EFFECT OF WORKING CAPITAL MANAGEMENT ON THE PROFITABILITY OF LISTED MANUFACTURING FIRMS IN KENYA

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DECLARATION

I hereby declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this dissertation contains no material written or published by other people except where due reference is made and author duly acknowledged.

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I do hereby confirm that I have examined the master's dissertation of Paul Ngima Ndonye

And have certified that all revisions that the dissertation panel and examiners recommended have been adequately addressed.

Signature…… …… Date……

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Dissertation Supervisor.

ABSTRACT

Working capital management involves the management of the most liquid resources of the firm which include cash and cash equivalents, inventories, debtors and receivables. The inability of many organizations to effectively manage their working capital in such a way that it leads to a sustainable performance has been identified as the bane of growth in organizations. The main objective of the study was to determine the effect of working capital management on profitability of listed manufacturing firms in Kenya. The specific objectives of the study were: To determine the effect of Cash Management (CM) on the profitability of listed manufacturing firms in Kenya; to find out the effect of Inventory Holding Period (IHP) on the profitability of listed manufacturing firms in Kenya; to examine the accounts payable period (APP) on the profitability of listed manufacturing firms in Kenya; and to establish the effect of Accounts Receivable Period (ARP) on the profitability of listed manufacturing firms in Kenya. The study focused on four key theories: cash management theory, agency theory, value chain theory and the asset profitability theory. Descriptive research design was used as it describes systematically the facts and characteristics of a given population or area of interest, both accurately and factually. The target population for this study was the 8 listed Manufacturing firms on the Nairobi Securities Exchange (NSE). The study relied solely on secondary data which were analyzed using STATA. The data were extracted from annual reports and financial statements of the listed manufacturing firms, which data spanned the last 10 years. Descriptive and inferential statistics, particularly panel data analysis models, were used to assess the effect of working capital management on the profitability of listed manufacturing firms. The results of the effect of working capital management parameters of interest revealed that both CM and ARP had a negative relationship with ROA and the relationship was not statistically significant. Although IHP had a negative relationship with ROA, the results revealed a statistically significant relationship with ROA. The relationship between APP and ROA was strong, positive and statistically significant. The study recommends that firms should develop better relationships with suppliers to enable them make favorable agreements concerning accounts payables and accounts receivable days. It also recommends that managers should ensure proper maintenance of inventory books to avoid holding stock for a long period. Firms should automate control techniques like Economic Order Quantity (EOQ) and Just-in-Time to minimize wastages and improve financial performance. It recommends further that firms should review their credit criteria.

Key words: cash management, inventory holding period, accounts payable period, accounts receivable period. Nairobi securities exchange.

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DEDICATION

I dedicate this research work to my parents Mr. and Mrs. John Ndonye for their prayers and financial support during my studies and also my brothers and sisters for prayers and financial support to ensure my period during studies was favorable.

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ACRONYMS AND ABBREVIATIONS

ACP	Average Collection Period
ANOVA	Analysis of Variance
AP	Accounts Payable
APP	Average Payment Period
ARP	Accounts Receivable Period
BSE	Bombay stock exchange
CCC	Cash Conversion Cycle
CM	Cash Management
DSE	Dar salaam Stock Exchange
EBIT	Earnings before Interest and Tax
ECM	Efficiency of Cash Management
EIM	Efficiency of Inventory Management
EOQ	Economic Order Quantity
ERM	Efficiency of Receivable Management
FGLS	Feasible Generalized Least Squares
GDP	Gross Domestic Product
IHP	Inventory Holding Period
KCA	Kenya College of Accountancy
MSM	Muscat Securities Market
LN	Natural Logarithm
NSE	Nairobi Stock Exchange

POLS	Pooled Ordinary Least Squares
ROA	Return on Assets
STATA	Statistics and Data
VIF	Variance Inflation Factor
WCM	Working Capital Management

TERMS AND DEFINITIONS

Accounts Payable Period: This figure is arrived at by dividing accounts payable by purchases and then multiplying the result by 365 (Lamberson, 2015).

Accounts Receivable: This figure represents an organization's average balance due, and it is calculated by multiplying the starting and ending balance due for a given period of time (such as monthly or quarterly) by 2. (Hong Mo Yeh, 2016).

Cash Management: Managing cash flows, i.e. cash inflows as well as outflows, is a key concern. The difference between the operating cash flow and current liabilities was used to figure out the cash management (Katz & Green, 2019).

Inventory Holding Period: Inventories are divided by cost of products sold, then multiplied by 365 days gives you this value (Diamond, 2020).

Firm Size: According to its size, a company's production capacity as well as ability can be summed up as the number and range of services it can offer its clients at the same time (Jonsson, 2007).

Listed Manufacturing Firms: These are the NSE-listed manufacturing companies.

	Eight manufacturing companies are now listed on the NSE (KNBS, 2020).
Nairobi Securities Exchange:	The Nairobi Securities Exchange (NSE) is East Africa's most important stock exchange. Nairobi Stock Exchange was formed in 1954 in Nairobi, Kenya's capital city as the Nairobi Securities Exchange (NSE). It was a non-profit European community stockbrokers' association registered in British Kenya under the Societies Act (NSE Website, 2021).
Profitability:	The ability of a company to generate revenue is referred to as "profitability." A person's ability is determined by how well and efficiently they operate and resources they have at their disposal (Warren & Reeve, 2016).
Working Capital:	The current ratio measures the gap among current assets and liabilities. This indicator depicts a company's ability to cover its current liabilities with its current assets.
Working Capital Management:	Working capital management is the procedure of keeping track of all current assets versus current liabilities to guarantee that a company or individual can satisfy all of their commitment.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter provides background information on the topic of study from a global, regional and national perspective, and states the problem forming the basis of the study. It also indicates the objectives, justification and scope of the study.

1.1.1 Background of the Study

Working capital management provides critical insight into a company's financial health. Working capital accessibility is one of the key indicators of a company's financial well-being that lenders and investors look for in a statement of financial status (Garcia et al., 2017). Insufficient working capital management costs 1000 companies around the world $2 billion a year. A robust capital base is critical for businesses in the current days, as the present financial and economic crisis has shown. Being illiquid becomes increasingly dangerous during times of credit crunch or economic crisis. Despite this, businesses are still unable to accurately assess their financial needs (Jose et al., 2016).

When managing working capital, the main objective is to make a perfect balance between assets and liabilities. These are critical elements of any value-creation strategy, and they give organizations a competitive edge (Ikechukwu & Nwakaego, 2016). There are many financial managers who are striving to discover the primary determinants of working capital and the optimum level of working capital which can be preserved to avoid risks, insecurity, and

enhance the effectiveness of their company (Mabandla, 2018). Working capital management is a critical component of corporate finance). Assets and liabilities are taken into account, since current asset levels that are too high can lead to poor return on investment, while current asset levels that are too low can lead the company into liquidation and affect operations (Horne & Wachowiz, 2015). The business is in charge of meeting its obligations when they fall due. Working capital management reduces the risk of failing to meet short-term obligations and prevent overinvesting in current assets by managing current assets and liabilities efficiently.

However, firms can avoid risks and improve overall performance by understanding the role and drivers of working capital (Munene & Tibbs, 2018). Maintaining a company's profitability is critical in order to meet its short-term obligations. However, if you have an excessive amount of labor capital, you will waste funds and finally lead to a company winding up (Da Silva, 2015). In order to prevent one objective from being fulfilled at the expense of the other, a compromise between these two corporate goals must be found. If a corporation does not care about making a profit, it will be successful in the long run. Working capital management should therefore be given due consideration, as it has a direct effect on the profitability of the organization.

1.1.2 Working Capital Management

Current assets less current liabilities are referred to as working capital. Investing in short-term assets like cash and cash equivalents, short-term or marketable securities, and stocks can be referred to as a business working capital according to (Kurfi, 2016). It is the percentage of a company's assets that the management uses on a daily basis. Working capital is sometimes referred to as a company's "life blood" because it exceeds by far the company's

existing assets and current liabilities. Working capital was defined by Finau (2019) as the amount of money available to meet current obligations when they fall due on existing assets.

Working capital management, according to Kurfi (2016), encompasses components of current liabilities and current assets. As a result, proper working capital management should ensure that current assets are stretched to a point in which the marginal return on these assets increases and equals the cost of capital expected to finance the increment, while current liabilities will be used to reduce the average capital cost rather than longer-term debt. In Nigerian economy, how well a company handles its current liabilities and current assets is often what makes the difference between success and failure.

Jose et al. (2016) researched on working capital management to examine the effect on organizations' profitability and short-term solvency. For the firm's successful sustainability, WCM involves the right balance between current assets and liabilities, particularly in terms of energy, goodwill and time. Management of working capital is described similarly by Mihajlov (2019). According to Raheman and Nasr (2017), proper management of cash, receivables, payables and stock will help organizations become more profitable in the long run.

1.1.3 Profitability

The capability of a company to generate revenue is referred to as profitability. Business ability is determined by how well and efficiently they operate as well as the resources they have at their disposal (Warren & Reeve, 2016). The capability of a company to make return from its investments is referred to as profitability. The management of working capital has a number of implications for profitability. The amount of profit a company makes is influenced by how well cash, debtors, and stock are managed. Improper management of stock, for example, results in high expenses of storage, depreciation of stock value owing to damage and

obsolescence, theft or pilferage by personnel and wastage when too much stock is kept on hand at a time. All of these expenses affect the company's profitability. Insufficient stocks also contribute to stock-out expenses and the loss of goodwill of the company, resulting in losses. Having a lot of inventory means having a lot of money invested in goods. As a result of the foregone interest income from investing the capital that was previously held in stocks, the company has experiences a loss of profitability (Saleemi, 2019)

1.1.4 Effect of Working Capital Management on Profitability

Although investment firms are tasked with increasing shareholder value, achieving profitability for the company is also a major concern. An investment company's ability to continuously create sales or revenue depends on how profitably the business is performing. To ensure companies are more profitable, managers need to make decisive financial judgments, as highlighted by Precha (2004). They ought to focus on investing in financial assets with value for the company and its shareholders in order to stay competitive in the market.

A company's profitability is influenced mostly by its capacity in managing its working capital. Any company's ultimate objective is to make as much profit as possible. However, maintaining the liquidity of the firm is a critical goal as well. Increased earnings at the expense of business liquidity can lead to major issues, which can then result in a shutdown (Shin & Soenen, 2004). Consequently, there must be a compromise between these two business goals because they are both equally vital, achieving one should not be at the expense of the other. Neglecting liquidity on the other hand can lead to bankruptcy or insolvency. To ensure the company's long-term profitability, working capital management should be given priority. To maximize a company's worth, working capital level may be optimal (Sarwar et al., 2017).

Management of working capital has an effect on the liquidity and profitability of organizations. Working capital components, including inventory turnover, average collection period (ACP) and payable period were examined to determine how they related to each other. The research also examined the relationship between gross operating profit as well as the cash conversion cycle to establish how they interacted with each other. Debt ratios, firm size (calculated by utilizing the natural logarithm on assets), and financial asset to total asset ratio were all used as controls. Effectiveness in management of working capital is critical for manufacturing organizations because current assets make up the majority of total assets (Horne & Wachowitz, 2015). It has an immediate impact on a company's profitability and liquidity (Raheman & Nasr, 2017). The profitability/liquidity trade-off is critical because businesses will fail and go into bankruptcy if proper consideration is not given to working capital management (Kaushal & Singh, 2018).

