. Is there any relationship between capital expenditure and working capital management?

### **1.3 Research Objectives**

The objective of this research study is to investigate whether there exist a relationship between capital expenditure and working capital management of the listed firms in NSE.

### **1.4 Significance of the Study**

Managers and Board of Directors will benefit from the findings of this study in that the findings will help them to evaluate the impact of capital budgeting and expenditures on working capital. They will understand how they can strategically allocate the capital budgeting to ensure the working capital is at optimal and is efficient.

Share holders and investors will appreciate the impact of capital expenditure on the working capital and be keen when approving capital budgeting project in the AGM. This will enhance operation efficiency of the firm.

The stock market regulator (Capital Market Authority) will use the findings in establishing the policies and regulation of the market. Depending on the effect of capital expenditure on the working capital ,the Authority will be able to establish standards to be followed by listed companies in capital budgeting. Researchers and scholars will benefit with valuable reference material for future researches and studies. They will use these findings as a source of literature in their researches.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The purpose of this chapter is to present a review of literature relating to the capital expenditure and working capital management. The chapter will provide theoretical and empirical framework of various studies that have been carried out in relation to the capital budgeting and working capital management.

#### **2.2 Working Capital approaches and Implications**

There are basically three approaches of working capital, which includes the conservative approach, the aggressive approach and the moderate approach these approaches are examined below with their implications.

##### **2.2.1 Aggressive approach**

The aggressive method is where a company predominantly finances all its fluctuating current assets and most of its permanent current assets using short term source of finance and it is only a small proportion of its permanent current assets that is financed using long-term source of finance. A company that uses more short-term source of finance and less long-term source of finance will incur less cost but with a corresponding high risk. This has the effect of increasing its profitability since less cash will be tied up in current assets, but it will also increase risk since the possibility of cash shortages or running out of inventory is increased (John 1955).

##### **2.2.2 Conservative approach**

The other extreme method of financing working capital is where a company decides to use mainly long-term source of finance and very little short-term source of finance to finance its working capital. This option means that the company's finance is going to be relatively high cost (that is sacrificing low cost finance) but low risk; this will make the

company's profit to be low but does not run the risk of being faced with liquidity problem as a result of withdrawal of its source of finance (Eljelly 2004).

The conservative method is where a company predominantly finances all its permanent current assets and most of its fluctuation current assets using long term source of finance and it is only a small proportion of its fluctuating current assets that is financed using short-term source of finance.

A conservative and more flexible working capital policy for a given level of turnover would be associated with maintaining a larger cash balance, perhaps even investing in short-term securities, offering more generous credit terms to customers and holding higher levels of inventory. Such a policy will give rise to a lower risk of financial problems or inventory problems, but at the expense of reducing profitability (DeLoof 2003)

### **2.2.3 Moderate approach**

Between the two extreme approaches to financing working capital is the moderate (or the matching or balancing) approach. This approach makes distinction between fluctuating current assets and permanent current assets with the suggestion that to finance working capital; short-term source of finance should be used to finance fluctuating current assets, while long-term source of finance should be used to finance permanent current assets. This matches the source of finance with the character of the current assets. The financing of working capital approach adopted by a company is very important since it will have an impact on its profitability and liquidity. It is also important for companies to consider other factors apart from cost and risk in making such financing decisions with regards to its working capital financing (Ross 2005).

## **2.3 Factors Influencing a Firm's Working Capital Management**

There are many factors that determine or influence working capital management. Arthur (1992) was of the opinion that there are various factors which determine the level of working capital required by a business and these factors are as follows;

### **2.3.1 Nature of Business:**

This is one of the primarily factors influencing the working capital requirements of a firm. For instance, a manufacturing firm has a longer operating cycle and invests more in its current assets. It thus, has a greater working capital requirement. On the other hand, a service firm like a hotel has a short operating cycle since it sells mostly on cash basis and has a lower working capital requirement. (Arthur,J.1992)

### **2.3.2 Market Conditions:**

Another major factor influencing working capital requirement is the level of competition. If the competition is high, the company should have enough inventories of finished goods to meet up with certain levels of demand. This will require a greater need of working capital. On the other hand, when competition is low, but demands are high, the company can afford to have a smaller inventory and would consequently require lower working capital. (Arthur,J.1992)

