

**EFFECT OF WORKING CAPITAL MANAGEMENT ON THE
PROFITABILITY OF CONSTRUCTION AND ALLIED FIRMS LISTED
AT THE NAIROBI SECURITIES EXCHANGE**

**BY
DONGMEI LI**

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS
ADMINISTRATION, FACULTY OF BUSINESS AND MANAGEMENT SCIENCES,
UNIVERSITY OF NAIROBI**

NOVEMBER, 2022

DECLARATION

I, the undersigned, solemnly declare that the work you are about to read was written entirely by me, and that I have not previously submitted it for evaluation anywhere else but the University of Nairobi.

Signed: 李梅

Date: 08/12/2022

DONGMEI LI

D61/10980/2018

With my blessing as University Supervisor, please accept this research paper for review.

Signed: Dr. Duncan Elly Ochieng'

Date: 08/12/2022

Dr. Duncan Elly Ochieng' (PhD, CIFA, CPA)

Senior Lecturer, Department of Finance and Accounting

University of Nairobi

DEDICATION

My sincere appreciation goes out to my wonderful family for providing the means to complete my study and providing me with invaluable spiritual guidance. All praise and honor due to God

ACKNOWLEDGEMENT

In all humility, I acknowledge that it is God's grace and wisdom that have enabled me to do this work. Second, I'd want to express my appreciation to Dr. Duncan Elly, the other faculty members,

and the rest of the University of Nairobi personnel who have been so helpful throughout this process.

More than anything, however, I have to give thanks to my loved ones, who always encouraged me and understood the time limits of my dissertation. Thank you for praying for me and always believing in me, Mom and Dad. Your encouragement and positive attitude during their time in school will be remembered fondly by the whole family.

TABLE OF CONTENTS

DECLARATION.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT.....	iii
TABLE OF CONTENTS	v
LIST OF TABLES	viii
LIST OF FIGURES.....	ix
ABBREVIATIONS AND ACRONYMS.....	x
ABSTRACT.....	xi
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background of the study.....	1
1.1.1 Profitability.....	2
1.1.2 Working Capital Management	2
1.1.3 Working Capital and Profitability	3
1.1.4 Construction and Allied firms listed at the Nairobi Securities Exchange.....	4
1.2 Research Problem.....	5
1.3 Objectives of the Study	7
1.3.1 Specific Objectives.....	7
1.4 Value of the Study.....	8
CHAPTER TWO: LITERATURE REVIEW.....	9
2.1 Introduction	9
2.2 Theoretical Review.....	9
2.2.1 The Pecking Order Theory	9
2.2.2 Cash Conversion Theory.....	10
2.3.3 The Operating Cycle Theory.....	11
2.3 Determinants of Profitability.....	12
2.3.1 Liquidity	12
2.3.2 Financial Leverage	12
2.3.3 Firm Size	12
2.3.4 Macroeconomic Factors	13

2.3.5 Industry Characteristics	13
2.4 Empirical Review	14
2.5 Conceptual Framework	19
2.6 Summary of Literature Review	20
CHAPTER THREE: RESEARCH METHODOLOGY	21
3.1 Introduction	21
3.2 Research Design	21
3.3 Population of the Study	21
3.4 Data Collection.....	21
3.5 Data Analysis	22
3.5.1 Diagnostic Tests	22
3.5.2 Analytical Model.....	22
3.5.3 Significance Tests.....	23
CHAPTER FOUR: DATA ANALYSIS, RESULTS AND INTERPRETATION	24
4.1 Introduction	24
4.2 Descriptive Statistics	24
4.3 Diagnostic Tests	25
4.3.1 Normality test.....	26
4.3.2 Heteroskedasticity.....	27
4.4 Correlation Analysis.....	27
4.5 Regression Analysis	29
4.6 Hausman Test	30
4.7 Interpretation of the Findings	31
CHAPTER FIVE: DATA ANALYSIS, RESULTS AND INTERPRETATION	33
5.1 Introduction	33
5.2 Summary of Findings	33
5.3 Conclusions	36
5.4 Limitations of the Study	36
5.5 Suggestions for Further Research.....	37

REFERENCES.....	38
APPENDICES.....	41
Appendix I: Construction and Allied Firms Listed at the NSE	41
Appendix II: Data Collection Sheet.....	42

LIST OF TABLES

Table 4.1: Descriptive Statistics	24
Table 4.2: Regression Analysis	30

LIST OF FIGURES

Figure 2.1: Conceptual Framework.....	20
---------------------------------------	----

ABBREVIATIONS AND ACRONYMS

AIMS	-	Alternative Investments Market Segment
ANOVA	-	Analysis of Variance
AP	-	Accounts Payable
AR	-	Accounts Receivable
CCC	-	Cash Conversion Cycle
DPO	-	Days Payable Outstanding
DSI	-	Days Sales Inventory
DSO	-	Days Sales Outstanding
FISMS	-	Fixed Income Securities Market Segment
FOSMS	-	Futures and Options Securities Market Segment
FSD	-	Financial Sector Deepening
GDP	-	Gross Domestic Product
IM	-	Inventory Management
MIMS	-	Main Investments Market Segment
NSE	-	Nairobi Securities Exchange
OLS	-	Ordinary Least Squares
PWC	-	Price Waterhouse Coopers
ROA	-	Return on Assets
ROE	-	Return on Equity

ABSTRACT

Managing the liquidity of an organization is imperative for all businesses; large, small or medium. If an organization fails to manage its liquidity appropriately, there is bound to be cash shortages. As a result, the organization experience issues in settling its debts. No evidence of WCM's positive effect on productivity in Kenyan manufacturing or associated companies has been shown in the existing literature. Both quantitative and qualitative methods of analysis were employed in this study. Information regarding characteristics of a phenomenon or population is what you may expect to find in descriptive studies. Nevertheless, descriptive studies are often conducted before quantitative ones. Stata and Microsoft Excel were used for the analysis. We used a quantitative approach to arrive at our conclusions. Through the use of regression and correlation analysis, we were able to ascertain the nature and extent of the partnership and the bearing of working capital management elements on efficiency indicators. Inventory turnover time was shown to have a positive influence on profitability for this organization, albeit the results were not statistically significant. It follows that the manufacturing and construction sectors' financial results are immune to variations in inventory turnover time. This fits very well with what's been written. Results showed that for NSE-listed manufacturing and associated businesses, the average payment duration had a positive but statistically negligible influence on profitability. This study lends credence to previous studies which found no correlation between payment terms and business outcomes. There was a marginally positive effect on financial outcomes, but it was attributed to the longer average collection time. The findings prove that a company's bottom line is immune to payment collection delays.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Working capital management is essential for every company's success. It doesn't matter how big or small a company is or what it does, its longevity and health are directly tied to the stability of its obligations and assets (Matole, 2019). This is because a positive balance creates the perception of good management and increases the attractiveness of the company as a good investment. According to Yakubu et al.(2017) firms that are listed have to present positive financial outlook as their book of accounts are always under investor analysis. This increases the desire by organizations to ensure that working capital is at the appropriate levels. A critical impact of working capital management is its role in determining whether a company will be profitable. Companies that can pay off their obligations are more likely to attain profitability than companies that are unable to do so.

This study is premised on the pecking order theory advanced by Myers and Majluf (1984) which posits that companies have an order by which they take up sources of financing. Cash conversion cycle theory advanced in Gitman (1974) posits that if all things are held constant, a short conversion cycle is instrumental in raising organizational value and this is only achieved by efficiency in Working Capital management. A short conversion cycle raises the liquidity of an organization which frees cash for short-term use and enhances profitable returns. The operating cycle theory as noted in Sorin and Nucu (2021) posits that the management of receivables, payables, inventories, and cash is essential to a company's operational functions.

Kenya's economic development, poverty alleviation, and the forging of strategic partnerships amongst large firms all depend on the strength of the construction sector. But information from certified annual reports reveals construction and affiliated industries are failing. For the last five years, they have either seen dropping profitability, flat profits, or a loss of market share (Muruny, 2020). At least one million Kenyans are employed by the construction industry, which Muhoro (2013) and Waithaka (2011) show contributes for 5% of Kenya's GDP. A second important possibility for expansion is the increasing competition among private developers to meet the surging demand for housing that has resulted from the country's fast population increase.

Investment in both commercial and residential development in Kenya has surged in recent years despite a general downturn in the global economy.