There can be no doubt about the value of effective management of working capital (Finau, 2019). A company's working capital management is widely regarded as one of the most critical functions in the organization. Regardless of the size and nature of the business, each company requires a certain level of working capital, whether it is profit-oriented or not. Working capital is critical to a company's capacity to pay its debts, stay solvent, and makes profit (Gitman, 2015). Managing working capital is critical when comparing the liquidity and profitability of different organizations (Eljelly, 2004). This includes determining the number and amount of current assets as well as the funding of the assets.

1.1.5 Listed Manufacturing Firms in Kenya

Kenya's economic growth and development cannot be sustained without the manufacturing and related sectors. The country's economy boasts a wide range of industries,

with eight of manufacturing firms listed on the NSE. A few of the most important industries are those that produce tobacco, beer, alcoholic beverages, and canned fruit, flour milling, and sugar companies. The economy will drastically improve if the industrial sector receives the attention it requires. Kenya's annual budget for the financial year 2016-2017 indicates that the country wants to achieve double-digit growth in the economy by 2030, and the manufacturing sector is a key component in enabling it get there (Wakiaga, 2016). Manufacturing expanded by 3.5% in 2015, up from a 3.2% increase in 2014. With a GDP contribution of 10.3% in 2015, manufacturing remained the second-largest contributor to the economy after contributing 10.0 % in 2014. In addition, 11.9% of the country's official jobs have been provided by the industry.

Manufacturers had a good year in 2015 thanks to the macroeconomic situation. However borrowing increased, making low-cost loans less available to fund sector activities. For manufacturing companies and their partners, the need for raising capital is typically greater and occurs more frequently than in other industries, such as professional services. Debt or equity financing is more common in this industry than other types of financing. Demand for cash by production companies climbed from 237.422 million shillings in 2014 to 290.069 million shillings in 2019, with the sector's total credit rising accordingly (KNBS, 2020).

1.2 Statement of the Problem

Profitability is a major factor in determining the value of a company to its shareholders. Management of working capital has an effect on the profitability, risk, and value of an organization (Smith, 2020). For most industrial companies in both developed and developing countries, poor working capital management methods and excessive operational costs are the main causes of underperformance (Nyamweno & Olyweny, 2014). While the majority of NSE-

listed manufacturing companies have improved their results, a few have been delisted due to insufficient working capital management over time. For the industrial sector to increase its performance and contribute to economic development, efficient management of working capital is critical, according to Padachi (2016).

Financial management seeks to maintain a healthy ratio of working capital amongst the various sections of a business (Deloof, 2018). A company's primary objective is to maximize shareholder value. Absence of sufficient cash flows, excessive operating costs, incompetent management, a rise in low-quality and counterfeit goods in the market, as well as failure to meet obligations have been blamed by the majority of manufacturing companies for poor financial performance (Houseman 2018).

Working capital management has been linked to financial performance in numerous studies. For instance, in Kisii South District, Kenya, Nyabwanga et al. (2017) investigated the effect of working capital on the financial effectiveness of small and medium-size enterprises (SMEs). Nduta (2015) studied working capital management on listed manufacturing firms. Her research centered on the relationship between working capital management, leverage, and the size of the company and its financial performance. Working capital management has an effect on industrial companies listed on the Nairobi Securities Exchange, according to Muia (2019). He was particularly interested in the effects of average recovery time, leverage, particularly financial performance as measured by return on assets (ROA). Kenyan listed manufacturing companies' financial performance was analyzed by Kinuthia et al. (2020). Their primary focus was on the collection of debts, payments to creditors, and the cash flow to financial performance ratio. Researchers observed that while there has been some work done on the implications of the management of working capital, there has not been much research

conducted on the impacts of management of cash upon listed manufacturing businesses' profitability, including holding inventory periods, ARP and APP.

1.3 Objectives of the study

1.3.1 General Objective

The general objective of this study was to determine the effect of working capital management on the profitability of listed manufacturing firms in Kenya.

1.3.2 Specific Objectives of the Study

i. To find out the effect of Cash Management on the profitability of listed manufacturing firms in Kenya
ii. To determine the effect of Inventory Holding Period on the profitability of listed manufacturing firms in Kenya
iii. To find out the effect of Accounts Payable on the profitability of listed manufacturing firms in Kenya
iv. To examine the effect of Accounts Receivable on the profitability of listed manufacturing firms in Kenya.

1.4 Research Hypotheses

To be able to answer the research questions, the study tested the following hypotheses:

i. ***$H0_1$:*** *Cash Management has no significant effect on the profitability of listed manufacturing firms listed in Kenya.*

ii. ***$H0_2$:*** *Inventory Holding Period has no significant effect on the profitability of listed manufacturing firms in Kenya.*

iii. ***$H0_3$:*** *Accounts Payable has no significant effect on the profitability of listed manufacturing firms in Kenya.*

iv. ***$H0_4$:*** *Accounts Receivable has no significant effect on the profitability of listed manufacturing firms in Kenya*.

1.5 Justification of the study

Through this study, it is hoped that there will be a better understanding of how management of working capital affects the profitability of Kenyan manufacturing firms. Several stakeholders, particularly people involved in the company's day-to-day operations as well as other stakeholders would benefit greatly from the study's findings and conclusions.

1.5.1 Managers

Manufacturing companies have the sole responsibility of maximizing shareholder profit and can utilize the findings of this research to estimate what effect changes in working capital will have. Managers may also be better equipped to grasp the hidden capital costs that their working capital decisions impose on their shareholders. The study findings also shed light to the regulatory agencies' top brass. Managers could use the study findings to be able to manage working capital components diligently for the firms to increase profitability and shareholders fund.

1.5.2 Securities Analysts, Financial Experts and Equity Brokers

Financial specialists as well as securities analysts who comprehend the link among the management of working capital as well as manufacturing company performance will find these findings useful in developing their portfolios and advising the management on the best

strategies to use in managing working capital. They will use the findings to advise the owners on the best ways to invest surpluses and receive dividend in return.

1.5.3 Researchers and Academicians

The research also provides academics with a better understanding of how working capital management, particularly cash management, as well as inventory holding, can help manufacturing firms listed in Kenya be more profitable. It is reasonable to assume that the study's shortcomings will spur further research into the phenomenon of working capital management, particularly in manufacturing organizations. This is because studies typically generate additional questions than they answer. They will need information on working capital management to be able to know areas for further studies to fill the gaps left by the current study.

1.5.4 The General Public

Many people anticipate to be employed by a company; thus they want working capital information regarding patterns and current advances in the organization's financial well-being as well as the scope of its daily operations. Corporate Social Responsibility (CSR) as well as other advantages, and the supply of goods and services, benefit the general public on a broad scale. As a result, they seek information on working capital to determine whether the company is a going concern and the assurance that manufacturing firms will improve their lives when they are employed.

1.5.5 Customers and Debtors

Customers, particularly those with whom the company has built a relationship, are curious about the working capital of the company. Their needs are met in the long run because

of the information they receive, while the information debtors receive is used to guarantee that they are not overpriced or given substandard products as a result of the firm's plan to reduce activities.

1.5.6 Suppliers and Creditors

Raw resources must be supplied and short-term financing must be provided for businesses to achieve. To make sure they are paid on time, these parties need to know about working capital management. Even if the company has the money and resources to pay for the things they receive, it's likely that they'll have to get them on credit. Because of this, suppliers want to know about a company's working capital so they can evaluate its credit worth prior to lending money to them.

1.6 Scope of the study

Listed manufacturing enterprises in Kenya were studied to establish how working capital management affected their profitability. Working capital components were incorporated into the listed manufacturing companies' financial accounts using secondary data. Over the period of ten years, the researcher gathered data. The study's methodological scope included the eight Nairobi Securities Exchange-registered manufacturing enterprises. A study by Mugenda and Mugenda (2003) found that when the population is minute, no sampling is required since the study's dependability is enhanced. As a result, the study included all eight of Kenya's publicly traded manufacturing firms.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Management of working capital effect on listed manufacturing companies' profitability in the republic of Kenya is examined in this part, along with concepts and opinions that are important to the current study. To evaluate as well as identify research gaps, it provides the sequence in which key studies have been related to the study in question. This chapter covers a wide range of topics, including a hypothetical analysis, analytic framework, probable remedies, and business performance factors.

2.2 Theoretical Review

Theory, as per Becket (2006), is a collection of ideas designed to explain anything in particular, especially based on general rules. Theories describe how different variables relate to one another. Theories such as cash management, value chain theory, agency theory as well as asset profitability theory can all provide a comprehensive theoretical framework for this investigation.

2.2.1 Cash Management Theory

Baumol's cash management model asserts that cash balances are similar to inventory levels, and therefore this model is based on the EOQ model but with different variables (Njeru et al., 2015). The model assumes that the firm holds a portfolio of marketable securities which can easily be converted into cash. Cornett et al. (2009) assert that this model assumes cash starts from a replenishment level, C, and then declines smoothly to a zero value and that when

cash is at zero, it can be immediately replenished by selling another C worth of marketable securities for which the firm has to pay a trading cost, F. According to Cornett et al. (2009) in relation to this model, the finance manager of a firm has to decide on the repartition of liquid funds between cash and marketable securities.

Brick and Fung (2005) noted that there is a trade-of which constitutes the basis for the calculation which is related to the opportunity cost of holding cash which increases along with the cash level and the trading costs which are incurred with every transaction and which decreases when the cash level increases. On the other hand, Huseyin (2011) notes that the opportunity costs represent the interest forgone for cash holding instead of investing. A low cash level may make a firm carry out many transactions leading to high trading costs but low opportunity costs as there is little idle cash. Pandey (2008) note that if a firm maintains a high level of cash, the opportunity costs will be higher due to the relatively large amount of un-invested cash but the trading costs will decrease due to the relatively few transactions.

Baumol's cash management theory has three assumptions: Cash use is steady and predictable; cash flows from operations occur at a steady rate and the net cash outflows occur at a steady rate. The model can thus be stated as follows:

$$C = \sqrt{2TF/i}$$

Where: C is the optimal cash replenishment level, T is the annual demand for cash, F is the trading cost per transaction and *i* is the interest rate on marketable securities. With the use of this formula, a firm can determine the optimal cash replenishment level. Although Baumol's cash management theory is an important and simple model, its weakness is in the unrealistic nature of assumptions the model is based on (Zeynab et al., 2019).

2.2.2 Value Chain Theory

It explains why share price determinants exist. Thus how the different components interact as well as their effect on profitability (Porter, 1985) was utilized in this study. Many circumstances arise on a regular basis, and management necessitates a collection of ideas that may be employed throughout the selection process (Awunya, 2010). Rappaport (1986) has also established a number of data control components as well as fundamental ideas for inventory control in order to achieve this goal.

Two ideas are fundamental to working capital techniques, and to changing the factor of generating a share price. Revenue and cash flow are affected by supply chain, since it determines investment returns and inflows and outflows into and outside the organization. Since corporate owners hire managers to achieve maximum profit, Rappaport (1986) believed that the goal of maximizing shareholder value is crucial (Awunya 2010).