### **2.3.3 Seasonality of Operations:**

Some firms produce seasonal products. Products that are in high demand during a particular period of the year, for instance, sachet water producing companies sell more during the dry season period than in the rainy season. Such firms have greater working capital requirement during peak seasons and lower needs during other seasons. Companies whose sales are not affected by seasons have stable working capital requirements. (Arthur,J.1992)

### **2.3.4 Supply Conditions:**

If supply of raw materials and spare parts is timely, and adequate, the firm can get by with a comparatively low inventory level. If supply is scarce and unpredictable or unavailable during a particular season, the firm will have to obtain raw material when it is available. It would thus need more working capital to carry a large inventory and conduct operations all year round (Arthur,J.1992)

### **2.3.5 Growth of the Firm:**

A firm with growing concerns requires more working capital than that which is static. Larger amount of working capital is needed to meet the growing need of funds for expansion. (Arthur,J.1992)

### **2.4 Empirical Evidence**

Weinraub and Visscher (1998) have discussed the issue of aggressive and conservative working capital management policies by using quarterly data for a period of 1984 to 1993 of US firms. Their study looked at ten diverse industry groups to examine the relative relationship between their aggressive/conservative working capital policies. The authors have concluded that the industries had distinctive and significantly different working capital management policies. Moreover, the relative nature of the working capital management policies exhibited remarkable stability over the ten-year study period. The study also showed a high and significant negative correlation between industry asset and liability policies and found that when relatively aggressive working capital asset policies are followed they are balanced by relatively conservative working capital financial policies.

Deloof (2003) carried out a research on the relationship between working capital management and the performance of Belgium companies. He used a sample of 1009 non financial Belgian companies for the period from 1992 to 1996. He found out that most firms had a large amount of cash invested in working capital. It can, therefore, be expected that the way in which working capital is managed will have a significant impact on profitability of those firms. Using correlation and regression tests he found a significant negative relationship between gross operating income and the number of days accounts receivable, inventories and accounts payable of Belgian firms. On basis of these results he suggested that managers could create value for their shareholders by reducing the number of days' accounts receivable and inventories to a reasonable minimum. The negative relationship between accounts payable and profitability is consistent with the view that less profitable firms wait longer to pay their bills.

Mogere(2003), studied working capital management among 30 public companies listed at the NSE . The objective of the study was to determine the effect of the amount of long-term financing of current assets on the profitability of companies. It also addressed the question as to whether there is any significant relationship between working capital management policy and the profitability of a company as measured by the return on equity. The study also wanted to establish if public companies in different sectors in Kenya follow different WCM policies. Simple regression analysis was done to establish the relationship between WCM policy and the return on equity. The result of the analysis showed that the commonly practiced WCM policy among the public companies in Kenya is the aggressive approach policy. The finding of the research did not show any significant differences between the WCM policies across the sectors.

Filbeck and Krueger (2005) provided insights to support the importance of an efficient working capital management, assessing nearly 1,000 firms and using data from a traditional working capital management survey published by CFO Magazine in United States, for the period 1996-2000. According to the study, there were both significant differences between industries in working capital measures across time and also significant changes in these measures within industries over the time. For the researchers, these changes could be related to the macroeconomic factors such as interest rate, innovation rate and competition.

Filbeck & Keueger(2005) studied the impact of information asymmetries and believes that there is a competition between funds of working capital and investment in fixed assets with firms having financial constraints. The study further reveals that WCM depends on cost of financing, internal financing options and access to capital markets.

In the Pakistani context, Rehman (2006) investigated the impact of working capital management on the profitability of 94 Pakistani firms listed at Islamabad Stock Exchange (ISE) for a period of 1999-2004. He studied the impact of the different variables of working capital management including Average Collection Period, Inventory Turnover in Days, Average Payment Period and Cash Conversion Cycle on the Net Operating Profitability of firms. He concluded that there is a strong negative relationship between

working capital ratios and profitability of firms. Furthermore, managers can create a positive value for the shareholders by reducing the cash conversion cycle up to an optimal level.