1.1.1 Profitability

Profitability refers to the measure of an organization's success in making profit after deducting the explicit costs incurred in operations (Lumapow & Tumiwa, 2020). The profit is therefore the amount left after meeting costs such as labour, marketing and depreciation. Profitability is obtained when the returns from business activities are more than the expenses incurred while conducting business activities. Businesses are usually carried out with the main motive of making a profit. The profitability of a company will determine whether it will be viable in the long run. According to Elly (2018), a business may be profitable but have very low cash flow meaning that profit does not usually give a full picture of an organization. This is because a company may have indicated returns that were sold on credit. Therefore, while income statements in a business may indicate high levels of profitability, a full picture of general organizational performance is usually shown by incorporating other measures such as the cash flow and the balance sheet statement.

The profitability of a company depends on various internal and external factors. These factors include inflation, taxation, risk, debt, liquidity, and the size of the company (Vatavu, 2014). Some of these factors may increase a company's ability to attain returns or decrease a company's ability to attain returns. Macro-economic factors particularly are not under the control of a business which causes businesses to be vulnerable to swings in markets (Leon, 2020). In addition, if inflation were to develop, the buying power of the borrowed money would be reduced, lowering both production inputs and outputs. Fewer products in the market will mean that the organization cannot maximize production, thus having fewer sales driving down profits. On the other hand, internal factors such as working capital management can stimulate business units to attain efficiency leading to positive returns.

1.1.2 Working Capital Management

The term working capital refers to the financial gap between a business's current assets and liabilities (Nduta, 2015). Cash on hand, inventory, and marketable securities are all examples of current assets because of how easily and rapidly they may be changed into hard currency.

Liabilities that fall under the category of "current" must be paid off within the current fiscal year. If a company has sufficient net working capital, it can pay its short-term debts and is in excellent financial standing. Since having access to short-term financing allows a firm greater flexibility, net-working capital may also provide information on whether or not the company can achieve growth over time. Companies' liquidity may be measured by comparing their current assets against their current obligations (Nguyen & Nguyen, 2020).

Managing working capital effectively gives a company the ability to attain competitive advantages (Nduta, 2015). The cutthroat nature of the business world has seen the need for companies to acquire as many advantages as possible. Therefore, a company that settles its short-term debts quickly is in a position to seek further finance and avoid instances of stock-outs or operational shocks such as no fuel for transportation. Abeyrathna and Priyadarshana (2019) argue that this provides more options to organizations as they can use their expanded credit scope to get additional leverage. They can use the leverage to widen their operational capabilities. Therefore, a company can increase its perceptual and its real value by managing its operational capital.

1.1.3 Working Capital and Profitability

According to Lung'aho and Omagwa (2018), effective management of a company's working capital lowers the likelihood of bankruptcy, stock-outs, dependency on external financing, and a poor view of the company. However, when working capital is managed well, it allows a firm more operational flexibility, which in turn increases the company's worth. This is because increased profits result from prudent management of working capital. For instance, in case of urgent stock replenishment, the available cash can meet these needs. This is especially vital for organizations competing within the current business environment. The interconnection in global markets means that a slight challenge in one continent can cause significant changes globally. Businesses, therefore, have to have all possible advantages to ensure they maximize shareholder wealth.

Companies have to make strategic decisions in terms of what source of capital financing to utilize (Troilo et al., 2019). This determines whether to use retained earnings or debt from sources such as banks and microfinance organizations. The strategy to take for maintaining liquidity can make or break an organization. Companies listed on the NSE are seen to be more cushioned from short-

term effects of poor working capital management as they possess the financial muscle to cover arising issues. However, the long-term profitability of the organization will be influenced by the proper management of debtors, creditors, and liquidity (Hossain, 2020). These decisions will also impact the investment strategy taken to ensure the long-term growth of the company as future profitability is also dependent on the steps taken to establish profit-generating assets.

1.1.4 Construction and Allied firms listed at the Nairobi Securities Exchange

The NSE is consequently an essential component of Kenya's economic strategy, which aims to convert Kenya into a middle-income nation by the year 2030 (Vision2030.go.ke, 2022). The NSE is one of the structures that enhance the participation of citizens in economic opportunities. The NSE has 63 listed firms divided into 11 sectors indicating its broad appeal to organizations seeking funding opportunities. There are currently four segments in the NSE that comprise of; Main Investment Market Segment (MIMS), Alternative Investment Market Segment (AIMS), Futures and Options Market Segment (FOMS), and the Fixed Income Securities Market Segment (FISMS).

Appendix I lists the five Kenyan companies in the construction and associated industries that are traded on the NSE (NSE, 2020). Some of these firms like Bamburi Cement do operate in the larger manufacturing sector and they are responsible for manufacture of cement. The constructions and affiliated businesses that are publicly traded do, in fact, make a direct contribution to the expansion of the economy via the production of new employment opportunities and the enhancement of other areas of the economy, such as the development of new infrastructure. The construction and allied firms do manufacture products that are not only demanded from within Kenya but beyond the borders including the East African Community (EAC) countries and this earns foreign income to the country.

The construction and allied firms are one of the pillars of the big four agenda (manufacturing, health, agriculture and housing) that have received attention by the national government in Kenya. The firms contribute directly towards job creation and the overall gross domestic product (GDP). Cement manufacturing firms operate in the larger manufacturing sector in Kenya. Some examples of these cement manufacturing firms in Kenya include Athi River Mining, Bamburi Cement Ltd and E.A. Portland Cement Ltd. However, some of these firms like the E.A. Portland

Cement Ltd and Athi River Mining are currently facing challenges as it regards their performance. In the recent past, Athi River Cement for instance was placed under an administration for shielding it against the creditors. The cement manufacturing firms are facing challenges as seen by a drop in demand for cement from construction and housing sectors. For instance, there was a drop in demand for cement from 11.5% in 2015 to 5.3% in 2016 (KNBS, 2017). Being the key pillar of big 4 agenda in Kenya and given their dismal operational performance, there is need for attention to reverse this trend. Without this, it would not be possible for the government to meet the ambitious big 4 agenda. Therefore, the motivation of this study was to assess the current board independence of these firms and determine whether it has an effect on their operational performance.

1.2 Research Problem

The capacity of finance managers to successfully manage working capital components is the single most important factor determining the success or failure of companies (Mweta and Kipronoh, 2019). Challenges in the business environment have caused organizations to place efficiency in working capital management at the top of their business objectives (PWC, 2021). Companies have found themselves in difficult financial circumstances as a result of difficulties such as the impact of the Covid 19 asteroid, economic difficulties such as the present free fall of prices, and disruptions such as those brought about by technology. The difficulty has seen both companies take on more debt to keep afloat. Furthermore, 46% of total loans totalling 1.38 trillion were restructured by banks to give businesses a lifeline as most were incapable of keeping up with interest payments (FSD, 2021). Consumers have also felt the pinch which has increased payment delays further impacting available capital for short-term needs. Management of the available capital has therefore become vital for organizational continuity.

Uchumi stores, Nakumatt Holding, and Pan Paper mills are just a few instances of businesses that have been under receivership or statutory management for a significant amount of time owing to issues with liquidity, profitability, or solvency before being included to the list (Mweta and Kipronoh, 2019). After the Covid 19 pandemic, PWC (2021) claims that efficient working capital management became a top managerial priority. This is due to the various shocks the pandemic introduced to business activities. Accounts receivables were not settled in some cases, inventories

were depleted due to inefficient working capital to mitigate supply shocks and debt management went out of control (PWC, 2021). This underlined the significant role that working capital management plays within organizations. Having a strategy that keeps the balance between what is due and the cash flow need of the organization is vital for success in the 21st century.

According to Kiptoo (2017), organizations tailor their strategies with the goal of meeting their growth targets and annual profitability. This means that when all components in a business's value chain have to be in sync for a company to attain positive returns. However, in situations where a particular situation such as low liquidity arises, a company reduces its ability to give shareholders a return. Low liquidity signals potential inadequacy during periods of financial distress which has a resultant effect on a business's creditors (Yahya & Bala, 2015). Signs of financial distress motivate lenders to institute recovery efforts such as auctioneering and negative credit listing. On the other hand, if a company commits a larger than necessary amount in working capital, the company will lose the opportunity cost of investing in long-term assets and investments. Long-term assets such as land, plants, and vehicles give a company the capability to increase wealth both currently and in the future. Therefore, good management of a company's working capital ensures that components such as liquidity are well managed while giving a company the best chance to have average or above-average returns.