It is important to communicate and analyze the company's purpose using the value added shareholder criteria, which is one way to do so (Awunya, 2010). Several researchers looked into this and discovered that good inventory management had a positive impact on an establishment's business performance. Inventory at a plant has a significant impact on capital management, as demonstrated by Duru et al. *(*2014). Inventory control is linked to sales, cash flow expenditures, as well as inventory closure and opening rates, all of which have an impact on profitability. Since the theory highlights holding costs, an element in the current study, and how listed production company performance management in Kenya may be pushed, it was appropriate.

2.2.3 Agency Theory

When an agency hires a representative to perform services on behalf of another person, the representative is given authority to make a decision on the issue at hand (Meckling & Jensen, 1976). In the event that multiple variables are referred to as agents and therefore are operating on behalf of the principle (which includes the decision-making process) or acting for them, the agency link is established (Ross, 1973).

The agency concept is especially relevant in the financial sector, where issues like conflicts of interest and incentive difficulties, as well as solutions to these problems, are major considerations. A normative link among the employer and the employee is proposed in this paper. Creating a link between the agent and the agent encourages the agent to make decisions that benefit the principle (Meckling & Jensen, 1976). Credit managers, often known as Credit Control Managers, are responsible for managing fixed assets.

Every significant decision in relation to receivables is made by the company stockholders' agent, cash management manager. Due to the fact that disappointing sales lead to fewer revenues whenever he or she does not sell to creditworthy customers, his or her activities have a significant impact on shareholder wealth. Having a weakened sales department helps the credit control director since the insolvency cannot be tracked. On the other side, however, he or she may unwittingly choose to sell to uncreditable customers, which also will raise the cost of bad debt and consequently the value of shares for shareholders who own them. Consequently, when using the Agency theory, any management of credit risk director's decisions is always of critical significance to the shareholders, who are both the agent as well as the customer in this relationship.

2.2.4 Asset Profitability Theory

When it comes to company profitability, a rise in current asset-to-total asset ratios hurts, but a rise in current assets-to-capital employed ratios helps. The theory holds that when assets and liabilities are studied independently, the drop in current assets divided by total asset ratio and the increment in current liabilities divided by the total liabilities lead to increased profitableness and a corresponding heightened risk. This is due to the lower profitability of current properties compared to capital assets, as well as the lower cost of short-term investments versus long-term funds when the asset to total asset ratio is raised. Reducing the current benefit-to-cost ratio will boost profitability, but it will also raise risk. Most of the improvement in profitability might be traced to the corresponding rise in fixed assets, which may produce superior returns due to higher yields (Sathamoorthi, 2002).

However, Sathamoorthi (2002) asserts that a rise in the ratio of current liabilities as opposed to the total assets will enhance profitability. Profitability would rise because short-term funding sources, such as liquidity ratios, will rise while long-term financing sources, such as debt, will fall. It will be necessary to replace less expensive funding sources in order to increase the ratio because short-term sources are cheaper. Reduced expenses and increased profitability follow as a result.

The need for this study is based on the accounts presented by Deloof and Jegers (1996) as well as their contradicting technique and theoretical rationale (Sathamoorthi, 2002). By contrast, Sathamoorthi (2002) claims that increasing the current asset percentage to total capital assets reduce profitability since fixed assets are more probable to make higher returns, further claiming that a large amount as well as a generous commercial credit policy can result in high gross margins as sales are energized. The firm attitude to financial results appears to be

in agreement with this (Deloof & Jegers, 1996). For specific activity levels or sales, a firm that has aggressive policies on the degree of capital investments will have fewer inventories, debtors, as well as liquidity. When taking a more proactive strategy, ratability improves because less cash is tied to current assets. However, there is also the danger that cash shortages or inventory losses will worsen. To fund both volatile and permanent assets, an aggressive financing scheme uses short-term money. There is the greatest risk to the company's solvency, but there is also the greatest reward in terms of increased wealth for the shareholders. In other words, the goal of this study is to determine whether the assets that contribute to the company's increasing profitability have increased or diminished.

2.3 Empirical Review

This empirical review is based on the findings of previous researchers that looked into the effect of management of working capital approaches. It is been shown in the reviewed literature on working capital management strategies that management of stock, payable management, and management of cash are all critical to a business' financial success. As a result, stock efficiency, cash flow, as well as receivable management can all boost financial results.

2.3.1 Cash Management and Firm Profitability

An examination of the affiliation among conversion cycle of cash with business and working capital techniques on a company's profitability in Pakistan was carried out by Abbas et al. (2021). From the financial statements of 157 non-financial businesses drawn from the Stock Exchange of Karachi, Pakistan, for the year 2019, secondary data were gathered. Negative correlation on profitability was ruled out in the research. Pearson correlations,

Analysis of Variance (ANOVA) were used to analyze the data. Cash conversion cycle period has a negative correlation with Return on Equity (ROE), sales revenue and financing policies have a positive correlation with total assets as well as ROE and ROA. To measure cash management, the Cash Conversion Cycle (CCC), which is the number of days between real cash expenditures on raw resources and existent cash receipts from the sale of products or services, is often used (Eljelly, 2014)

An investigation into the influence of inventory conversion period, cash-to-cash cycle time, payable deferral periods as well as receivable conversion, of private Thai hospitals was conducted by Wongthatsanekorn (2020). The financial reports of 13 hospitals that are private listed on the Stock Exchange of Thai provided the data for this study, which spanned the years 2012 to 2018.Regression analysis revealed a negative correlation between asset turnover and payment deferral duration. Besides, there was no evidence of a link between the size of a company, debt level, growth of sales and yearly GDP growth.

A study on wheat manufacturing businesses in the USA discovered that cash management helps a firm to function within its established budgets from the beginning of a financial period until its end, and thus eliminates the risk of bankruptcy. When a company begins operations, it sets a budget and aims to stay within that budget. However, if the company does not manage its cash properly, it may end up spending too much money on things that are less expensive, resulting in a lack of cash to finance the organization and to meet their obligations.

Juan and Martinez-Solano (2017) asserted that cash is depreciative to an organization's working capital because it powers the business. As a result, effective cash management is

critical to the financial health of any company. Current asset availability, particularly in the form of cash, influences whether a business will be able to continue or go out of business. Current assets such as cash are critical for business operations. It is, in fact, the most fundamental requirement for a firm to remain in operation (Weda, 2015). An organization might be profitable, but it will be forced to close if it does not have enough cash on hand to cover its operational responsibilities.

SMEs in Ghana's Northern part were found to have inadequate cash management procedures, resulting in low financial performance, according to a study conducted by Hamza et al. (2015). Their view is that the term "cash planning" refers to a strategy for managing one's cash flow by creating a budget that details predicted cash payments as well as receipts. According to them, this type of budget also shows the predicted cash withdrawals and inflows during the budget year.) The study showed that creating a cash budget can help managers better plan how they will borrow, invest, and manage their expenses (both capital and recurrent).

Ghanaian cigarette manufacturers employed the Baumol model, which states that the best way to manage cash is to think of it in terms of inventory levels and optimal cash balances (Ama, 2018). An inventory-based cash flow model is used to set the objective cash balance for the corporation. This argument predicts that the firm has inventory that can be sold and used to acquire cash when needed, hence the more inventory there is, the more cash there is. However, this model has a weakness because of its false assumptions. In this model, the optimal cash balances, the moment at which to sell assets to generate cash, as well as the moment at which to invest capital by buying securities and lowering cash holdings, are determined by the formula provided. When it comes to short-term investment returns, it is influenced by factors

such as transaction costs, volatility of daily cash, as well as the return on short-term investments. The findings of Raheman and Nasr (2011) research on Mumbai's manufacturing industry support this conclusion.

Throughout the periods of high demand from consumers for finished products, Padachi (2017) discovered that efficient cash management helped to prevent unnecessary costs of sales as well as back-order punishments. This results from the fact the patient's order is ready on time provided the accessibility of stocks, and from well-managed inventory, hence keeping a good association with the clients who are the major stakeholders in any company's success.

A research by OECD (2018) found that businesses keep cash on hand because of the many uncertainties that lie ahead, and this is possible. Motive for transaction: It is important for a company to be able to pay its suppliers and employees, as well as meet its own debts, so that it does not rely solely on customers to pay its debts, which may not always work. Unexpected incidents like machine breakdowns hinder production, which at the end impacts on the supply of finished items. Thus the firm may lose critical clients who do not receive their goods on time and hence negatively affect the firm. Due to the unpredictability of the market in which the organization operates, it is imperative for it to anticipate all possible outcomes and be prepared for any eventuality. .

In his investigation, Soaga (2017) came to a conclusion that the survival of all enterprises is significantly reliant on liquidity. According to his findings, the cash position report is a critical and dependable financial report for any organization. Accountants and finance managers must know the company's cash condition before making any payments, as explained by Sharma and Kumar (2016). According to Soaga (2017) the most important aspect

of cash management is the company's cash position. As an added benefit, it serves as a pre-reconciliation to ensure that there are no errors of omission or commission. This guarantees the company's liquidity is sound, resulting in higher earnings (Soaga, 2017).

According to Eton et al. (2019), commercial businesses in Northern Uganda's Lira District were studied for their cash management and business performance. This study utilized a cross-sectional design using a structured and closed-ended questionnaire to gather the data. The business owners who took part in the research acknowledged that they have strong skills in handling cash receivable, keeping stocks, as well as earning enough cash to satisfy their immediate responsibilities. The study indicated however, that such procedures could not be sustained over time because of poor prediction of receipts as well as payments. As a result, the management of cash was found to have a negligible impact on the profitability of the organization.

To find out how cash management affects food and beverage shops' financial performance in Somalia's Puntland state, Bari et al. (2019) looked at the case of Garowe. In Puntland, food and beverage retailers are critical for job creation and retention, according to the findings of the study. To make sure their business is as profitable and sustainable as they expect, it is critical that both small and large-scale retailers use excellent cash management procedures.

Chintha and Prasad (2021) studied companies from the Sultanate of Oman's Muscat Securities Market (MSM) to determine how cash management affected financial results. The study looked at how cash management affects a company's liquidity, financial performance, and likelihood of bankruptcy, as well as the amount of working capital in general. Overall, the

findings revealed that Omani manufacturing companies' cash management methods account for a major portion of their financial performance. Listed manufacturing companies in Kenya were examined to see if cash management had any impact on their profitability.

According to OECD (2015) findings, corporations keep cash on hand due to the uncertainty of the future. Firms should consider this possibility and not rely solely on customers to pay their debts, as debts may not have been paid yet such expenses are expected to be completed after a predetermined term. Besides, a firm's transaction motivation includes payment to suppliers, payment of workers and salaries. As a precaution, occurrences like machine breakdowns, which can cause production to stall and the supply of finished items to be delayed, can harm the company, since it risks losing major clients if deliveries are late. The market is unforeseeable. Therefore any alterations are bound to occur without warning at any time. As a result, the firm should prepare for and speculate on the worst-case scenarios.

Mathura (2002) studied fertilizer producing industries in Pakistan and found that inefficient cash management leads to misappropriation of cash because it is monitored daily and any revenue or expenditure is updated and shown without giving opportunity for change of the cash statistics. Cash can be easily misappropriated. Keeping an eye on the company's cash on a daily basis helps minimize all connected dangers. Ndirangu (2017) looked at seven different Nairobi Securities Exchange-listed businesses to see how cash management affected their financial efficiency. Cash conversion cycles were discovered to have a modest but beneficial effect on corporate performance, and size of the company was found to have a tiny but negative impact on financial efficiency.