Ochieng (2006) carried out a study on firms quoted on the NSE over the last 20yrs on the relationship between working capital and economic activities in Kenya. The objective of the study was to examine how the changes in economic activities affect changes in working capital of firms listed on the NSE. The findings revealed that the liquidity of the small firms as measured by the current and quick ratio increased slightly during economic slowdown. The study also shows that the liquidity positions reacted differently to various economic indicators such as inflation and lending rates. With lending rates, the study found that lending rates, indeed, did affect the amount of working capital for the firms and this further showed that during times of economic contraction working capital positions of the firms improved.

From another angle, Chiou and Cheng (2006) have analyzed the determinants of working capital management. The paper explored how working capital management of a firm is influenced by the different variables like business indicators, industry effect, operating cash flows, growth opportunity for a firm, firm performance and size of firm. The study has provided consistent results of leverage and operating cash flow for both net liquidity balance and working capital requirements. However, variables like business indicator, industry effect, growth opportunities, performance of firm, and size of firm were unable to produce consistent conclusions for net liquid balance and working capital requirements of firms.

Afza and Nazir (2007) investigated the relationship between the aggressive/conservative working capital policies for seventeen industrial groups and a large sample of 263 public limited companies listed at Karachi Stock Exchange for a period of 1998-2003. Using ANOVA the study found significant differences among their working capital investment and financing policies across different industries. Moreover, rank order correlation confirmed that these significant differences were remarkably stable over the period of six years of study. Finally, ordinary least regression analysis found a negative relationship

between the profitability measures of firms and degree of aggressiveness of working capital investment and financing policies.

Appuhami (2008) investigated the impact of firms' capital expenditure on working capital management; using data collected from listed companies in the Thailand Stock Exchange, from 2000 to 2005. The study used Shulman and Cox's net liquidity balance and working capital requirement as a proxy for working capital measurement. The research found a negative relationship with capital expenditure, indicating that companies tend to manage working capital efficiently when they tend to invest in capital expenditure with the purpose of getting profit from growth opportunities. Also, the study found positive and significant evidences between working capital requirement, operating and finance expenditure, suggesting that companies tend to increase working capital level as operating and interest expenditures increase. Also, the study suggested that companies tend to manage working capital efficiently, since it increases operating cash flow. When companies have growth opportunities associated with cash flows and capital expenditure, they tend to manage working capital efficiently in order to increase operating cash flows. Sathyamoorthi and Wally-Dima (2008) analyzed retail domestic companies listed in Botswana Stock Exchange, from 2004 to 2006, and found evidences that companies adopted a conservative approach in working capital management, which suggests that it is not static overtime, but varies with the change of macroeconomic factors. In times of high business volatility, companies tend to adopt a conservative approach and tend to adopt an aggressive approach in times of low volatility.

Kithii (2008) carried out a study on the relationship between working capital management and profitability of listed companies on the NSE. Her objectives were to establish how efficient the firms are in managing their working capital. She also aimed at establishing the relationship between profitability, the cash conversion cycle, and its components for the listed companies on the NSE for the period 2001-2006. The results showed that there is a statistically significant negative relationship between variables of working capital management and the profitability of firms except for the average payment period which showed positive a relationship.



Nazir and Afza (2009) study the determining factors of WCM in Pakistan. This study considers 14 industrial groups and takes 132 manufacturing firms from Karachi Stock Exchange for the period 2004 to 2007. The study takes a number of micro/ macro level factors as determinants, such as operating cycle of the firm, firm's growth, level of economic activity, level of industry activity and deem them important factors in determining WCM of a firm. between the cash conversion cycle and profitability indicating that more aggressive working capital management is associated with higher profitability.

Mwangi (2010) carried out a study on the relationship between working capital management and the systematic risk of companies quoted at the NSE. The objective of the study was to determine the relationship between working capital management and firms' stock beta. The study used a sample of 22 companies listed on the NSE for a period of 7 years. Current ratio, size of the firm; fixed financial assets and debt ratio were used as control variables. Pearson's correlation and pooled least square were used for analysis. The results showed that there is no statistical significant relationship between variables of working capital management and the beta of a firm.