In previous research, neither completely aggressive nor cautious working methods were investigated. Cash conversion cycle has a loose connection to market value and financial success, according to Ogundipe, Idowu, and Ogundipe's (2012) study. Participants in their research were recruited from all continents. Hassan, Imran, Amjad, and Hussain found a favorable relationship between many financial metrics, including gross profit margin, return on investment, inventory turnover, receivables collection, payables payment, and receivables payment (2014). Namaseke evaluated the impact of working capital efficiency on the bottom lines of energy businesses trading on the Nigerian Stock Exchange (2018). The impact of cash conversion management, payables, and receivables, as well as other factors, on financial outcomes was calculated. According to the findings of the research, working capital management has an effect on the make-up of the energy sector. It was shown that cash conversion had a negative impact on financial performance, in contrast to counts receivable and payable.

Cash flow, inventory management, operational efficiency, and receivables management were all subjects of study by Nyamao et al. (2012), who performed their research in the region. WCM was established by Mathuva (2009), which is based on the cash conversion cycle utilized by companies listed on the NSE. Mwangi, Makau, and Kosimbei (2014) find that aggressive management significantly affects ROA and ROE. Based on their research, Nyamao, Lumumba, Odondo, and Otieno (2012) concluded that the selected SMEs had insufficient processes in place for the management of working capital components. Lung'aho and Omagwa (2018) dug into the NSE's construction and associated sectors to find out how working capital affects firm profits. The study utilized four variables which included; inventory management, cash management, debtor's management, and creditor's management. The study concluded that profitability was negatively correlated with creditor management and inventory management. Management of receivables and the cash conversion cycle, on the other hand, were favorably associated to financial success.

Previous studies' results imply that there is not consensus on which aspects of working capital management most directly impact profitability. Namaseke (2018) and Lung'aho and Omagwa (2018) both looked at how the cash conversion cycle affected a company's profitability, but they reached quite different findings. Although studies show a correlation between a company's working capital and its bottom line, it is not apparent how the many factors of working capital management contribute to a company's earnings. Therefore, the purpose of this research is to fill these gaps by analyzing all NSE-listed firms to determine how effective management of working capital relates to increased profits. The study aims to shed light on the following question: How does the efficiency with which publicly listed corporations manage their working capital influence their bottom lines?

1.3 Objectives of the Study

The primary purpose of this study was to investigate the impact that efficient management of working capital has on the profit margins of companies in the construction and allied industries that are traded on the Nairobi Securities exchange.

1.3.1 Specific Objectives

Specifically, the study seeks to;

- a) Determine the influence of the cash conversion cycle on the profitability of construction and allied firms listed at the Nairobi Securities exchange.
- b) Assess the effect of accounts payable management on the profitability of construction and allied firms listed at the Nairobi Securities exchange.
- c) Evaluate the influence of accounts receivable management on the profitability of construction and allied firms listed at the Nairobi Securities exchange
- d) Evaluate the effect of inventory management on the profitability of construction and allied firms listed at the Nairobi Securities exchange.

1.4 Value of the Study

Academicians who are interested in gaining information about the function that working capital management plays in profitability will find the conclusions of this research to be valuable. In addition to this, it provides scholars with a corpus of material that they may use to acquire a foundational understanding of the subject. Government officials and regulators may also benefit from the study's findings. This is because the information derived from the study guides decisions related to market stabilization policies, regulations for listing companies, and recommendations for capital management.

Stock market investors who are keen to learn more about the link between working capital and profitability may find the study useful as well. Companies who are not publicly traded on a stock exchange may find the study to be just as informative. Companies seeking to develop a competitive edge through capital management strategies also have a source of research from which they can formulate methods of enhancing their profit-making capabilities.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter will present the relevant theories that explain the concepts of working capital management and profitability. The chapter will also present factors that influence profitability. Furthermore, the chapter will present empirical studies covered on the concepts covered by the study.

2.2 Theoretical Review

This section will present the Pecking Order Theory and the Cash Conversion Cycle Theory as the theoretical foundation for the study.

2.2.1 The Pecking Order Theory

This theory was developed by Myers and Majluf in 1984. The theory posits that companies have an order by which they take up sources of financing. Pecking order describes the preferred sequence of funding sources as follows: internal financing, then loan financing, and finally equity financing. According to Myers and Majluf (1984), internal financing is preferred due to the low or no cost associated with the mode of financing. Internal financing refers to sources such as retained profits, income, and assets of the business. Debt on the other hand has greater costs since the borrower has to pay back interest to the lender. Wanja(2017) agrees that equity is least preferred because it dilutes the ownership structure leading to less return in terms of wealth share.

According to Nduta(2015), when an organization can convert its short-term assets such as inventory quickly, it can use that cash as a source of financing. Furthermore, if a company can manage its working capital efficiently, it has a quick source of financing available. Therefore, a company with proper management of working capital can utilize the first order which is internal financing. Furthermore, a company that has managed its debts efficiently can rely on the second-order which is debts. The interest payments made will enhance the credit appeal and generate goodwill for more credit. However, if the company has not managed its working capital well, theoretically, the only source of finance is the last order. According to Myers and Majluf(1984), this will mean the owners lose a part of their ownership for equity.

The Pecking order theory presents the order by which a company will follow to finance its activities. The first step will be internal financing, the second step will be debt financing and the last step will be equity financing. Having proper working capital management gives a company the option to exercise the less costly options which are internal and debt financing. This theory is relevant to this study because it provides an overview of the benefits of having proper working capital management. Organizations have more options to have financing which means their shares are not diluted by equity financing. Therefore, the owners have a greater share of accruing profits.

2.2.2 Cash Conversion Theory

According to Gitman(1974), the cash conversion theory posits that if all things are held constant, a short conversion cycle is instrumental in raising organizational value and this is only achieved by efficiency in Working Capital management. According to Gitman(1974), a short conversion cycle raises the liquidity of an organization which frees cash for short-term use and enhances profitable returns. According to Aloo (2019), there consists an advantage in being able to meet the obligations of a business through a quick transformation of inventory and receivables. This means that the assets of the business are allowed to work towards generating long-term growth and guarantee sustainability. Avoidance of liquidating assets such as land, buildings, and vehicles is seen as establishing an intention of long-term operation.

According to Lung'aho and Omagwa(2018), the cash conversion theory views working capital to be involved in three essential components. These components are the management of inventory, the management of debtors, and the management of creditors. A company that properly manages cycles related to inventory conversion, payables conversion, and debt alleviation has achieved optimum efficiency in working capital management (Matole, 2019). Consequently, the company is in a position to cover cash outflows with the incoming inflows. The creditworthiness of an organization is increased which maximizes access to capital for further expansion. The ability to scale a business with the right fundamentals is what sets it apart from the best companies in the world.

According to the Cash Conversion theory, optimality in working capital management is met when an organization can quickly achieve liquidity with short-term assets. Furthermore, short conversion cycles allow organizations to meet the demands of short-term debtors. Having liquidity maximizes advantages such as discounts, cheaper credit, and opportunity capture. This theory enhances this study by indicating the conversion cycle needed for organizations to attain efficiency in working capital management. Furthermore, it shows the benefits that accrue to a company with efficient working capital management.

2.3.3 The Operating Cycle Theory

Richards and Laughlin (1980) conceptualized the operating cycle (OC) theory, which combines the income statement and balance sheet indicators. The theory is composed on two different classifications of short-term assets, namely stock and accounts receivable. Both the average collection period and the average inventory ageing ratio can be used to estimate a business cycle's length. It is hypothesized that when a business gives its consumers access to credit for an extended length of time, the business will see an uptick in earnings but will have trouble keeping its liquid assets at safe levels (Khoa, Anh & Duyen, 2020). The OC is theoretically the time between funds outflow for the purchase of operating resources and funds inflows from sales. This theory integrates inventories and receivables into WCM (Dash & Ravipati, 2009).

The operating cycle denotes an entity's efficiency in managing working capital. It integrates inventories and receivables in working capital. Traditionally, the cycle begins from raw materials receipt to the collection of claims against debtors from sale of stocks (Aminu & Zainudin, 2015). Based on the OC theory, the probability of a positive financial result is when companies add more credit terms. This theory permits researchers to think of companies as a going concern. However, contrasting the cash conversion cycle, the OC excludes liabilities from the liquidity examination; therefore, the OC fails to explain the net trade cycle (Khoa, Anh & Duyen, 2020).

In its essence, this is a simple idea. According to this idea, the accounts receivables balance (a component of WCM) has a direct and large impact on a company's financial performance because of fluctuations in credit and collection. This is an element of WCM (Otto, 2018). Businesses, this

theory suggests, should make use of WCM elements like inventory and receivables indicators since these measures aid in working capital management and improve the bottom line.