According to a study by Jajale and Ali (2017), commercial banks in Mogadishu, Somalia's ability to handle cash has an effect on their financial health. Data was gathered through surveys from 48 companies as part of the study. Good cash management processes have an effect on the financial success of small as well as medium-sized enterprises in Jordan according Smirat (2016), who did a study on Jordanian SMEs' cash management procedures as well as the financial performance of a sample of companies from diverse industries.

Mutesi and Mulyungi (2018) did a study on the financial performance of Rwanda cooperative banks and found that management of cash has a significant impact, cash management is key to the performance of banks, since it is the primary source of income. Janaki (2016) studied the impact of cash management on the financial effectiveness of manufacturing establishments in Sri Lanka using secondary information obtained from financial reports of every year. She discovered an insignificant link between cash management and financial performance in Sri Lanka.

Mohammed (2016) study on secondary schools in Mogadishu's private sector found that management of cash has an extremely positive impact on the financial performance of the educational institutions and that the school administration should plan ahead, as well as cater for the needs of both boys and girls.

Hamza et al. (2015) studied the relationship between small and medium-sized enterprise (SMEs) cash management practices in Ghana's northern region, collecting data via structured questionnaires from a population of 1,000 business owners and managers, and their findings revealed that SMEs' cash management practices affect their financial performance.

A study by Olfunya (2015) examined the relationship between five Kenyan cement companies' profitability and their management of working capital. From the study, it was clear that several of the top financial executives planned on using sample selection in their work. The study concluded that management of working capital improves profitability. Consequently, cash management (financial performance, revenue growth), the variable function of profitability at every cement firm, has a negative association with each other.

2.3.2 Inventory Holding Period and Firm Profitability

For the small manufacturing and medium-sized manufacturing Business (SMBs), Abel (2018) found that high levels of efficiency in managing working capital led to a rapid conversion of current assets into cash, which resulted in large amounts of cash on hand. In both large as well as small businesses, a reduction in inventory and accounts receivable has been found to speed up the conversion cycle of the cash. Over the period 1993-2014, Garica-Teruel and Martinez-Solano (2017) conducted a study on the impact of working capital management on the profitableness of small as well as SMEs. They were able to show that administrators may add value to companies as well as shareholders by minimizing the amount of days that accounts receivables and inventory are idle on their books. Cash conversion cycles can be reduced, which in turn, increases profitability.

Manoj and Malhotra (2017) studied the performance of working capital of corporate firms in the republic of India, using a technique devised by Anand and Gupta (2015). The three-year average cash operating margin of 26.3 percent and compound annual growth rate of 1.6 percent were obtained by corporate India over the time of the study. On a compounded yearly basis, the operating cycle as well as the conversion cycle of cash could have both

decreased by 10.2 percent and 12.7 percent. The study revealed no indication that working capital management had a favorable outcome on profitability.

Lazaridis and Tryfonidis (2016) did a study between 2011 and 2014 of 131 businesses listed on the Athens Stock Exchange (ASE). They discovered that the cash conversion cycle has a substantial negative correlation with gross operating profit. Research shows that administrators could make profits by managing the conversion cycle of cash as well as maintaining an optimal amount of working capital.

Raheman (2007) looked into the profitability of the 94 enterprises registered on the Islamabad Stock Exchange, in Pakistan, between 1999 and 2004, focusing on working capital management. Working capital management components like the ACP, average payment period, inventory turnover in days, and cash conversion cycle were examined. He found that enterprises with high working capital ratios had lower profit margins. Management can create a positive benefit for shareholders by lowering the cash conversion cycle (CCC) to its optimal level.

According to Nejad et al. (2015), the management of working capital impacts on the profitability of Tehran Stock Exchange-listed institutions. A total of 116 Tehran Stock Exchange listed firms was used to obtain data from 2006 to 2011, utilizing the combining method of all data (time series data) as well as ordinary least squares regression (OLS). Researchers found an inverse association among cash conversion cycles as well as their components, the duration it takes to gather the money from clients, the time it would take to shift over stock, the time it takes to make payments, as well as the profit of organizations. An organization's profitability would therefore rise if the time it takes to collect as well as turn over stock is shortened.

Nasution (2020) studied the influence of stock turnover on the profit of automobile manufacturers listed on the Indonesia Stock Exchange between 2015 and 2017. The researcher quantitatively analyzed this data by testing conventional hypotheses and doing statistical analyses, such as simple linear regression. With a sample size of 18 enterprises per year, this research looked at inventory turnover as well as ROA. The study findings showed that inventory turnover has no impact on ROA. These researchers set out to discover whether the length of time that inventories are held had any bearing on how well manufacturing companies do financially in Kenya.

According to Mbugua (2013), in Kenya, there is a link among supermarket inventory turnover as well as financial effectiveness. The study's objective was to determine what connection among supermarket inventory turnover and financial success in Kenya. Just by dividing the cost of products sold by average stock, inventories were turned over. According to the findings, inventory turnover has a substantial positive correlation with supermarket financial success in Kenya, with a correlation coefficient of 0.879. This suggests that inventory turnover is responsible for 87.9% of ROA, with the rest coming from other sources. Inventory turnover increases ROA, hence it goes without saying that more inventory turnover increases ROA.

In a study of all the manufacturing companies on the Nairobi Securities Exchange over a five-year period from 2012 to 2016, Ondimu et al. (2018) found a very powerful positive association among the major independent and dependent variables in the study. The study was titled, "The effect of inventory holding time on financial wellness of manufacturing companies listed in Kenya."

As Padachi (2007) discovered, inventory management prevents unnecessary sales costs as well as back-order punishments all through peak times from consumers. This is because the company's sequence is ready on time given the availability of stock and its proper management, thereby preserving good associations with customers, key stakeholders for the corporation. Inventory control, according to Singh (2015), is primarily concerned with balancing opposing economic interests as well as reducing the amount of businesses stock. A company's wind up can be caused by lack of adequate inventory. If a manufacturer runs out of hypercritical stock items, the process of production is stopped and that particular manufacturer might lose customers if they fail to receive their goods on time in both the long and short term. The manufacturer may lose clients, which will lead to the demise of the company, since not even a single individual will be willing to purchase the goods.

Inventories can be broadly categorized into three types, according to Gitman (2005). They cannot be consumed right away, since raw materials are ordered from the supplier and have not gone through the production process. Raw materials are turned into the finished goods needed by the client during the manufacturing process. They might be stored in the warehouse, sold to wholesalers and retailers, or sold directly to the consumer by the producer. Finished products are ready for sale as well as consumption by clients. There should be a separation between raw materials and final goods so as to rise to the organization's performance as well as preserve its long-term existence.

Olufisayo (2011) conducted a study on Nigerian manufacturing businesses. The conversion cycle of cash is the time taken from when a company pays its providers for raw materials to when it collects payment from the consumers to whom the finished products were

supplied. This tactic is risky since it raises the chances of the stock diminishing and therefore the failure of the business, but if well-handled as well as executed, it can be successful.

A stock control model study was conducted in Ethiopia by using 11 private limited companies in Addis Ababa. Economic Order Quantity (EOQ) is a popular model since it is simple and widely applicable. As a result of this model, it is possible to lower the expenses of purchasing and storing inventory. It also reduces the possibility of stock run-outs, allowing the company to operate more efficiently and meet client demand as it emerges. When consumers' needs are quickly and timely met, it helps to keep them as clients for the long term. He noted that the models are appropriate and easily available, which ensures that inventory is not misappropriated.

Musau (2014) examined working capital management techniques in Kenyan universities and colleges. Study methods included descriptive quantitative designs. Participants included faculty and students from all Kenyan public and private universities from 2011 to 2015. The study discovered a link between inventory turnover and universities' ROA, and therefore cutting back on inventory holding days enhanced financial performance. Moreover, there is a similar effect among publicly traded manufacturing enterprises.

Kiarie (2019) did a research on modern retail enterprises' inventory management and competitive advantage. There were 165 branches of Kenya's five largest supermarkets considered for the study, with a sample size of 117 branches using a descriptive research design. Universities as well as colleges may enhance their financial performance by managing working capital components effectively, increasing ROA as well as creating value by reducing

stock by days, increasing supplier payment times as well as shortening collection durations, according to this study.

Using data from the global top five beer brewers, Ani et al. (2012) looked at the effect of the managements of the Working Capital on profits. WC components have an effect on profitability at the world's major beer brewers, according to research on working capital management. A variety of regression models were used to analyze cross-sectional time series data. The findings showed that the profitability of beer brewing enterprises was affected by working capital management, sales growth, and shorter debtor collection durations. Instead of overall financial assets, however, he concentrated solely on inventory, payable and receivable turnover ratios. In addition, the study looked only at the world's top five breweries, and not all of the industry's producers were included. This research is not typical of those conducted by African manufacturers.

Kosimbei et al. (2014) looked at the effect of management of working capital on non-financial enterprises' wellness. There were 42 non-financial enterprises in Kenya that were included in the Nairobi Securities Exchange census. The data came from Nairobi Securities Exchange's 2006-2012 manuals. A blimpish investment policy had a positive impact on the performance, according to the FGLS regression, whereas an assertive financial plan had a considerable beneficial effect on asset return. Unlike previous research, this one failed to separate its findings on the effect of working capital management on industry performance. The core of an organization's business does not always favor manufacturing firms over trading firms. Raw material inventories are common in manufacturing. Companies that deal in commodities fail to comply. Individual customers are sold the purchasing habits of trading corporations like supermarkets. It is possible that selling to specific customers has little effect

on credit sales. It is a very different story for manufacturing firms whose customers are wholesale trade firms with stable debt and regular purchasing habits.

NSE listed Kenyan companies' performance was investigated by Nyamweno and Olweny (2014) for the impact of the Working Capital Management. From 2003 to 2012, researchers looked at 27 publicly traded companies. The findings revealed that gross operating profit is indirectly impacted by the time it takes to collect the debts and the amount of the period it would take in gathering information. Accounts receivable and stock days have a significant and direct effect on the wellness of the firm. The findings also showed that working capital levels varied widely across industries, but were roughly equal. Only accounting, debt and cash conversion were topics of study for these researchers. Nevertheless, it failed to detect the effect of its levels on company performance.

2.3.3 Accounts Payable Period and Firm Profitability

Accounts payable is the amount of money a firm owes its suppliers. It is one of the major sources of unsecured short-term financing (Gitman, 2009). Firms that receive credit facilities are firms that have a good relationship with their suppliers. However, when a firm carries goods on credit, it sometimes forgoes cash discounts and therefore it must weigh the advantages of paying cash and the possibility of losing discount and incurring late payment penalties. According to Monsavi and Jari (2012), accounts payable is a measurement of calculating a dollar of credit available to a firm at one point in time.