## **2.5 Summary of Literature Review**

This chapter has elaborated various concepts and studies in relation to the capital expenditure and the working capital management. In summary, the literature review indicates that capital expenditure has impacts on the working capital management of the firm but there still is ambiguity regarding the measurement of firms' liquidity.

# CHAPTER THREE

## RESEARCH METHODOLOGY

### 3.1 Introduction

This chapter deals with, the research design, population, sample, data collection and data analysis, which describes the firms and variables, included in the study and applied statistical techniques in investigating the relationship between working capital management and capital expenditure.

### 3.2 Research Design

The study used a causal research design. According to Mugenda (2003) this is a research design that is used to measure what impact a specific change will have on existing norms and allows market researchers to predict hypothetical scenarios upon which a company can base its business plan. The major objective of causal research design is to obtain evidence regarding cause and effect relationships. This design was found suitable because the study requires an accurate examination of the relationship between capital expenditure and working capital management for firms listed on NSE for the period between 2006 and 2010.

### 3.3 Population

The population of this study constituted 55 firms listed on the NSE for the period 2006-2010. The reason as to why this market was chosen is primarily due to the availability and the reliability of the financial statements in that they are subject to the mandatory audit by internationally recognized audit firms. Furthermore, firms listed on the securities exchange market have an incentive to present proper financial statements if some exist in order to make their shares more attractive (Lazaridis and Tryfonidis, 2006).

### 3.4 Sample

The study selected 39 firms as a sample. Purposive sampling was used to select the sample from the population, justification for using purposive sampling lies in the power

of selecting information rich cases for in- depth analysis related to the central issues being studied. The study eliminated 16 firms in banking, financial institutions and insurance sector since the definition of working capital for these firms is different from the one being investigated in this study.

In order to ensure accuracy of the collected data, a number of filters were applied. Observations of firms with anomalies such as negative values in their total assets, current assets, fixed assets, capital, depreciation or the interest paid were eliminated. Firms with missing data were also eliminated.

### 3.5 Data Collection

The study used secondary data obtained from NSE handbook. Since the study is based on financial data, the main source of data was financial statements, such as income statements, balance sheets, and cash flow statements of listed companies for the period from 2006 to 2010. The reason for restricting the time period to five years was that the latest data for the study available was for these years. In addition, annual reports of companies have been used in order to understand the company back ground and industry. The table attached in the appendix will be used to obtain these data. Capital expenditure (CAPEX) is identified as one of the independent variables in the investigation and includes expenditures incurred by firms for acquisition and upgrading physical assets, such as land, buildings, machinery, vehicles, and equipments. Capital expenditures are added to assets account and depreciated against profits over their economic lifetimes. Acquisition costs such as carriage inwards, insurance and legal cost also constitute part of capital expenditure. Capital expenditure decisions are very sensitive to any organization for they are very costly and irreversible. Operating expenditure (OPEX) is the cost of ongoing operations, product or system. Unlike CAPEX, firms meet OPEX continuously. Operating expenditures are written off against profit for the period. They include salaries, wages and facilities expenses, such as rent, rates, electricity, etc. Finance expenditure (FIEX) is cost incurred on debt capital. Interest incurred on debentures, bank loan and other long term liabilities are recognized as finance expenditures.

$NLB = (\text{cash and cash equivalents} + \text{short-term investment}) - (\text{short-term debt} + \text{commercial paper payable} + \text{long-term debt a year term})$ . These are considerations of the

t: time = 1, 2,.....,5 years.

$\varepsilon$ : the error term

Specifically, the seemingly unrelated equation regression model will be

$$NLBi = \beta OPEXi + \beta FIEXi + \beta CAEXi + \beta Gthi + \beta D/Ei + \beta OCSH + \varepsilon$$

$$WCRi = \beta OPEXi + \beta FIEXi + \beta CAEXi + \beta Gthi + \beta D/Ei + \beta OCASH + \varepsilon$$

Where

$NLBi$  = (cash & cash equivalents + short term investments) – (short term debt + commercial paper payable + Long term debt year term)

$WCR$  = (accounts receivable + inventories) – (accounts payable + other payable).