2.3 Determinants of Profitability

2.3.1 Liquidity

Definition of Liquidity Being Able to Meet Immediate Financial Obligations (Bintara, 2020). The current ratio is a comparison of a company's current assets to its current liabilities and is used to determine the company's liquidity. A low ratio shows that a firm's current obligations are more than the income provided by its current assets, while a high ratio suggests that the company has a reasonably strong performance in paying its credit demands. Organizations that have high current liabilities are perceived to possess management challenges that negatively affect the relationship with potential suppliers and lenders. On the other hand, organizations that have high liquidity are more likely to cover their costs and have positive returns (Tui et al., 2017). Businesses are therefore more willing to enter into beneficial associations such as partnerships as they are perceived to be well managed.

2.3.2 Financial Leverage

The financial leverage reduces the possibility of making profits as it means income is used to pay off accruing interest payments (Nguyen & Nguyen, 2020). Earnings generated by a company's activities may either be distributed to shareholders or retained to fund operations. As per Pecking order theory, the best source of finance for organizations is from internal sources. The source of internal financing is therefore reduced if it is diverted towards paying off the interest payments due to a high levered position (Dalci, 2018). A company that cannot expand its operations is very likely to stagnate as competitors increase their capability. This means that an organization will lose market share leading to lesser returns from the market.

2.3.3 Firm Size

The size of the firm determines the capability of a firm to possess quality, diversity, and appropriate quantity of assets that meets its productive needs (Abeyrathna & Priyadarshana, 2019). This is essential for organizations that need to achieve a given level of assets to dominate or carve a position in a competitive market. Furthermore, it is essential for capital-intensive types of business activities such as telecommunications, banking and manufacturing. The size of the firm can be

determined by analysing the assets of an organization. An organization that attains economy of scale can save on costs as the level of production increases (Hirdinis, 2019). Such an organization has more output, fewer costs, and higher competitive advantage which translates to price leadership. A price leader is in a better position to dictate the market as well as achieve flexibility which is essential in making returns in the current business landscape.

2.3.4 Macroeconomic Factors

The free market economy has the presence of mechanisms that regulate the business conduct of firms in an economy. These factors include interest rates, inflation, and GDP growth. According to Leon (2020), businesses do not operate in a vacuum rather they operate in an economic environment that has various factors, not within their control. Unlike internal factors such as credit risk or the strategy of working capital management, factors such as interest rates cannot be controlled by individual organizations. The factors have varying effects with interest rates viewed to reduce profitability since they raise the payments due by businesses (Hussain et al, 2021). On the other hand, GDP growth is found to raise business activity which raises the profit-making ability of organizations.

2.3.5 Industry Characteristics

According to the Porter Framework known as the Five Forces, there exist various factors that determine the state of competitiveness within an industry (Pervan et al.2018). Factors like these include entry barriers, consumer bargaining power, supplier bargaining power, the availability of alternatives, and the intensity of competition. The factors determine the ability of a firm to leverage its internal characteristics to carve out a market share. In the event, that the five factors minimize the influence of a company's internal strengths, organizations tend to make losses. For instance, if a company produces quality products but other companies produce the same quality at a very cheap price, market share will be lost reducing positive returns. Bruijl(2018) agrees that the industry characteristics by Porter and newer factors such as level of competitor innovativeness, threats of digitalization, change management and customer bonding also influence the profitability of organizations.

2.4 Empirical Review

Lung'aho and Omagwa (2018) conducted study on how the handling of a company's working capital affects its bottom line. The investigations focused mostly on firms listed on the NSE in Kenya that were engaged in the construction industry or a related one. Examining how working capital is handled might affect a business' bottom line was the primary focus of this study. It was predicted that a company's ability to make profits would be directly tied to how well it managed its cash, inventory, debtors, and creditors, thus they were given special attention in the specific goals. This descriptive study looked at the years 2010 to 2016. The researchers in this study employed a combination of descriptive statistics, Pearson's correlation, and a fixed-effects model to examine the collected data. According to the research, there is a weak and unfavorable correlation between how well a firm manages its creditor relationships and inventory and its financial performance. On the other hand, there was a favorable correlation found between the capacity of the firms to make a profit and the management of their debtors and cash. Nevertheless, the association could not be considered substantial. The study found that the best approach to increase profits was to lengthen both the payment term and the cash CC. However, increasing the number of days spent on debtors' accounts and inventory might improve profitability. The study shows that the allied and construction sector's listed enterprises have poor working capital management procedures.

Matole (2018) investigated the link between effective management of working capital and business performance. Companies in the manufacturing sector that are traded on the Kenyan stock exchange were the key research subjects. The study set out to determine whether or not effective management of a company's working capital positively impacts its bottom line. In this study, we used the Cash Conversion Theory, the Agency Theory, and the Keynesian Demand Theory for Money as our theoretical frameworks. The researcher opted for a descriptive methodology and gathered information from the NSE between 2014 and 2018. Because there were not many many companies in the study's sample, researchers had to conduct their own census. The financial accounts of the organizations that were included in the sample were analyzed in order to compile secondary data. The data were analyzed using a variety of approaches, including inferential, descriptive, and correlational approaches, as well as skewness and kurtosis. Profit margin, inventory turnover, company size, and cash conversion cycle were all shown to be related in this

research. Conversely, there was clear evidence of a negative association between the current ratio, the debt, the outstanding sales, and the return on assets. Efficient management of working capital was proven to have a favorable influence on business results. The study's results suggest that, in times of economic uncertainty, successful company executives may utilize their understanding of working capital to keep their companies afloat. The research also suggested that businesses should make quick payments to their debtors in order to avoid receiving unfavorable publicity.

Nduta (2015) looked at the impact efficient working capital management has on manufacturing firms' bottom lines. The probe focused primarily on companies listed on the NSE. The research aimed to determine whether or not does better management of working capital lead to increased profits. As part of the research, 10 factories situated in NSE were polled. Despite this, the research was limited to evaluating just 8 businesses (an 80 percent response rate). Throughout the research, multiple linear regressions and correlation analysis were used to check how the variables were related to one another. A favorable correlation between ROI and current ratio was found in the research. While a negative number was discovered for the Debt ratio, no correlation with the business's size was established. According to the results, working capital had an effect on return on investment. Nduta (2015) looked at how effective management of a company's working capital affected the profitability of manufacturing businesses. The investigation focused mostly on companies trading on the NSE. The goal of the research was to establish if and how more efficient management of working capital affects financial outcomes. As part of the research, questionnaires were sent to ten factories located in the NSE. Still, only 8 firms were able to be evaluated in the survey, for a response rate of only 20%. In order to investigate the connections between the variables, the researchers used multiple linear regressions and correlation analyses. A favorable correlation between ROI and current ratio was found in the research. Despite finding a negative value for the Debt ratio, a correlation between the ratio and the size of the firm could not be established. The study's findings suggested that working capital affected ROA performance. According to the findings of the research, one effective technique for managing working capital is to maintain significant cash reserves while still maintaining a large inventory.

Researchers Othuon et al. (2021) studied the effects of efficient working capital management on Kenyan businesses. The research focused on coffee processors working on a smaller scale in Embu

County. The research team questioned all 41 coffee processors in Embu as part of their census survey. The length of time covered by this research was from 2014 to 2018, and the types of information gathered were firm age, business size, current assets, return on assets, payables period, average payment period, and payables period. The researchers used a multivariate regression analysis to decipher the information gathered. Similarly to the association between ROA and the length of time it takes to pay off debt, the study found that the current ratio had a negative correlation with ROA. According to the findings of the research, ROA was also affected favorably by the size of the companies, however it was adversely affected by the length of time the organization had been in operation. According to the results of the research, ROA was favorably impacted by both the average payment term and the current ratio. The study concluded that ROA was negatively influenced by the current ratio and the average payment period. The study recommended that a current ratio and average payment period increase would result to better ROA.

Kiptoo (2018) looked at how various working capital management regulations in Kenyan businesses affected their bottom lines. For our investigation, we focused on the Kenya Tea Development Agency, which is responsible for supervising 54 separate tea processing businesses. The study endeavor selected a sample size of 48 distinct processing businesses using a methodology called the stratified method of sampling. The cross-sectional design was selected as the investigation plan for the research, and a questionnaire was employed to gather primary data for the study. There were two types of analysis utilized to make sense of the data in the study: descriptive and inferential. It was discovered that the tea processing firms' financial results were affected by the methods they used to manage their working capital. The study found that the financial returns of tea processing enterprises were negatively impacted by receivables and inventory processes, but positively impacted by payables and cash management rules. The study's results suggest that working capital practices affect earnings. The study recommended that there was a need to reduce the outstanding accounts receivables by reducing the due periods and reducing inventory turnovers to drive profitability upwards. The study also recommended the increase of periods of conversion of cash to raise financial performance.