Accounts payable management is an important aspect of ensuring efficient cash flow management. Gitman (2005) states that firms should avoid delays in paying for their supplies due to the disadvantages attached to delayed payment, which include loss of cash discount and

loss of trust by suppliers. Mojitahed et al. (2012) state that sound management of suppliers credit requires up-to-date information on aging of accounts payable to ensure proper and timely payments. Efficient management of accounts payable ensures a continuous provision of trade credit as a cheap source of credit. Hill and Sartoris (1992) as cited by Njeru et al. (2015) state that utilizing the relationship between suppliers is a sound objective that should always be highlighted as important, just like optimal levels of inventory and ideal credit policies. Firms should pay early enough to avoid situations where the suppliers remind them of their debts and at the same enjoy cash discounts which have an impact on the firm's financial performance.

Bad debt signifies that the debtor has financial difficulty and other creditors may be cautioned from dealing with the firm. According to Ooghe (2009) and Drucker (2014), suppliers curtail or discontinue granting credit to a firm facing liquidation because creditors become less tolerant when a firm faces financial problems. Memba and Abuga (2013) state that investors are not ready to supply capital to distressed firms or they make credit available at a high cost with rigid terms and conditions. Creditors do not normally waive debts unless they are sure that the customer will never pay.

A study by Nelthorpe and Digney (2011) discovered that creditors only waive debts owed by their customers only when the customers are permanently incapacitated. Hofman and Kotzab (2010) acknowledge that bad debts are destructive not only to the financial system of the firm, but also impairs the firm's organizational structure and relationship with external firms, and affects the attitude of employees towards their work. Kalunda and Kabiru (2012) state that bad debts are dangerous and can cause a firm to liquidate. Managers should make decisions which are long-term and detect early enough overdue accounts payable and possibly eliminate them completely.

According to Duchi et al. (2010), a firm must strive to retain a creditworthy relationship with its suppliers to avoid business disruptions due to non-payment of goods or services. Overdue payments have a negative effect on the working relationship with suppliers as argued by Grablowsky (2005). Mathuva (2010) discovered that firms in Kenya take an average of 64 days to pay their creditors with a standard deviation of 103 days. The average payment period is defined as the length of time that a firm is able to defer payments for various resources purchased. Padachi (2006), and Raheman and Nasr (2007) state that using data from financial statements, the average payment period is obtained by dividing accounts payable by cost of sales and multiplying the results by 365 days.

Delaying payment to suppliers is in line with the cash flow management rule that firms should strive to lag their payments to creditors as much as possible taking care not to spoil the business relationship with them (Mwangi, 2014). Late payment on the other hand can very costly if the firm foregoes a cash discount for early payment (Nelthorpe & Digney, 2011). The study by Mathuva (2010) found that an increase in the number of day's payable by 1 day was associated with increased profitability of a firm. Rehaman and Naser (2006) found that profitable firms wait longer to pay their invoices and take advantage of cash available for operating needs. Delaying payments to suppliers allows a firm to assess the quality of purchased products and can be an inexpensive and flexible source of financing the firm.

A monitoring system provides a manager with information flow between information sources and decision levels. Uyar (2009) states that if a firm wants to enjoy advantage of holing a positive cash flow, they must have a system of focusing and monitoring accounts payable to reduce the cost of financial distress. Atrill (2006) posit that financial accounting systems provide managers with the financial information on which policy is based as well as

development of business plans and forecasts. A management accounting system produces majority of information destined to decision making process and data for supplier relationships can be extracted for correcting the financial performance of the firm. A monitoring system has the role of recording a firm's transactions with external environment to periodically and systematically determine the financial situation and results of operations (Chao, Lipson & Loutskina, 2006).

An acceptable level of accounts payable implies an aggressive working capital management by a firm, which affects its financial performance. A study by Falope and Ajilore (2009) on 50 Nigerian quoted non-financial firms for a period of 10 years, 1996-2005 found a significant negative relation between profit and average payment period. On the other hand, Mathuva (2009) examined the influence of receivables and payables management on corporate profitability by using 30 firms listed on the Nairobi Securities Exchange for period 1993-2008 and found there is a highly significant positive relationship between accounts payable levels and profitability.

Monsavi and Jari (2012) posit that sound management of supplier's credit requires up-to-date information on aging of accounts payable to ensure proper and timely payments. Lazaridis and Tryfonidis (2006) assert that there is a significant positive relationship between financial performance of a firm and the number of outstanding days of its accounts payable. According to Deloof (2003) as cited by Falope and Ajilore (2009), in his study on the relationship between average payment period and corporate profitability on a sample of 1009 large Belgium financial firms for the period 1992-1996, found a significant relationship between gross operating income and accounts payable period. The study suggested that

managers could increase a firm's profitability by reducing the accounts payable period through up-to-date information on the levels and age of accounts payable.

Boulescu (2005) states that managers need information in order to control and adjust accounts payable. An information system is needed in this case. Information system can be defined as a set of interrelated components that collects, processes, stores and disseminates the information for decision making and control of activities in an organization. Award and Al-ewesat (2012) state that a reliable information system represents a set of human, financial and material resources for collecting and processing data in order to obtain and transfer information necessary for planning and controlling an organization's activity. Ashok (2013) and Organization for Economic Cooperation and Development ([OECD], 2019) support the position that accounts payable should be optimally used by a firm as it is a major source of short-term financing but at the same time must be effectively managed and monitored through an efficient system to eliminate creation of bad debts.

2.3.4 Accounts Receivable Period and Firm Profitability

Accounts receivable is important to a firm as it helps to protect sales from being eroded by competition and at the same time attracts potential customers to buy (Rahman, 2011). Efficient accounts receivable management augmented by a shortened creditors collection period, low levels of bad debts and a sound credit policy often improves the firm's ability to attract new customers and accordingly improve its financial performance as stated by (Lazaridis & Dimitrios, 2005). Management of accounts receivable is a practical issue and businesses can find their cash flow under considerable strain if the levels of accounts receivable are not well managed. Without efficient management of accounts receivable, Gill et

al. (2011) state that receivables build up to excessive levels resulting into bad debts which lower the firm's financial performance. In the areas of marketing and financial management, today's business enterprise use accounts receivable (trade credit) as a prominent strategy due to the dynamics in businesses caused by changes in both internal and external environments (Filbeck & Krueger, 2005).

Accounts receivable are created when a firm offers terms that allow a buyer to delay payment. Duru et al. (2014) established that 15% to 20% of manufacturing business assets comprised accounts receivable. Pandey (2008) states that investment in accounts receivable take a big amount of a firm's assets which makes them highly vulnerable to bad debts and losses if not efficiently managed. As noted by Kalunda and Kabiru (2012), sales on credit are an inevitable necessity in the business world today and they consist of the credit a business grants its customers when selling goods or services.

Zariyawati et al. (2009) provide that the effectiveness of management of accounts receivable have a significant impact on a firm's financial performance. According to Sushma and Bhupesh (2007), an increase in the level of accounts receivables in a firm increases both the net working capital and the cost of holding and managing accounts receivable, and both lead to a decrease in the value of the firm. Firms which pursue an increase in the accounts receivable to an optimal level increase their profitability resulting from the increased sales and market share (Weston & Copeland, 2005), but there is a consequence of persistent inflation on accounts receivable in inflationary period, when interest rates are high and financial requirements become large.

A credit policy is the basis for making decisions for extending credit. A credit policy refers to guidelines that spell out how to decide which customers are sold to on open account, the payment terms, the limit set on outstanding balances and how to deal with delinquent accounts. Pandey (2008), Atrill (2006), and Filbeck and Krueger (2005) state that credit policy is defined in the manner of combination of terms as credit period, collection period, cash discounts and cash terms as well as late payment penalties. However, despite businesses having different credit policies, the content of the credit policies must touch on credit period, credit terms and collection period (Zeynab et al., 2019). As noted by Filbeck and Krueger (2005), credit policy is the most important medium of managing and regulating accounts receivables. An appropriate credit policy enables a firm to ensure optimal investment in accounts receivables. Pandey (2008) states that a credit policy is designed to minimize costs associated with credit while maximizing the benefits from it.

Kalunda and Kabiru (2012) state that there are no two organizations with similar credit policy. Credit policy is either lenient or stringent. A lenient credit policy tends to give credit to customers on very liberal terms such that credit is granted for longer periods and without certifying their creditworthiness. Kaur (2010) argues that a stringent credit policy is restrictive and allows credit to those customers with ascertained creditworthiness. On the other hand, Qian (2006) asserts that whether lenient or stringent, a credit policy must attract and retain credit worthy customers without affecting the cash flow of a firm. Ojeka (2012) notes that no matter how large or small a firm is, and regardless of the differences in their operations or product, the effect of credit policy brings about similar consequences. Effects of credit policy are either good enough to bring growth and profits or bad enough to bring declination and loss (Saghir et al., 2012).

For a credit policy to be effective it should not be static (Alipour, 2011) but requires review periodically to incorporate changes in a firm's strategic direction and risk tolerance, as well as to ensure that the firm operates in line with competition to ensure sales and credit departments are benefiting. Eliot's (2009) note that due to the speed at which technology is changing and the dynamics in business caused by changes in the internal and external environment, the way in which businesses are conducted today differ significantly from yester years.

The competitive nature of business environment requires firms to adjust their policies and strategies frequently for survival and growth (Kathleen & Rene, 2010). Although a credit policy ensures decision making process is logical and simplified, it is based on pre-determined parameters at a historical period in time, which may not hold at the current time (Venancio & Godfrey, 2013). Filbeck and Krueger (2005) argue that a credit policy being the most important medium of managing and regulating accounts receivable requires frequent reviewing. This ensures a firm maintains optimal investment in accounts receivable while minimizing costs associated with credit and at the same time maximizing the benefits from accounts receivable. Extending credit to customers is a decision based on the credit management and policy of a firm (Li et al., 2014).

Granting credit exists to facilitate sales. Al-Mwalla (2012) states that sales are pointless without due payment. Therefore the sales and accounts receivable functions must work together to achieve the objective of sales maximization within minimum length of time. Owolabi and Obida (2012) note that a credit sale is a sign that a firm is able to maximize its sales and improve its financial performance. According to Salla et al. (2013), an increase in the level of accounts receivable in a firm increases both the net working capital and the cost of

holding them. Firms which pursue an increase in the accounts receivable to an optimal level increase the profitability resulting from the increased sales and market share.

Extension of Credit, as stated by Gillet al. (2010), should only be on the basis of customer creditworthiness in order to minimize the level of default and bad debts. Weston and Copeland (2005) state that there are six C's of credit which credit managers should consider when extending credit: character, capacity, capital, collateral, condition and contribution. They further assert that the six C's helps firms to decrease their default rate as they get to know their customers. Information on the C's can be obtained from several sources including the firm's prior experience with the customers, financial statements for previous years, credit reporting agencies and even the customers' financial institutions (Venancio & Godfrey, 2013). As stated by Gitau et al. (2014), the purpose of credit control is to ensure that trade debts are recovered early enough before they become uncollectible and a loss to the business.

Credit period refers to the period allowed to customers to pay the debt. According to Pandey (2008), average collection period determines the speed of payment by customers. Delayed payment is a potential ground for bad debts which have a negative effect on a firm's financial performance. Many firms establish a credit period for their customers and offer discounts to encourage early payments. Walther and Skovsen (2009) citing Chee and Smith (1999) assert that there are two forms of credit periods: the net terms which specifies that full payment is due within a certain period after delivery, for example, "net 30" means full payment is due 30 days after invoice and after that the buyer is in default; and the two-part terms which has three basic elements, discount percentage, discount period and effective due date. For example, "2/10 net 30" would mean 2% discount for payment within 10 days and a net period ending on day 30 and thereafter if payment is not received the buyer is in default.