$\beta$  = coefficient of regression,

OPEX = operating expenditure

FIEX = financial expenditure

CAPEX= capital expenditure

D/E = total debt to total assets

Gt = sales growth

OCASH = operating cash flow in firm

$\varepsilon$  = the error term

$i=1, 2,....., 55$  firms.

The dependent variables were measured based on data retrieved from NSE handbook on an yearly incremental basis.

The result of seemingly unrelated equation regression was presented in a table and beta coefficients and levels of significance of the relationships determined. This study adopted the model used by Appuhami (2008) in his study of the impact of capital expenditure on working capital for firms listed in Thailand stock exchange. In his research he concluded that companies in Thailand change their working capital policies based on many factors, such as capital expenditure, operating cash flow, sales growth etc.

The justification for replicating the above study was to test whether companies in developing countries for instance Kenya change their working capital management policies when faced with capital expenditure as is the case in developed countries such as Thailand.

t: time = 1, 2,.....,5 years.

$\epsilon$ : the error term

Specifically, the seemingly unrelated equation regression model will be

$$NLBi = \beta OPEXi + \beta FIEXi + \beta CAEXi + \beta Gt_{hi} + \beta D/Ei + \beta OCASH + \epsilon$$

$$WCRi = \beta OPEXi + \beta FIEXi + \beta CAEXi + \beta Gt_{hi} + \beta D/Ei + \beta OCASH + \epsilon$$

Where

$NLBi = (\text{cash \& cash equivalents} + \text{short term investments}) - (\text{short term debt} + \text{commercial paper payable} + \text{Long term debt year term})$

$WCR = (\text{accounts receivable} + \text{inventories}) - (\text{accounts payable} + \text{other payable}).$

$\beta$  = coefficient of regression,

OPEX = operating expenditure

FIEX = financial expenditure

CAPEX= capital expenditure

D/E = total debt to total assets

Gt = sales growth

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## CHAPTER FOUR

### DATA ANALYSIS AND INTERPRETATION OF FINDINGS

#### 4.0 Introduction

This chapter presents the research findings and interpretation of study data. The data was obtained from NSE handbook, 2010 which contain information regarding the financial performance and status of the quoted companies for five years. The relationship between capital expenditure and working capital management was investigated via regression analysis using 39 quoted companies' 5 years observations. In developing the regression analysis, certain variables that affect working capital management: finance expenditure, operating expenditure, operating cash flow, growth in sales, and leverage have been taken into account. NLB and WCR have been used as proxies of the management of working capital. This regression is estimated using the pooled least squares method with no weights. SPSS (2009 version) software was used to carry out this pooled multiple regression analysis to uphold accuracy.

#### 4.1 Descriptive statistics of the sample Firms (2006-2010)

Table 4.1 Table showing descriptive statistics for the whole sample firms listed in the NSE

	mean	Standard Deviation	Minimum	Maximum
NLB	4.248	42.68	-128.224	350.99
WCR	-3.033	52.42	-187.299	440.382
CAPEX	15.562	34.555	0	230.640
OPEX	18.658	44.767	0.002	287.378

FIEX	5.883	10.256	0	100.0
OCASH	28.797	76.243	-214.338	598.792
D/E	1.442	17.681	-130.707	408.722
Gth	0.286	1.458	-0.525	19

On average, listed Firms in NSE maintain Kshs 4.248 hundred million most liquid balance to use for utilizing any opportunity and for different purposes, while negative WCR is showing that the firms owe current liabilities more than the current assets. Some firms have also negative NLB that is showing that firms are facing liquidity problems. On average the firms do Kshs 15.562 hundred million Capital expenditure each year and the operating expenses are 18.658 on average. All the other mean values are presenting positive values. Standard Deviation column tells that on average each variable lie on how much distance from their mean. Minimum and Maximum columns are showing the minimum and maximum value for each variable.