The purpose of Nguyen and Nguyen's (2020) research was to analyze how Vietnamese businesses may maximize their profits via careful management of their working capital. Our analysis focused

only on steelmakers with stock listed on the Vietnam Stock Exchange. Twenty out of a total of twenty-nine firms were chosen as the sample for this study. Audited financial statements were used to compile the data for the years 2010-2019. Stata was used for the analysis since it has a built-in multivariate regression modeling procedure that was applied to the data. The findings suggest that efficient management of working capital is essential for steel businesses to achieve their profit goals. The company's cash conversion cycle and debt also contributed to lower profits. On the other side, profitability was positively impacted by factors such as net sales, the current ratio, growth, the collection policy, the inventory policy, and the payment policy.

Hossain (2020) set out to study the effect that effective management of a company's working capital had on its bottom line earnings. A total of 52 manufacturing firms listed on the Bangladesh stock exchange were analyzed. They were mostly Bangladeshi businesses. This research makes use of information collected from 2012 to 2017. The research looked at many measures of a company's profitability, such as its return on assets and return on equity, to determine its health. The working capital of a business might be measured in a variety of ways: the time it takes to convert inventory into cash, the time it takes to collect payments from customers, and the time it takes to process payments. Data was analyzed using Ordinary Least Squares and Correlation. Return on Assets, Cash Conversion Cycle, and Typical Payment Terms were shown to be negatively correlated with one another in the research. Return on equity and cash conversion cycle, two indicators of financial health, declined as typical collection periods lengthened. There was also an inverse proportionality in the connection. The study's results suggested that manufacturing companies might increase their profits by cutting down on the time it took to convert cash into goods and services, as well as the time it took to collect payments and outstanding balances. After finding that inventory conversion time positively affected ROA and ROE, it became clear that converting stock as rapidly as feasible was essential for producing healthy returns. Findings indicated a causal relationship between a firm's profitability and its working capital management skills.

The effects of working capital management on the profitability of Indonesian enterprises were studied by Nastiti et al. (2019). The study analyzed 136 Indonesian manufacturing firms that also

had stock listings on Indonesian exchanges. The data covers the years 2010 through 2017 all together. Secondary data was utilized in the analyses, and the panel regression method was used to examine the data. Based on the findings, it was found that a company's working capital had a crucial role in determining its degree of profitability. Research shows that it does not directly lead to sustained growth but does indirectly affect a business' bottom line. The study's results suggest that a company's bottom line might benefit greatly from careful management of its working capital.

A research on the impact that proper management of working capital has on the profitability of SMEs was carried out by Sensini and Vazquez (2021). Using a predetermined set of questions, the research gathered information from 326 different Argentine organizations. When selecting the businesses to take part in the study, the researchers used a stratified version of the random sampling approach. The variables Days sales outstanding (DSO), Days sales inventory (DSI), Days payable outstanding (DPO), and cash conversion cycle (CCC) were chosen to represent the determinants, while leverage was chosen to represent the control variable. In the research, the dynamic panel data approach was utilized to investigate how the factors that determine profitability interact with one another. The findings showed that DSI, DPO, and CCC negatively influenced the profitability of firms. The study concluded that seeking credit extension and investing in high inventories led to additional costs that offset the benefits.

In South Africa, Kasozi (2017) studied the connection between efficient management of working capital and the ability of businesses to turn a profit. South African Stock Exchange-listed companies were the focus of this study. A total of 69 separate manufacturing facilities were chosen between 2007 and 2016. The number of days inventory, average receivable, cash conversion cycle, and average payment period were all included as independent variables in this analysis. The study used a panel design, and data were analyzed using ordinary least squares (OLS). A company's profitability was shown to increase in direct correlation with the length of time it kept inventory on hand. Due to the flimsy correlation between the Cash Conversion Cycle and profitability, no firm conclusions could be drawn about the relationship between the two. A negative association was found between the average collection time and the average receivable period and earnings. According to the findings of the research, proper inventory management helps reduce the amount of disruption caused by stock-outs. Furthermore, companies that paid creditors had a better

performance as a result. The study recommended the management of debt in manufacturing companies as they carried a significant amount of debt.

2.5 Conceptual Framework

The conceptual framework illustrates the research's causal and deductive connections between concepts. It displays the factors that are being studied, as stated by Kivunja (2018). Profitability of the firm is shown as the dependent variable in figure 2.1, with working capital management as the independent variable. The direction of the link shown by the arrows indicates the way in which three aspects of working capital management, excluding inventory management, are considered to have an impact on a company's profitability.

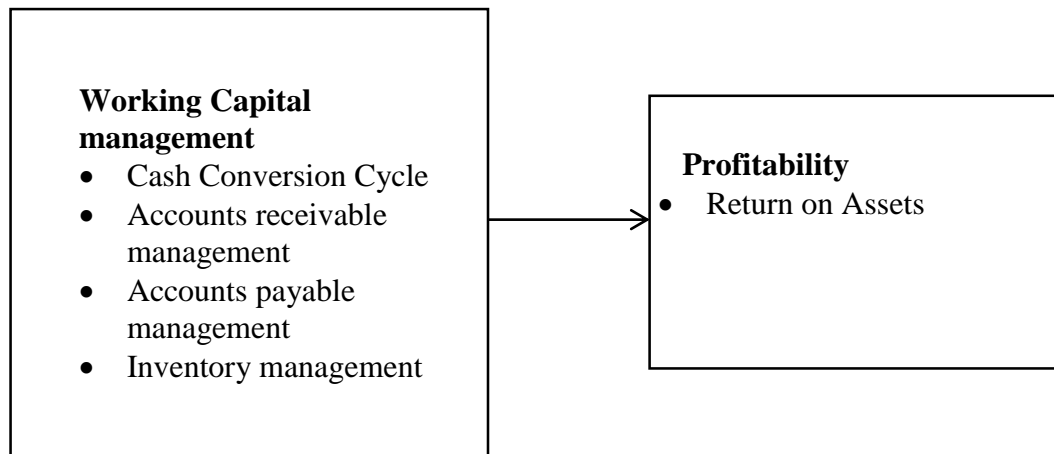


Figure 2.1: Conceptual Framework

2.6 Summary of Literature Review

The relationship between effective management of working capital and increased earnings has been the subject of much research in this chapter. To the very least, these concepts hinted at a possible link between different working capital components and bank performances. Furthermore, the chapter emphasized a wide range of factors outside than interest rates that contribute to banks' profits. Liquidity, financial leverage, macroeconomic conditions, business size, and industry characteristics have been highlighted as the elements in question. The need for this study was inspired by the empirical assessment that found a correlation between effective working capital management and increased profits, but existing studies produced conflicting results.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The goal of this chapter is to present the design of the research and the methods used in various aspects of the study. This includes the selection of the population for the study, sampling that was used in the study, the procedures used for data collection, and analysis of the data.

3.2 Research Design

According to Dannels (2018), the research design is basically the strategy that is employed to accomplish the aims of a research project. The design of the study need to provide an objective methodology for doing the research across all of the aspects of the investigation. Descriptive longitudinal research was employed as the research strategy since it was thought to be the most suitable for the characteristics of the inquiry being studied. A descriptive design provides researchers with an easy to conduct approach and allows for use of quantitative data (Yabs, 2015). On the other hand, a longitudinal approach offers the opportunity for analyzing data across various periods which this research plans to do. The descriptive longitudinal research design was therefore used as the research design.

3.3 Population of the Study

The things that a researcher may go to in order to get answers to their questions are referred to as the population (Wairimu, 2019). The participants in the research were selected from the list of construction and associated businesses that are now traded on the NSE, which consists of a total of 5 companies.

3.4 Data Collection

Secondary information was gathered from the firms' financial records and used in the inquiry. All NSE-listed firms are obligated to publish their financial reports online. Consequently, financial data such as stock on hand, debtors owed, creditors owed, net income, and suppliers owed was recorded into a data collecting sheet for the ten year period 2012-2021.

3.5 Data Analysis

Statistics like means, percentages, and standard deviations were calculated to provide a descriptive account of the data collected. These numbers provide an overview of the different elements extracted from the firms' financial statements. In this study, we employed statistical techniques including multiple linear regression and correlation analysis to deduce a cause and effect relationship. Finally, the study presented the results in both graphical and tabular forms.