Bryman and Bell (2011) state there are six C's of credit which credit managers should consider when extending credit: character, capacity, capital, collateral, condition and contribution. They further assert that the six C's help firms decrease default rate as they get to know their customers. Information on the C's can be obtained from several sources including the firm's prior experience with the customers, financial statements for previous years, credit reporting agencies and even the customers financial institutions (Kalunda & Kabiru, 2012). Cooley and Pullen (2009) assert that credit managers must apply the techniques of credit selection and standard for determining which customers should receive credit by applying the six C's propagated by Weston and Copeland (2009).

A centralized debt collection resource ensures better and timely collection and few instances of bad debts. When sales are on credit, a monitoring system is important to avoid the potential build-up of excessive levels of accounts receivable which would erode set profits and affect cash flow (Sayeda, 2011). Brealey et al. (2006) posit that credit procedures should include instructions on what data to be used for credit investigation and analysis process, provide information for data approval process, account relationships and instances for management notification.

Siddique and Khan (2008) relates centralization of debt collection to human factors, establishing that dedicated resources ensure better collection and fewer instances of bad debts. Abdul and Mohamed (2017) provide that customer relationship officers in most firms act as the link between the firm and customers. They maintain close links which help in monitoring business activities of the customers and raising the red flag for management to take action before a debt can go bad and affect the firm's profits. Bigelli and Sanchez-Vidal (2011) state

that a collection resource is a control process which ensures that trade debts are recovered early enough before they become un-collectable and therefore a loss to the firm.

Overdue accounts receivable is delayed payment by customers and is a potential ground for bad debts and subsequent low profitability. Although extension of credit as stated by Hovakimian and Hovakimian (2009) should only be on the basis of customers creditworthiness in order to minimize the level of default and bad debts, firms that use a lenient credit policy tend to give credit to customers on very liberal terms and standards, meaning that credit is granted for longer periods even to those customers whose credit worthiness is not well known (Garcia et al., 2007). Cull et al. (2009) state that the purpose of credit control is to ensure that trade debts are recovered early enough before they become uncollectible and a loss to the business.

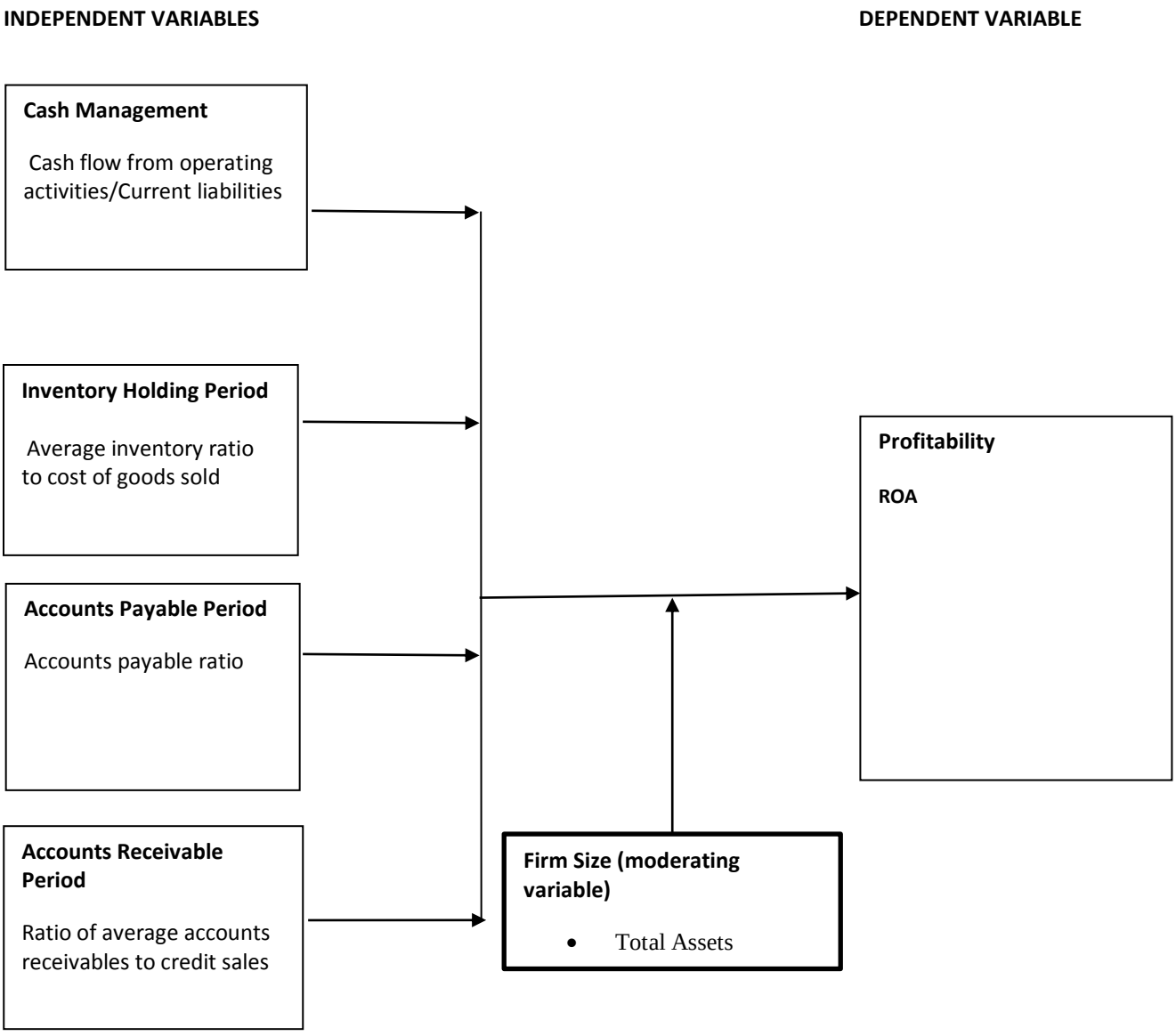
In an attempt to pursue customers who do not pay on due dates, a firm may follow different procedures. Preve and Sarria-Allende (2010) state that a firm seeking to pursue overdue accounts may remind the debtor through a politely worded letter, a strongly worded letter, send a representative and eventually contemplate legal action or writing off the debt altogether. Collection efforts may involve reminding the debtor through a demand note and if no response is received, progressive steps using tighter measures are taken (Pandey, 2008). Gitau et al. (2014) assert that a creditor should use litigation as a last resort to collect a debt that is bad. When there is a major breakdown in the repayment agreement resulting in undue delays legal action may be required to effect collection. Bender (2009) recommends that a debt may be written off when the creditor feels that it is uncollectable and that it is honorable to write off a bad debt from the books of accounts to give a true and fair view of the firm's financial position.

2.4 Conceptual Framework

The conceptual framework can be said to be a way of expressing the connections between all the variables (Mugenda & Mugenda, 2003). As shown in Figure 2.1, the dependent variable for this study was company's profitability, with cash management inventory holding period, accounts payable period as well as accounts receivables as the predictors.

FIGURE 2.1

Conceptual Framework



Source: Author (2021)

2.5 Operationalization of Variables

Despite the fact that research has identified a link between WCM and financial success, there is still more to be discovered. There were discrepancies, disagreements, and ambiguities

in earlier investigations. According to research, receivable management has a positive or negative impact on the financial performance. According to Mihajlov (2012), there is a positive but insignificant connection among the claims and success. However Duru et al. (2014) found a negative and meaningless link. Sharma and Kumar (2011), who found an association among ROA as well as receivables in 2011, found conflicting results. Given the shaky evidence supporting the positive impact, it's time to broaden the discussion.

Currently available literature on financial liabilities and results is insufficient. Although many peer-reviewed studies show a link between debt and financial performance, they fail to show how ineffective payable management practices affect corporate performance (Kotut, 2013; Bastos & Pindado, 2012). The study's goal was to add to the current body of knowledge but not to cast doubt on long-held beliefs.

The WCM literature portrays WCM options as being omitted. Working capital has not been the focus of most empirical studies. As a result of this study, a new paradigm for working capital management has been proposed that combines financial reporting with inventory management and debt management.

Empirical research has failed to find a link between financial success and WCM that can be explained by adequate theoretical backing and explanations. Four hypotheses underpin this research, all of which show a strong connection between an organization's working capital management as well as its financial success.

There is no consensus among researchers as to how to carry out successful WCM studies. The implementation of effective and efficient WCM processes is strongly recommended for all organizations. However, the challenges that these businesses have in implementing WCM are

not addressed by this suggestion at all. The factors that motivate businesses to use WCM still need further investigation.

TABLE 2.1:

Operationalization of Variables

Variable	Indicators	Measurement Criteria	Data Analysis
Cash Management	• Cash flow from operating activities/ Current Liabilities	Measurement was done using panel data collected over a period of 10 years	• Diagnostics (Normality Tests, Multicollinearity, Heteroscedasticity) • Descriptive Statistics (Means & Standard Deviations, Skewness and Kurtosis) • Inferential Statistics (Correlation and Regression Analysis)
Inventory Holding Period	• Average Inventory/ Cost of goods *365	Measurement was done using panel data collected over a period of 10 years	• Diagnostics (Normality Tests, Multicollinearity, Heteroscedasticity) • Descriptive Statistics (Means & Standard Deviations,

			Skewness and Kurtosis) • Inferential Statistics (Correlation and Regression Analysis)
Accounts Payable Period	• Accounts Payable/ Purchases*365	Measurement was done using panel data collected over a period of 10 years	• Diagnostics (Normality Tests, Multicollinearity, Heteroscedasticity) • Descriptive Statistics (Means & Standard Deviations, Skewness and Kurtosis) • Inferential Statistics (Correlation and Regression Analysis)
Accounts Receivable Period	• Average receivables days Turnover Ratio	Measurement was done using panel data collected over a period of 10 years	• Diagnostics (Normality Tests, Multicollinearity, Heteroscedasticity) • Descriptive Statistics (Means &

			Standard Deviations, Skewness and Kurtosis) • Inferential Statistics (Correlation and Regression Analysis)

TABLE 2.2

Research Gaps

Author	**Focus of the Study**	**Findings**	**Research Gaps**	**How study address the gaps**
Njeru et al. (2015)	Cash management effect on the financial success of the SACCO deposit in Mount Kenya	A substantial positive link between financial performance and cash management	There is a contextual gap. The research concentrates on SACCOs and hence the results may not be entirely generalizable to the production sector	The study focuses on the management of working capital in listed manufacturing companies
Abioro (2013)	The influence of money management on manufacturing businesses' performance	There is an important link between cash management and manufacturing business performance in Nigeria	A geographical gap occurs as the study was conducted in Nigeria. There may be various WCM methods and models in various nations	The study was conducted in Nairobi, as most of these listed companies are located in Nairobi, Kenya, resulting in more regional conclusions.
Mauchi et al. (2011)	The efficacy of Hunyani Flexible Products (HFP) financial management	A favorable connection between the cash flow level and firm profitability	Methodological difference. Data were acquired by interviews, questionnaires and observations	The study employed secondary data.