#### 4.2 Regression Results of NLB and WCR with respect to Independent Variables

Table 4.2(a) table showing regression result of NLB with respect to independent variables

VARIABLES	$\beta$	Significance value (p-value)
Constant	-4.553	0.285
CAPEX	-0.434	0.001
OPEX	0.396	0.000
FIEX	-1.518	0.000
OCASH	0.304	0.000
D/E	-1.100	0.231
Gth	-1.228	0.554

Table 4.2 (b) ANOVA (NLB)

	Sum of Squares	DF	Mean Square	F	Significant (p-Value)
Regression	28694369.52	8	569824369.43	25.072	0.000
Residual	78562.69	1440	3698257.58		
Total	28772932.21	1448			
F value	25.072				
Multiple R	0.653				
R Square	0.425				
Observations	39				

According to Table 4.2(a), capital expenditure has less significant relationship with net liquidity balance. The regression coefficient of capital expenditure is -0.434 with a P-value of (0.001). This means that net liquidity balance is decreased by 0.434 for each one bath of capital expenditure. The test result shows CAPEX is negatively related to NLB and significant at 1% level, which is against H1a hypothesis. NLB is negatively related to Capital Expenditures. This is against the findings of Appuhami (2008, 2009), in which he found that NLB is positively related to capital expenditure at 1% of significance, in a study which was conducted on Thailand Stock Exchange listed companies.

However, operating expenditure, interest expenditure, and operating cash flow have significant relationships with NLB with a coefficient of 0.396, -1.518 and 0.304 respectively. These variables have no possibility of getting zero (0) values for a coefficient. However, leverage (D2E), and Sales growth (Gth) don't show significant relationships with net liquidity balance. Thus, these two variables can be dropped from



the regression model since these variables have the possibility of getting zero value for coefficients and no possibility of predicting net liquidity balance.

According to the Table 4.2 (b), the ANOVA test proved that there is no possibility of getting zero values for all regression coefficients of variables or there is a possibility that at least one regression coefficient will get more than a zero value. The ANOVA test shows that the model has the possibility of predicting net liquidity balance with a high significance level since the P-value is (0.000).

About 42.5 % of variation in NLB is due to independent and control variables. The model used for the study is significant 1%. The multiple regression tests indicate that NLB is influenced by number of variables significantly. Because of low level of liquid assets, the firms are not able to make corporate investments so the growth is not up to required level as the opportunities are there in market. Growth is insignificantly related to NLB.

Table 4.2(c) table showing regression result of WCR with respect to independent variables

VARIABLES	$\beta$	Significance value (p-value)
Constant	-4.914	0.326
CAPEX	-0.049	0.002
OPEX	-0.049	0.779
FIEX	-0.304	0.338
OCASH	0.584	000
D/E	0.682	0.112
Gth	1.017	0.677

Table 4.2 (d) ANOVA (WCR)

	Sum of Squares	DF	Mean Square	F	Significant (p-Value)
Regression	36985852.54	7	7896352.22	16.551	0.0000
Residual	26948.23	1262	56924794.33		
Total	37012800077	1269			
F value	16.551				
Multiple R	0.573				
R Square	0.328				
Observations	39				

Table 4.2 (d) shows the results of regression model of working capital requirement (WCR) with independent variables, such as operating expenditure, interest expenditure, capital expenditure, growth in sales, leverage, and operating cash flows. All the variables are causing 32.8% change in WCR. Model is highly significant at 1% to measure the relationship between WCR and other variables. The table above shows that capital expenditure is negatively related to WCR which accepts the second hypothesis. WCR is negatively related to Capital Expenditures. CAPEX regression coefficient is -0.049 and significant at 1% level of significance. According to this result, CAPEX can be recognized as a significant factor in predicting the value of WCR, but no possibility of regression coefficient getting zero value. The regression coefficient value - 0.049 shows that companies decrease -0.049 shillings in WCR for each shilling of CAPEX.

Hence, companies try to accelerate the collection of receivables and lengthen the payables. This finding is consistent with Appuhami 2008 and 2009 findings in which he found that companies in Thailand tend to decrease WCR in response to expected Capital expenditure. D/E is found to be insignificantly related to WCR, growth is also found to be insignificantly impacting WCR. these are consistent with the findings of Appuhami 2008 and 2009 findings over Thailand companies.