3.5.1 Diagnostic Tests

Pesaran (2021) outlines that diagnostic tests are conducted to ensure that occurrence of errors such as multicollinearity and normality are minimized. The study conducted multicollinearity testing by analyzing the Variance Inflation Factor (VIF). A score of less than 10 and a tolerance level of greater than 1 indicated the absence of collinearity between the independent variables. Normality tests were analyzed by the kurtosis and the skewness tests. The confidence level of 95% was adopted to ascertain that the data is not derived from a normal distribution with a standard error score of less than 1.96 confirming this assumption.

3.5.2 Analytical Model

The nature of the correlation between the variables is specified by the analytical model used in this study. The relationship between the explanatory factors and the observable results may be investigated with the use of a linear model. That is, the coefficients from the regression analysis were utilized to determine the direction of the link. The methodology utilized in the study is detailed below;

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$$

Where:

Y = Profitability measured by: Return on Assets

X₁ = Accounts receivable (A.R) management as (Accounts receivables/sales) x 365

X₂ = Accounts payable (A.P) management as (Accounts payable/cost of goods sold) x 365

X₃ = Inventory management (I.M) as (Inventory/cost of sales) x 365

X₄ = Cash Conversion Cycle (C.C.C) given by (X₁+X₃-X₂)

ε = error term

3.5.3 Significance Tests

The study utilize one-way ANOVA (analysis of variance) at a 0.05 level of significance to determine whether the variables in the regression model are significant. A score that is above 0.05 was termed insignificant thus the hypothesis was rejected.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

This part provides an analysis of the data using both descriptive and inferential statistics to better understand the information. In particular, the discussion of summary statistics can be found in section 4.2, while discussion of the empirical model can be found in section 4.3, the presentation of the discussion can be found in section 4.4, and the presentation of the summary can be found in section 4.5.

4.2 Descriptive Statistics

The findings of the study, which are outlined in the table that follows, were conducted with the goal of providing a description of variables in terms of the averages of the variable that were utilized in characterizing the connection between variables.

Table 4.1: Descriptive Statistics

Variable	N	Mean	St. Dev	Min	Max	Skewness	Kurtosis
ROE	50	0.18	0.09	0.04	0.30	0.125	0.000
ACP	50	58.45	35.96	2.03	124.47	0.506	0.234
ITID	50	133.62	157.00	2.53	559.82	0.000	0.085
APP	50	132.28	100.24	1.17	367.22	0.012	0.342
CCC	50	192.07	164.91	8.93	655.93	0.000	0.056
CR	50	2.29	1.98	0.70	10.09	0.000	0.000

Profitability, the dependent variable, has a mean value of 0.18 and a range that may go anywhere from 0.04 to 0.30, as can be seen from the summary of the data. The variable had a S.D of 0.09%, while its between standard deviation and within standard deviation were 0.09% and 0.02%, respectively. The range for the variable that represented the average collection period was all the way from 2.03 to 124.47, with the mean being 58.45. The variable had an overall standard deviation of 35.96, while its between standard deviation was 33.84 and its within standard deviation was 16.81. Both of these numbers were much less than the overall standard deviation. The average inventory turnover duration was 133.62 days, however it ranged anywhere from 2.53

to 559.82 days. The variable had an overall standard deviation of 157.00, while its between standard deviation was 159.85 and its within standard deviation was 45.88. These values were significantly different from each other. The typical length of a payment period ranged from 1.17 to 367.22 days, with a mean of 132.28 days. The variable had an overall standard deviation of 100.24, while its between standard deviation was 100.54 and its within standard deviation was 33.60. These values were in contrast to its overall standard deviation of 100.24. The variable that represented the cash conversion cycle had a mean value of 192.07 and a range that went from 8.93 all the way up to 655.93. The variable had an overall standard deviation of 164.91, while its between standard deviation was 165.18 and its within standard deviation was 55.87. Both of these values were higher than the overall standard deviation. The current ratio ranged from 0.70 all the way up to 10.09 and had a mean of 2.29. The variable had an overall standard deviation of 1.98, although its between standard deviation and within standard deviation were 1.91 and 0.82 respectively.

According to the findings of the research, there is a much greater degree of fluctuation in most variables between the firms than there is inside the company itself over the course of time. Take, for example, the factors concerning the return on assets and the size. Some also show virtually the same amount of variance inside each company as there is between them. In addition, the research shows that the kurtosis and skewness metrics had a tendency to become closer and closer to zero in all of the variables. This demonstrates that the data follow a normal distribution, and hence, they are suitable for use in the estimation of OLS estimators.

4.3 Diagnostic Tests

These are the methods that were used to learn more about the variables, and the steps that were followed to make sure that no accidental influences skewed the results. According to Joppe (2009), the concept of validity in quantitative research refers to determining whether or not the study properly measures what it was intended to assess. According to Mugenda & Mugenda (2003), reliability is the extent to which the outcomes of a research instrument are consistent across many testing instances.

The assumptions of the classical linear regression model (CLRM) demonstrated that the use of the ordinary least squares (OLS) estimators provided the required qualities for hypothesis testing to be carried out in a valid and reliable manner.

4.3.1 Normality test

Skewness/Kurtosis tests for Normality

----- joint -----				
Variable	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
oe	0.125	0.000	11.75	0.0028
acp	0.506	0.234	2.00	0.3686
itid	0.000	0.085	12.58	0.0019
app	0.012	0.342	6.53	0.0382
ccc	0.000	0.056	13.02	0.0015
cr	0.000	0.000	25.21	0.0000

The research checked for data normalcy by looking at skewness and kurtosis. The research revealed that when the values of the two metrics got closer to 0, a normal distribution emerged in the data. The researchers reasoned that because the data followed a normal distribution, they could continue with a linear regression analysis.

4.3.2 Heteroskedasticity

Breusch and Pagan Lagrangian multiplier test for random effects:

$$oe[id,t] = Xb + u[id] + e[id,t]$$

Estimated results:

	Var	sd = sqrt(Var)
oe	.0080305	.0896132
e	.0005189	.0227783
u	.0045242	.067262

Test: $\text{Var}(u) = 0$

$$\text{chi2}(1) = 15.91$$

$$\text{Prob} > \text{chi2} = 0.0001$$

As a result of the fact that the calculated (half of ESS) does not surpass the crucial 2 (chi-square) at the 5% level of significance, we are unable to reject the hypothesis of homoscedasticity. This can be seen from the test. This suggests that the standard deviations of the error term do not differ from one observation to the next. As a result, there is no evidence of heteroscedasticity in the data; hence, the OLS estimators will have minimal variances.

4.4 Correlation Analysis

This section presents the results of a correlation study conducted to determine whether or not the independent variables exhibit serial correlations that, if accounted for in the model used for regression analysis, would lead to misleading conclusions.

	ROA	acp	itid	app	ccc	cr
ROA	1.0000					
acp	0.2123	1.0000				
itid	0.4958*	0.1109	1.0000			

app		0.4253*	-0.3888*	-0.0353	1.0000
		0.0109	0.0210	0.8403	
ccc		0.5184*	0.3236	0.9762*	-0.1184
		0.0014	0.0579	0.0000	0.4981
cr		-0.2220	-0.0085	-0.3139	-0.1552
		0.1998	0.9613	0.0663	0.3735
					0.0792

According to the data, there is a deteriorating connection between ROE and CR. There is an inverse link between ROE and CR, which makes sense given the idea that faster cash flow from customer payments means more quickly replenished inventory and so more sales and thus higher profits.

In addition, one can see from the table that there is a positive correlation between ROE and ITID, APP, ACP, and CCC. The companies that have a high level of inventory are the ones responsible for the association between ITID and ROE. These companies are able to reduce the costs associated with any disruptions in the production process by maintaining large levels of inventory. This is useful since it eliminates economic loss due to product scarcity and also reduces the cost of delivering products, both of which are beneficial.

The positive correlation between CCC and ROE is in line with Deloof's hypothesis that decreasing the lag time between sourcing raw materials and collecting sales associated with finished items increases profitability. The assumption that CCC is positively connected with ROE is supported by the fact that there is often a substantial lag between the acquisition of raw materials and the collection of sales linked to completed things.

ITID, APP, and CCC all have correlation coefficients that are significant, however ACP and CR only have correlation coefficients that are not significant at the 5% level of significance.

4.5 Regression Analysis

In order to investigate the connection between WCM practices and the profitability of manufacturing and associated enterprises trading on the NSE, panel models were used.