	policies			
Mwangi (2011)	To investigate the link between management of working capital and financial efficiency of NSE listed manufacturing companies	Cash flow in days has a negative link to equity return	Contextual divide. The study did not examine the impact on corporate performance of the stock levels period, account payable period.	This study focused on firm profitability as the predictor variable.
Nduta (2015)	Effect of the management of working capital and financial profitability of listed production companies	The study found that the ROA has a positive association with the current liabilities ratio, the current asset-to-total asset ratio, and the liquidity amount of manufacturing businesses assessed.	Conceptual difference. The study showed no influence on profitability of the cash conversion cycle, storing inventory, account receivable period (ARP), payables period	The study concentrated on profitability as dependent variable.
Muia (2019)	Impact of the management of working economic and capital performance of selected production companies	The asset turnover was negative by using Pearson's correlation with respect to the average billing cycle and leverage. The model of regression showed substantial effects and negative connections between cash conversion cycle and leverage.	Conceptual divide. The research did not examine the impact of the stock levels period	This study showed the impact on profitability of the stock levels period
Kinuthia, Marimba, & Mwangi,	Effect of the management of working	The study found that the debtor collection time	Conceptual difference. The study showed no	The study concentrates on profitability as a

(2020)	economic and capital performance of selected production companies	had a detrimental influence on manufacturing companies' financial performance. The study shows that the payment time of the creditor has a beneficial effect on financial success.	influence on profitability of cash conversion, inventory holding time, account receivable term (ARP), account payable period.	dependent variable.
Omucheyi, R. K. (2020)	Effect of working capital management on the financial performance of manufacturing firms listed at Nairobi Securities Exchange in Kenya	The research found that there is no significant relationship between inventory level management and financial performance; on the other hand trade receivable management and financial performance of the firm have a positive and significant relationship. There also exists a significant relationship between cash management and financial performance of the listed manufacturing firms at the Nairobi Securities Exchange.	Conceptual difference. The study showed no influence on profitability of cash management, inventory holding time, account receivable term (ARP), account payable period.	The study concentrates on profitability as a dependent variable.

Source: Author (2021)

2.6 Research Gaps

Research on receivables, payments, inventory holding periods, cash management, as well as profitability has still not been completely exhausted based on the review of previous relevant material. Trade receivables have received less attention than working capital management from researchers. The investigation focused on trade receivables and inventories. Accounts receivables, accounts payable, inventory holding duration, cash management, on profitability of manufacturing companies were not clearly identified in the researched literature. Various studies have shown a positive or negative association between the two, while others have found no connection at all. According to this research, the management of working capital has a direct impact on an organization's profitability if it is managed properly.

2.7 Summary of the Literature Review

According to the reviewed literature, the variables have produced conflicting outcomes. Even though studies by Raheman and Nasr (2020), Omucheyi (2020), Biger et al. (2018), Naimulbari (2018), and Elfani and Petros (2016), find a positive correlation among the accounts payable period as well as profitability, other studies by Mekonnen (2016), Ray (2018), Sokmen et al. (2018) and Saghir et al. (2017). Garcia and Martinez (2017) were unable to show a connection between the average payment period and profitability. They should have done so.

Whereas the average collection period as well as financial results have been shown to be positively related by Laughline as well as colleagues (2018); Ng et al. (1999); Deloof (2013), studies by Mekonnen (2011) as well as Lazairidi and Tryforis (2016) found a negative connection between the average gathering time and a company's monetary results. These contradictory findings necessitate further research to find out the link between

capital management and an organization's profitableness, especially in the case of publicly traded industrial businesses.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The methodology for this study includes research design, the target population, the sample frame describing sample size and data collection instruments and their administration; data analysis techniques and tools; and finally the expected results.

3.2 Research Design

Research design may be defined as a method to guide the conduct of a research (Hennet al., 2003). Furthermore, Donald (2006) says that research design is the structure of research, since it brings together all aspects of a research endeavour. Descriptive research design methodically provides facts and features both correctly and factually about a specific population or area of interest. The study explored the connection between profitability of the manufacturing companies listed in Kenya and working capital management (WCM) practices using descriptive research design. The study is based on secondary data gathered in the financial statements and annual reports of manufacturing companies listed on the NSE.

3.3 Target population

The target population refers to the entire group of people or aggregate of all elements, sharing some common set of characteristics. The population is typically different and is sometimes known as the theoretical population (Kothari, 2008). This study was a census of the eight manufacturing companies listed on the NSE (see Appendix III).

3.4 Sampling Frame

A sample frame is a collection of all elements in the population from which the sample is drawn. The study used the entire list of eight listed manufacturing firms on the NSE (Mugenda & Mugenda, 2008). The sampling frame for this study was all the eight listed manufacturing firms

3.5 Data Collection Instruments

The study only used secondary data. The data was extracted from the annual reports and financial statements of the listed manufacturing companies. The NSE website included: Audited financial reports. The data was collected and processed before it was entered in the Excel spreadsheet. Similar information on the 10-year Cash management, Inventory Holding Period, Accounts Payable Period and Account Receivable Period was used to analyse the connection between WCM and firm profitability. The research used panel data for the assessment of ROA for each manufacturing company over a period of 10 years. These data were collected from financial reports ranging from 2011 to 2020.

3.6 Data Analysis

A panel data analysis model was used for analysis of the data from the eight listed manufacturing firms over the ten years. The panel data models which were considered included the pooled ordinary least squares (POLS) and the panel data models (fixed effects or random effects model.

POLS assume that there are unique attributes for the data across entities and that there is no significant time related fixed effects. This model is appropriate when there are no major differences among the entities and also no common effects across time. The POLS model is of the form:

1. $=\alpha+ \beta_1X_{1it}+\beta_2X_{2it}+\beta_3X_{3it}+\beta_4X_{4it} + \varepsilon$……(i)

Where; Y= Profitability (ROA)

X_1= Cash Management

X_2= Inventory Holding Period

X_3= Accounts Payable

X4= Accounts Receivable

β_i= Independent variable coefficients,

$_i$= 1-8 firms

$_t$= 2011, 2012…2020

α = the intercept

ε = error term

This study used ROA as an indicator of how the major determinants (independent variables) which are Cash Management (CM), Inventory Holding Period (IHP), Accounts Receivable Period (ARP), and Accounts Payable Period (APP) affect profitability (dependent variable).

The regression model for the control variable was:

$$Y= \beta_0 +\beta_1 X_1 +\beta_2 X_2 +\beta_3 X_3 +\beta_4 X_4 + \beta_5 X_5 + \acute{\varepsilon}_3$$

Where Y = Dependent Variable (Profitability)

β_0 = Constant

β_i= Independent variable coefficients,

X_1, X2, $_{X3}$, X_4 = Independent variables

X_5= Moderating Variable (Firm Size)

$\acute{\varepsilon}_3$ = Error Term.

The hypothesis was tested at 5% level of significance using F test. To assess the best model suited for the data, a Breusch-Pagan LM test was carried out to establish whether the POLS or panel data models are applicable.

3.7 Diagnostic Tests

Before running the models, the researcher carried out diagnostic tests to investigate whether the assumptions of classical linear regression analysis were satisfied. The diagnostic tests were used to test the assumptions of regression which comprised of normality, multi collinearity, serial correlation and heteroscedasticity.

3.7.1 Hausman Test

The random effects model is based on the assumption that there exists no relationship between predictors and errors form the regressions. The error term in the random effects model captures both the random error and errors emanating from the panels.

The random effects model is of the form.

$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + u_{it} + \varepsilon_{it}$ ……. (ii)

Where

i = 1, 2 … 10 (Listed manufacturing firms)

t = 1, 2 … 10 (Years)

u = Between-entity error

ε = Within-entity error

Other variables are as indicated in Equation I.

The equation for the fixed effects model is:

$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + u_{it}$ ……. (iii)

Where

u = is the error term

Other variables are as indicated in Equation I and II.

Hausman test was conducted to assess which of the two models (fixed or random) was applicable for the data collected in the study. When the p value is above 0.05, random effects model would be selected but if p value is below 0.05, fixed effects model would be selected.

3.7.2 Normality Tests

Normality assumption depicts that the errors of the model are normally distributed. Test of normality in the study was conducted by overlaying the residuals of errors over the normal distribution. If the overlaid residuals deviate much from normal distribution, then the normality assumption will have been violated.

3.7.3 Multicollinearity Test

Multicollinearity test was conducted to establish if there are any two independent variables that are highly correlated. This test was conducted using the correlation matrix and Variance Inflation Factors (VIF). Using correlation matrix, multicollinearity exists when two independent variables have correlation of + or -0.7 or above. Using VIF, two independent variables are highly correlated when the VIF is 5 or above.

3.7.4 Woodridge Test

The test for serial correlation was conducted using the Wooldridge test. The null hypothesis in the Wooldridge test is that there is no first order serial correlation while the alternate hypothesis states that there is first order serial correlation. When the f- statistic is significant (p value below 0.05), then there is serial correlation. When the p value is above 0.05, there is no serial correlation.

3.7.5 Heteroscedasticity

Lastly, the test for heteroscedasticity was conducted. One of the regression assumptions is that errors of variances of residuals are constant. The Modified Wald test for group wise heteroscedasticity was applied. There is heteroscedasticity when the p value is below 0.05.However, if the p value is above 0.05, homoscedasticity is assumed.

3.8 Ethical Considerations

A study is deemed successful when it provides a solution to the research problem and when all research stakeholders are satisfied (Kothari, 2011; Cooper & Schindler, 2006; Mugenda & Mugenda, 2003). Accordingly, this study looked at the various ethical issues with a view to protecting the rights and privileges of the data sources and other parties of interest.

Ethical considerations relate to the moral standards that the researcher should consider in all research methods at all stages of the research design (Polit et al., 2001). Due care was given to strict adherence to research procedures particularly those involving data confidentiality and scholarly credit. All the data obtained from the companies were used only for academic purposes and kept confidential. The researcher also ensured that all the sources cited and corresponding references provided as is supposed to be (Mugenda & Mugenda, 2003). Research permit was sought from Kenya College of Accountancy University (KCA) before the study began.

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the findings from panel data analysis of secondary data extracted from the annual financial reports of manufacturing firms listed on the Nairobi Securities Exchange for a period of 10 years. The chapter involves a combination of exploratory analysis, descriptive analysis and diagnostic test analysis. The diagnostic tests check multi-collinearity, autocorrelation, heteroscedasticity and time effect fixed models. The overall objective of the study was to determine the effect of working capital management parameters namely, CM, ARP, IHP and APP on the profitability of manufacturing firms listed in Kenya. In addition, firm size rate was examined.

4.2 Descriptive Statistics

The data comprised 74 unbalanced panels of listed manufacturing firms as shown in Table 4.1. Out of eight firms considered for this study, three firms, namely Flame Tree Group Holdings Ltd., Mumias Sugar Co. Ltd and Kenya Orchards Ltd. each had a missing financial statement for two years.This could be as a result of some firms being listed after 2011 or dropping of some firms from NSE listing.