Operating expenses are also insignificantly related to WCR this is inconsistent with previous findings. As it was found that it has positive relationship with NLB that means that companies tend to use most liquid assets for their operating expenses and don't rely over current assets. Finance expenditure is negatively related to WCR but the relationships are insignificant which is consistent with previous findings of Appuhami 2008 and 2009. So the variables D/E, growth, operating expense, finance expense are dropped because these have possibility of getting zero and don't have ability to predict variance in WCR.

## CHAPTER FIVE

### SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

#### 5.0 Introduction

This chapter presents the findings of the study in relation to the research objective.

The study set to achieve one objective to establish whether there exist a relationship between capital expenditure and working capital management of the firms listed on NSE.

This chapter seeks to present the summary of the findings, conclusion, recommendation and limitations of the study in relation to the objective of the study and suggestion on further research.

#### 5.1 Summary

The purpose of this research was to investigate the relationship between Capital Expenditures with the Working Capital Management, and the relationship of different variables identified in literature with the Working Capital Management in selected Firms quoted in the NSE. Working capital management attracts less attention from management than capital budget and capital structure in financial management in the ordinary course of business. Working capital management relates to the fundings of sources of short term finance and invests in short term assets. Working capital management deals with profitability and the risk of the company.

Inefficient working capital management results in over investment in working capital and reduces the profitability of the firm. On the other hand, inefficient management of working capital leads to an insufficient amount of working capital and results in financial difficulty, putting the company at risk. The optimal level of working capital, which is a tradeoff between risk and profitability, can be affected by both internal organizational characteristics and various outside factors.

This research investigated some of the factors such as capital expenditure, operating expenditure, finance expenditure, leverage, performance and operating cash flow.

This study used NLB and WCR as proxies for working capital in order to assess the relationship between capital expenditure and working capital management and other influencing factors.

Existing literature had paid little attention to many factors that determine the working capital. Appuhami (2008 and 2009) carried out the research on the impact of capital expenditure on working capital management on listed companies in the Thailand stock market and concluded that that capital expenditure has a significant effect on working capital management. In that research it was found that Thailand change their working capital management policies based on many factors, such as capital expenditure, operating cash flow, sales growth, etc. and recommended that firms operating in other countries consider the pattern of capital expenditure in managing working capital

This study found that firms quoted in the NSE have different working capital practices as they have maintained different levels of liquid financial assets and non-financial current assets. It was found that NLB is negatively related to capital expenditure and significant at 1% level and this is against H1a hypothesis and inconsistent with the findings of Appuhami (2008 and 2009).

WCR has a significant negative relationship with capital expenditure which is in accordance with the hypothesis and is consistent with previous finding of Appuhami (2008 and 2009). Growth is insignificantly related to NLB and WCR which is supported by Appuhami finding (2008 and 2009). Leverage, operating expenditures and finance expenditure are found to be insignificantly related to WCR which is consistent with the argument that these have the relationships with cash, which is used to be paid for them.

## **5.2 Conclusion**

Capital expenditure has less significant relationship with net liquidity balance. However, operating expenditure, interest expenditure, and operating cash flow have significant relationships with NLB. The firms have lower level of liquid assets that prevent firms from financing the growth opportunities internally, which is a low cost method of financing. It would be beneficial if the firms improve the collection of their receivables that will lead to better NLB. Firms can improve cash balances by efficiently managing

the two components (NLB and WCR) and they can undertake investments arising from growth opportunities in developing country like Kenya.

### **5.3 Recommendation**

As this study was conducted on the firms listed in the NSE which were very important at this time and data for the period of 5 years was available, more firms can be included for well generalize-ability of findings on all industries firms and the time period can also be extended. The use of Net Liquidity Balance (NLB) and Working Capital Requirement (WCR) as proxy for Working Capital Management in Kenya is appropriate experience.

Some contradictory findings were realized and is argued that the reasons for these findings are probably due to the fact that Appuhami study was focusing on firms in the developed country while this study focused on Kenya which is a developing country .It is recommended that further work in this field be done in future so that it can be concluded whether the measures used are the accurate measures for evaluating Kenyan firms.

The study was conducted across various sectors in NSE excluding Financial and Insurance sectors. The model used was general and might not be able to be applied or might not give the same findings in specific business sectors. By conducting the same study on each business sector separately, management can better understand specific behavior of a company's capital expenditure in relation to working capital management.