In the course of the research, five different panel data models were run, and the findings of each model were estimated. The results of the model that provided the greatest match were utilized to make conclusions about the research. Estimated panel data models included the Pooled OLS regression model, between estimators, inside estimators with a fixed effect, first difference estimators, and random estimators. This was done to guarantee that estimators are used that are consistent while ensuring that efficiency is maintained.

The outcomes of the regression, calculated using a variety of estimators, are shown in the table below. The t values of the estimators are represented by the numbers in the brackets, and the values that have stars next to them have been shown to be statistically significant at a 95% confidence level.

Table 4.2: Regression Analysis

OE	Pooled OLS regression	Between	Within or fixed effects	First differences	Random effects
ACP	(Dropped)	0.0014551 (1.48)	(Dropped)	(Dropped)	
ITID	-0.000702* (-2.07)	(Dropped)	0.00027 (0.83)	0.0004051 (1.32)	0.00025 (0.82)
APP	0.0005351* (4.54)	0.0007951* (2.39)	-2.9E-05 (-0.22)	-0.0000123 (0.13)	3.5E-05 (0.29)
CCC	0.0009767* (3.00)	0.0003384 (1.80)	-0.00011 (-0.41)	-0.0002554 (-0.93)	-9E-05 (-0.35)
CR	0.0011467 (0.2)	0.0049934 (0.31)	-0.0089 (-1.80)	0.0095005* (-3.3)	-0.008 (-1.64)
Constant	0.0133033 (0.36)	-0.086125 (-0.78)	0.189936* (7.96)		0.17769* (4.95)
R2	0.5709			0.373	
R2-within		0.0325	0.1926		0.1821
R2-between		0.8204	0.1682		0.2506
R2-overall		0.5528	0.1695		0.2448
Sigma u (□)			0.084557		0.06726
Sigma e			0.022778		0.02278
Rho			0.932342		0.89711
Theta (□)					0.85026
Prob > F	0.000	0.327	33.63	0.0202	0.1212

4.6 Hausman Test

The Hausman test was used in the research project. The body of research on panel data analysis suggested, as background for the decision to use the Hausman test, that there is a requirement to decide on the most appropriate estimator to use in order to estimate the coefficient. On the other hand, due to the intricacy of our data, the test suggested using a generalized test, and as a result, the pooled regression estimators were used as the primary component of the investigation. The outcomes of the Hausman test were;

---- Coefficients ----

	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
itid	.0002695	.0002526	.0000169	.0001112
app	-.000029	.0000354	-.0000644	.0000503
ccc	-.0001106	-.0000904	-.0000202	.0000738
cr	-.0089015	-.0079783	-.0009232	.0008328

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\begin{aligned} \text{chi2}(4) &= (b-B)'[(V_b-V_B)^{-1}](b-B) \\ &= -5.02 \quad \text{chi2} < 0 \implies \text{model fitted on these} \\ &\quad \text{data fails to meet the asymptotic} \\ &\quad \text{assumptions of the Hausman test;} \\ &\quad \text{see suest for a generalized test} \end{aligned}$$

4.7 Interpretation of the Findings

Based on the data, it seems that the majority of the coefficients are not statistically significant. At the 95% confidence level, the inventory turnover variable (ITID) was shown to be statistically insignificant, with the exception of the pooled OLS estimators. Because the value of the coefficient was -0.000702, it may be deduced that the company's profitability declined by 0.000702 times for every one day that the number of days it took to turn over its inventory increased.

Estimators utilizing pooled OLS and between estimators both resulted in statistically significant coefficients when tested at a confidence level of 95%. This was done for the average payment period, or APP. Both the pooled OLS and the between estimate yielded coefficients of 0.0005351, with the latter coming in at 0.0007951. This stated that an increase in the payment period by one day would result in a change of the Profitability by 0.0005351 and 0.0007951 times respectively according to the pooled OLS and amongst estimators.

With a coefficient value of 0.0009767, the cash conversion cycle variable was shown to have a statistically significant impact when employing the pooled OLS estimators. This indicated that a one-unit improvement in a firm's cash conversion cycle would translate into a 0.0009767-unit rise in the Profitability of the company. Estimators derived from other models did not demonstrate a statistically significant relationship to the variable being studied at the 95% confidence level.

Only at a confidence level of 95% using first difference estimators was the current ratio, which represented a percentage of current assets to current liabilities, statistically significant. The result of -0.0095005 indicates that the Profitability will fall by 0.0095005 units for every one unit that is added to the Current Ratio. This may be understood as follows:

With values of 0.189936 and 0.17769, respectively, the constant estimator was found to be statistically significant at a confidence level of 95% in both the within or fixed effect and the random effect estimators.

According to the R-squares, the between estimator is capable of explaining 82% of the between variance, whereas the fixed and random effects estimators can only explain 37% and 24% of the variation within correspondingly. The percentage of variance that may be attributed to an individual's particular term is denoted by the symbol rho. The person specific term accounted for the majority (93%) of the variance in the research, while idiosyncratic error accounted for the remaining.

CHAPTER FIVE

DATA ANALYSIS, RESULTS AND INTERPRETATION

5.1 Introduction

The study's findings and implications are summarized and discussed in this chapter with respect to the aims of the research. In particular, section 5.2 discusses summary of the study, 5.3 discusses the conclusion, section 5.4 presents the limitation of the study and section 5.5 presents the recommendation for further research.

5.2 Summary of Findings

The study's overarching goal was to learn how WCM strategies affected the bottom lines of nine NSE-listed manufacturing and ancillary firms during a five-year period, from 2012 to 2016. The data were taken from the audited financial accounts as the primary source.

The statistical analysis performed in the previous chapter four produced a variety of outcomes, all of which may be summed up in terms of descriptive statistics and inferential statistics. According to the data, the typical value for Profitability is 0.18, although it may range anywhere from 0.04 to 0.30. 0.09 is the value for the variable's standard deviation. The range for the variable that represented the average collection period was all the way from 2.03 to 124.47, with the mean being 58.45. The variable had a total standard deviation of 35.96 across the board. The average inventory turnover duration was 133.62 days, however it ranged anywhere from 2.53 to 559.82 days. The variable had a standard deviation of 157.00 in its whole overall. The typical length of a payment period ranged from 1.17 to 367.22 days, with a mean of 132.28 days. The variable's standard deviation, taken as a whole, was equal to 100.24. The variable that represented the cash conversion cycle had a mean value of 192.07 and a range that went from 8.93 all the way up to 655.93. The variable has an overall value of 164.91 for its standard deviation. The current ratio ranged from 0.70 all the way up to 10.09 and had a mean of 2.29. 1.98 was the value that the variable had overall for its standard deviation.

The outcomes of the correlation study indicate that CR and ROE have a relationship that is inversely proportional to one another. It also demonstrates that a favorable relationship exists between ROE and APP, CCC, ITID, and ACP. At the 5% level of significance, the correlation coefficients of ITID, APP, and CCC are significant, however the correlation coefficients of ACP and CR are not significant.

The studies show that the average payment period, inventory turnover, average collection period, current ratio, and cash conversion cycle are not the only determinants of a company's success.

Since no variables are found to be statistically significant using the within or fixed effects and random effects estimators, it can be concluded that variations in NSE-listed manufacturers' and affiliated firms' profitability cannot be attributed to differences in their working capital practices. This contradicts with most of the literature reviewed.

Aggressive investment was statistically significant in the first differences estimators meaning that there was some bit of the investment in current assets could explain changes in the return on assets.

Control variables, size and leverage were also statistically significant at using the between estimators. This indicated that one of the factors that influences a commercial service provider's return on assets is the amount of the provider's assets. This conclusion is consistent with what Nduta discovered in his research (2015).

According to the data, there is a correlation that is in the opposite direction between the ROE and the CR. This is in line with the hypothesis that consumers take a shorter amount of time to pay their bills. In addition to this, there is a greater amount of cash available for refilling the stock. As a direct consequence of this, there has been a rise in the number of sales, which has directly contributed to an improvement in profitability.

The results indicate that Ordinary Least Square (OLS) regression discovered a direct association between the cash conversion cycle (CCC) and the return on equity (ROE). Therefore, the management may utilize this as a performance indicator to dramatically increase the company's profitability using this information.

The decision-making processes involved in WCM include determining the amount of a company's current obligations as well as the makeup of those liabilities. The company's first focus should be on its current assets, which are readily convertible into cash, followed by its current liabilities, which are debts with maturities within a year.

The study therefore concludes that WCM practices are important components in Profitability which translates to overall improvement of the firm's financial performance.

5.3 Conclusions

The purpose of this research was to analyze the profitability and working capital management of NSE-listed manufacturing and associated enterprises. Working capital management processes are essential to a company's financial success because of their effect on the company's profitability and liquidity. A major factor in a company's financial success is how well its management handles its working capital.

The study found that the company's bottom line benefited from a longer interval between inventory rotations, while the effect was not statistically significant. Therefore, it is plausible to assume that the manufacturing and construction industries' profitability is unaffected by the time it takes to turn over inventories. This accords with the findings of the relevant studies.

The research found that for NSE-listed manufacturing and associated businesses, the average payment time marginally improved profitability. This confirms previous studies which found that average payment time has no impact on financial outcomes for businesses.

The average time spent collecting was also shown to have a positive, if little, effect on financial outcomes. This finding seems to indicate that the typical collection period has no effect on the company's bottom line. Consistent with earlier research on the subject of working capital management, these findings.

5.4 Limitations of the Study

Even though there is a wealth of published material on the subject, the research that have been conducted on themes that are quite similar have produced contradictory findings, both within individual economies and across countries. There are only a few manufacturing companies that are listed on the NSE and the Capital Markets Authority in Kenya. In Kenya, only a small number of manufacturing firms are publicly traded; the genuine regulatory entities responsible for determining the accuracy of the financial data are the two bodies stated above.

Other businesses are of a private nature and may be found in a wide variety of locations around the nation. There is skepticism over the release of data to other parties due to concerns regarding

competitiveness as well as other legal considerations. Because of these factors, obtaining trustworthy data from private firms is made more difficult, costly, and time-consuming.

5.5 Suggestions for Further Research

Findings suggest no statistical link between WCM and the success of Kenyan businesses in the manufacturing sector and related fields. This being the case, further study into the factors that most significantly affect Kenya's manufacturing sector's bottom line is warranted.

The other areas that need further research include involvement of private manufacturing firms in a similar study. Such study is likely to give generalized conclusion regarding the policy recommendation and finding across the industry.

Small and medium-sized businesses, which make up between 35 and 50 percent of the economy, should also be the focus of another field of research (Institute of Economic Affairs, Kenya 2012). This may result in a better suggestion for policy regarding the management of working capital. In addition, the bulk of the individuals who make up this sector have an elementary or secondary education at best; nonetheless, since it accounts for such a large proportion of the economy, there is an urgent need for an approach that is effective.

In continuation of this, a study should be conducted in the service sector to investigate the ways in which WCM affects the profitability of businesses. Further, a research can be conducted at micro level is how factors that affect WCM can increase profitability in different sectors of our country. Future researchers can take my recommendations and limitations as a reference to conduct future studies.

REFERENCES

- Abeyrathna, S. P. G. M., & Priyadarshana, A. J. M. (2019). Impact of Firm size on Profitability. *International Journal of Scientific and Research Publications*, 9(6), 561-564.
- Aloo, P. A. (2019). Working Capital Management Practices And Profitability Of Manufacturing Companies Listed At Nairobi Securities Exchange, Kenya (Doctoral dissertation, University of Nairobi).
- Aloo, P. A. (2019). Working Capital Management Practices And Profitability Of Manufacturing Companies Listed At Nairobi Securities Exchange, Kenya (Doctoral dissertation, University of Nairobi).
- Bintara, R. (2020). The Effect of Working Capital, Liquidity and Leverage on Profitability. *Saudi Journal of Economics and Finance Abbreviated*, 4(1), 28-35.
- Bruijl, G. H. T. (2018). The relevance of Porter's five forces in today's innovative and changing business environment. Available at SSRN 3192207.
- Dalci, I. (2018). Impact of financial leverage on profitability of listed manufacturing firms in China. *Pacific Accounting Review*.
- Dannels, S. A. (2018). Research design. In *The reviewer's guide to quantitative methods in the social sciences* (pp. 402-416). Routledge.
- De Leon, M. (2020). The impact of credit risk and macroeconomic factors on profitability: the case of the ASEAN banks. *Banks and Bank Systems*, 15(1), 21-29.
- Elly, D. (2018). Profitability Indicators (SEMI's).
- Hirdinis, M. (2019). Capital structure and firm size on firm value moderated by profitability.
- Kiiru, R. (2020). Influence of working capital management on profitability of flour milling companies in Kenya (Doctoral dissertation, University of Nairobi).
- Kiiru, R. (2020). Influence of working capital management on profitability of flour milling companies in Kenya (Doctoral dissertation, University of Nairobi).
- Kiptoo, I. K. (2017). Working capital management practices and financial performance of tea processing firms in Kenya (Doctoral dissertation, University of Embu).
- Lumapow, L. S., & Tumiwa, R. A. F. (2020). Working Capital and Debt Policy on Profitability of The Companies. *International Journal of Accounting & Finance in Asia Pasific (IJAFAP)*, 3(2), 26-36.

- Lung'aho, C., & Omagwa, J. (2018). Working capital management and profitability of firms listed under construction and allied sector at the Nairobi securities exchange, Kenya. *International Journal of Scientific and Education Research*, 2(04), 43-63.
- Mandu, M. (2014). Effect of working capital management on financial performance of nonfinancial firms listed in the Nairobi securities exchange (Doctoral dissertation, University of Nairobi).
- Matole, E. K. (2019). Effect of Working Capital Management on the Financial Performance of Manufacturing Firms Listed at the Nairobi Securities Exchange (Doctoral dissertation, University of Nairobi).
- Muruny, H. K. (2020) Effect of tax incentives on financial performance of construction and allied firms listed on Nairobi securities exchange. *Unpublished MBA Project*, University of Nairobi.
- Mweta, T., & Kipronoh, P. (2019). Effect of working capital management on the financial performance: Evidence of construction and allied sector firms listed at Nairobi Securities Exchange. *Research Journal of Finance and Accounting*, 9(5), 38-49.
- Namasake, M. W. (2018). Effects of Working Capital Management on Financial Performance of Energy and Petroleum Companies Listed On Nairobi Securities Exchange for the Period 2013-2017 (Doctoral dissertation, United States International University-Africa).
- Nastiti, P.K., Atahau, A.D., & Supramono, S. (2019). Working capital management and its influence on profitability and sustainable growth. *Business: Theory and Practice*.
- Nduati, E. K. (2014). The effect of working capital management on profitability of manufacturing companies listed at Nairobi securities exchange (Doctoral dissertation, University Of Nairobi).
- Nduta, M. W. (2015). The effect of working capital management on financial performance of manufacturing firms listed in Nairobi security exchange (Doctoral dissertation, University of Nairobi).
- Nguyen, T. N. L., & Nguyen, V. C. (2020). The determinants of profitability in listed enterprises: A study from Vietnamese stock exchange. *The Journal of Asian Finance, Economics and Business*, 7(1), 47-58.
- Pesaran, M. H. (2021). General diagnostic tests for cross-sectional dependence in panels. *Empirical Economics*, 60(1), 13-50.

- PricewaterhouseCoopers(PWC).(2021). Working capital study 2021/2022.From recovery to growth in the face of supply chain instability. Retrieved from: <https://www.pwc.co.uk/business-restructuring/pdf/working-capital-report.pdf>
- Sensini, L., & Vazquez, M. (2021). Effects of Working Capital Management on SME Profitability: Evidence from an emergent economy. *International Journal of Business and Management*, 16(4), 85-95.
- Singh, A. S., & Masuku, M. B. (2014). Sampling techniques & determination of sample size in applied statistics research: An overview. *International Journal of economics, commerce and management*, 2(11), 1-22.
- Vătavu, S. (2014). The Determinants of Profitability in Companies Listed on the Bucharest Stock Exchange. *Annals of the University of Petrosani Economics*, 14(1).
- Wairimu, T. F. (2019). Effects of microfinance loans on poverty reduction: A case study of Vision Fund, Narok.
- Wanja, D. M. (2017). Testing the pecking order theory of capital structure among Kenyan firms (Doctoral dissertation, University of Nairobi).
- Yabs, A. K. (2015). The relationship between capital structure and financial performance of real estate firms in Kenya (Doctoral dissertation, University of Nairobi).
- Yahya, A., & Bala, H. (2015). Working capital management and financial performance of deposit money banks in Nigeria. *Research Journal of Finance and Accounting*, 6(16), 57-72.

APPENDICES

Appendix I: Construction and Allied Firms Listed at the NSE

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