### **5.4 Limitations of the study**

The most important limitation of this research was that the findings cannot be directly generalized to the larger population. The findings of this study can therefore not be generalized to all business enterprises in Kenya. Some contradictory findings were realized and this is due to lack of literature material especially in developing countries like Kenya.

Time was also a limiting factor. The researcher is working and has family chores to undertake. The study relied on the secondary data from the financial information of the listed companies in the NSE handbook (2010), hence required time, which is limited, to analyze the relevant information.

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## APPENDIX 1

### DATA COLLECTION GUIDE

NAME OF THE FIRM.....

YEAR.....

SECTOR.....

<b>CAPITAL EXPENDITURE</b>	
Premises(Land & Building	
Motor vehicles	
Equipments	
Plants & Machinery	
Furniture, fixtures& fittings	
Any other	
Total	
<b>WORKING CAPITAL/OPERATIONAL EXPENDITURE</b>	
<b>Current Assets</b>	
Inventory	
Accounts receivables	
Prepayments	
Bank/Cash	
Any other	
Total	
<b>Current Liabilities</b>	
Accounts payables	
Accruals	

Bank overdrafts	
Any other	
Total	
<b>FINANCIAL EXPENDITURE</b>	
<b>SOURCE OF CAPITAL</b>	<b>COST OF CAPITAL</b>
Ordinary share capital	Dividends(ordinary)
Preference share capital	Preference dividends
Retained earnings (Ploughed back)	Dividend (ordinary)
Debts	Interest

## **APPENDIX 11**

List of companies quoted in Nairobi Stock Exchange as at Dec 2010.

### **AGRICULTURAL**

1. Eaagads Ltd Ord
2. Kapchorua Tea Co. Ltd
3. Kakuzi Ltd
4. Limuru Tea Co. Ltd
5. Rea Vipingo Plantations Ltd
6. Sasini Ltd
7. Williamson Tea Kenya Ltd

### **COMMERCIAL AND SERVICES**

1. Express Ltd
2. Kenya Airways Ltd
3. Nation Media Group
4. Standard Group Ltd
5. TPS Eastern Africa (Serena) Ltd
6. Scangroup Ltd
7. Uchumi Supermarket Ltd
8. Hutchings Biemer Ltd

### **TELECOMMUNICATION AND TECHNOLOGY**

1. AccessKenya Group Ltd
2. Safaricom Ltd

### **AUTOMOBILES AND ACCESSORIES**

1. Car and General (K) Ltd
2. CMC Holdings Ltd
3. Sameer Africa Ltd
4. Marshalls (E.A.) Ltd

## **BANKING**

1. Barclays Bank Ltd
2. CFC Stanbic Holdings Ltd
3. Diamond Trust Bank Kenya Ltd
4. Housing Finance Co Ltd
5. Kenya Commercial Bank Ltd
6. National Bank of Kenya Ltd
7. NIC Bank Ltd
8. Standard Chartered Bank Ltd
9. Equity Bank Ltd
10. The Co-operative Bank of Kenya Ltd

## **INSURANCE**

1. Jubilee Holdings Ltd
2. Pan Africa Insurance Holdings Ltd
3. Kenya Re-Insurance Corporation Ltd

## **INVESTMENT**

1. City Trust Ltd
2. Olympia Capital Holdings Ltd
3. Centum Investment Co Ltd

## **MANUFACTURING AND ALLIED**

1. B.O.C Kenya Ltd
2. British American Tobacco Kenya Ltd
3. Carbacid Investments Ltd
4. East African Breweries Ltd
5. Mumias Sugar Co. Ltd
6. Unga Group Ltd

7. Eveready East Africa Ltd
8. Kenya Orchards Ltd
9. A. Baumann CO Ltd

#### **CONSTRUCTION AND ALLIED**

1. Athi River Mining
2. Bamburi Cement Ltd
3. Crown Berger Ltd
4. E.A.Cables Ltd
5. E.A.Portland Cement Ltd

#### **ENERGY AND PETROLEUM**

1. KenolKobil Ltd
2. Total Kenya Ltd
3. KenGen Ltd Ord
4. Kenya Power & Lighting Co Ltd