TABLE 4.1

Manufacturing Firm Descriptive Statistics

```
. tabulate Company
```

Company	Freq.	Percent	Cum.
BAT	10	13.51	13.51
BOC	10	13.51	27.03
Carbacid	10	13.51	40.54
EABL	10	13.51	54.05
Flame Tree Group	8	10.81	64.86
Kenya Orchards	8	10.81	75.68
Mumias	8	10.81	86.49
Unga Group	10	13.51	100.00

4.3 Study Variables

From Table 4.2, CM had an overall mean of 0.700, ARP showed average of 0.616, IHP 0.142, APP) had a mean of 4.756 Overall, CM had a standard deviation of 1.165 from the mean while ARP had a deviation of 0.350. On IHP the overall deviation was 0.0796 while APP had an overall deviation effect of 23.181. This implied that APP had the highest deviation from the mean and therefore indicates the level of volatility in the determination of the firms return on asset (ROA). In addition, Firm Size defined as the log of the Total Asset had a mean of 16.676 and a deviation of 1.830 from the overall mean. The dependent variable ROA had a mean value of 0.163 and standard deviation of 0.160

TABLE 4.2 Study Variable Summary Statistics

```
. summarize CM ARP IHP APP FirmSize ROA
```

Variable	Obs	Mean	Std. Dev.	Min	Max
CM	74	.7001206	1.165147	.0149173	6.471902
ARP	74	.6164164	.3495029	.2902083	1.546874
IHP	74	.142434	.0795755	.0175507	.4415498
APP	74	4.756529	23.18186	.3096217	200.6064
FirmSize	74	16.67638	1.830524	14.28833	21.63517
ROA	74	.1631859	.1598219	.0035152	.9622559

4.4 Panel Diagnostic Tests

Robustness of model fitted from panel data is inherent from panel diagnostic tests. Hence, stationarity test, serial correlation, heteroscedasticity, correlation, multicollinearity, Hausman test and Langragian multiplier test were carried out and the findings presented as shown in the following sections.

4.4.1 Test of Normality

Field (2009) described normality as a shape of the distribution which is symmetrical and pointy with a mean of zero and standard deviation of one. In statistics, normality tests are used to determine if the data sets are well-modeled by a normal distribution and to compute how likely it is for a random variable underlying the data set to be normally distributed. It should be noted that, non-compliance with normality for the study variables makes all subsequent regression statistical tests invalid (Hair et al., 2015). Therefore, in order to check for normality of the variables used in the study, skewness and kurtosis statistics were used as recommended by Myoung (2008). A rule of thumb in statistics stipulate that, a variable is reasonably close to normal if its skewness and kurtosis have values between -1.0 and + 1.0 (Hair et al., 2015).

As the results in Table 4.3 indicate, all the predictor variables had a skewness and kurtosis coefficients between -1.0 and + 1.0. Therefore, according to the rule of thumb as argued by Hair et al. (2015), $p<0.05$. It was thus concluded that the variables were normally distributed.

TABLE 4.3

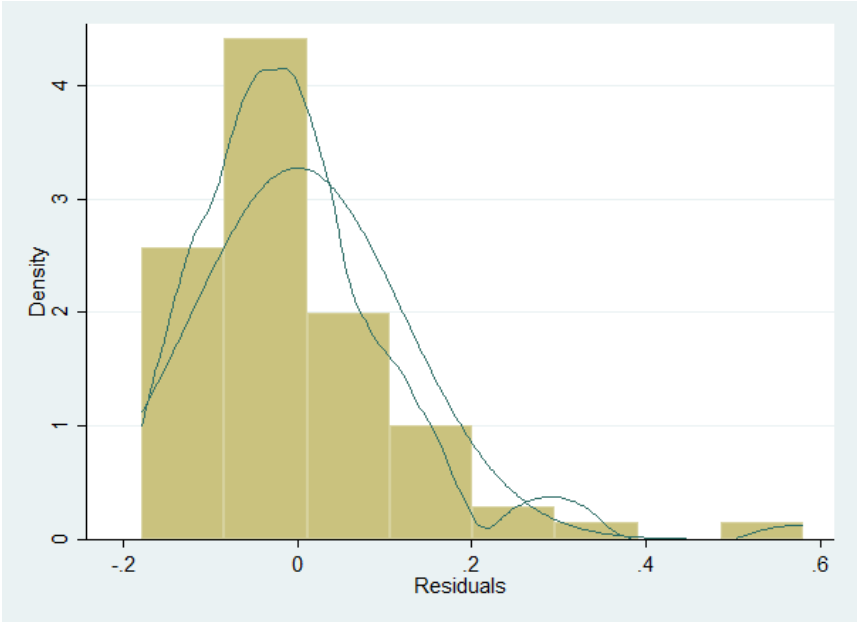
Test of Normality

```
. sktest ROA CM ARP IHP APP FirmSize

                    Skewness/Kurtosis tests for Normality
                                                              ------- joint -------
    Variable |        Obs  Pr(Skewness)  Pr(Kurtosis) adj chi2(2)    Prob>chi2
-------------+-------------------------------------------------------------------
         ROA |         74      0.0000        0.0000        43.96        0.0000
          CM |         74      0.0000        0.0000        48.81        0.0000
         ARP |         74      0.0001        0.3727        12.47        0.0020
         IHP |         74      0.0010        0.0235        12.90        0.0016
         APP |         74      0.0000        0.0000            .        0.0000
    FirmSize |         74      0.0079        0.3953         7.07        0.0291
```

FIGURE 4.0

Test of Normality Residuals Histogram



4.4.2 Multicollinearity Test

Multicollinearity occurs when a high correlation between two or more independent variables in a regression model exist (Field, 2009). With high collinearity, it is difficult to find the distinct effect of individual predictor variable on the dependent variable, since it increases the standard error which affects the size of regression coefficients (Field, 2009).

Therefore, this study sought to test the predictor variables for compliance with the assumption of no multicollinearity among the independent variables. In order to test for this phenomenon, the study adopted the Variance Inflation Factor (VIF) as stipulated by Hairet al.(2015). According to them, if the VIF is greater than or equals to 10 (VIF $\geq$ 10), then it shows that there is Multicollinearity.

Kothari (2004) highlighted that the Pearson Correlation Coefficient is a measure of the strength of a linear association between two variables and is denoted byR. This coefficient ranges between -1 and +1, with a value near 0 indicating that there is no association between the two variables. A value less than 0 indicate a negative correlation, that is, as the value of one variable decreases the value of the other variable also decreases.

The results in Table 4.4 show a correlation value less than 0.7 and not below -0.7 for all variables; they are therefore correlated. In addition, VIFs for all the Variables in this study were less than 10, as shown in Table 4.5, an indication that the variables did not suffer from multicollinearity. From the study the mean VIF is significantly low and therefore the researcher fails to reject the null hypothesis and concludes that there exists no strong correlation between the independent variables.

TABLE 4.4: Correlation Coefficient Analysis.

```
. pwcorr CM ARP IHP APP FirmSize ROA, star(5)

             |       CM      ARP      IHP      APP FirmSize      ROA
-------------+------------------------------------------------------
          CM |   1.0000
         ARP |   0.3518*  1.0000
         IHP |  -0.3269* -0.2672*  1.0000
         APP |  -0.0693  -0.0728   0.1530   1.0000
    FirmSize |  -0.3832* -0.4503*  0.0835   0.0007   1.0000
         ROA |   0.0072  -0.2113  -0.0343   0.5926*  0.1040   1.0000
```

TABLE 4.5

VIF Test of Multicollinearity

```
. vif

    Variable |       VIF       1/VIF
-------------+----------------------
         ARP |      1.38    0.726882
    FirmSize |      1.37    0.727892
          CM |      1.34    0.748629
         IHP |      1.19    0.840406
         APP |      1.03    0.974159
-------------+----------------------
```

4.4.3 Hausman Test

Hausman test was adopted to evaluate the optimal model to fit between fixed effects and random effects model. The null hypothesis for this test was that the most appropriate model to fit was random effects and the alternative was in favor of fixed effects. From the data used in this study, a negative sign arises as a result of different estimates of the error variance being used in forming variance. In that case, sigma more option was used, which specifies that both covariance matrices are based on the (same) estimated disturbance variance from the efficient estimator. As shown in Table 4.6, chi-square statistic was 26.40 with a p-value of 0.0001. Since the p-value was less than 0.05, there was enough evidence

to warrant rejection of the null hypothesis; hence it is concluded that the most appropriate model to fit was fixed effect model

TABLE 4.6

Hausman Test

```
. hausman fe re,sigmamore

                ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |       fe           re         Difference          S.E.
-------------+----------------------------------------------------------------
          CM |   -.0151361      .012015       -.0271511        .0247076
         ARP |   -.0741995    -.1019651        .0277656        .1172045
         IHP |   -.5133802    -.3407834       -.1725969        .1820155
         APP |    .0041428     .0042057       -.0000629        .0003201
    FirmSize |   -.1599181     .0039621       -.1638802        .0416908
------------------------------------------------------------------------------
                           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

                  chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       26.40
                Prob>chi2 =      0.0001
```

4.4.4 Heteroscedasticity test

Heteroscedasticity is when the standard errors are not constant. A large p-value for the Breusch and Pagan Lagrangian multiplier test for random effects means that there is no heteroscedasticity, which is a good thing; whereas a small p-value means that there is heteroscedasticity, which is not encouraged. Should the researcher find that there exists heteroscedasticity they are expected to use robust standard errors to correct the anomaly. The null hypothesis is that there exists homoscedasticity (constant variance). From the results, we reject the null hypothesis and conclude that there exists heteroscedasticity, and therefore it has to be corrected.

TABLE 4.7

Heteroscedasticity Test

```
. estat bgodfrey,lag(1)

Breusch-Godfrey LM test for autocorrelation
```

lags(*p*)	chi2	df	Prob > chi2
1	3.431	1	0.0640

H0: no serial correlation

4.4.5 Serial correlation test

Serial correlation is a situation in which error terms of adjacent time periods are related. It is present in a data set if past observations have influence on subsequent ones. Although serial correlation has no effect on unbiasedness of ordinary least squares estimators, it affects their efficiency. Hence, it increases likelihood of rejecting the null hypothesis when it is right (Baltagi, 2005). Wooldridge serial correlation test was adopted in this study. Its null hypothesis stated that there was no serial correlation against the alternative that there was serial correlation. As shown in Table 4.8, there was no first order serial correlation since p-value was less than 0.05.

TABLE 4.8

Serial Autocorrelation test

```
. xtset Company1 YEAR,yearly
       panel variable:  Company1 (unbalanced)
        time variable:  YEAR, 2011 to 2020
                delta:  1 year

. xtserial ROA CM

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,       7) =      6.356
           Prob > F =      0.0397
```

4.5 Regression Model Analysis

4.5.1 *Cash management and profitability*

From the output generated by the fixed effect model as represented in Table 4.9, CM expressed a negative effect on ROA where an increase in cash management by one-unit results in a decrease in ROA by 0.0151, holding other factors constant. However, the results are statistically insignificant since the p-value > 0.05, that is, 0.521. The result implies that the H_{01} hypothesis that Cash Management has no significant effect on the profitability of listed manufacturing firms listed in Kenya is not rejected, and agree instead that it is accepted CM has no significant effect on profitability.

The results are inconsistent with Ondimu et al. (2018) study on effect of inventory management on financial performance of manufacturing firms listed on the Nairobi Securities Exchange., The study was conducted on all those manufacturing firms for a period of five years, from 2012 to 2016 and found that there exists a strong positive correlation between inventory management and financial performance.

4.5.2 Account receivable period and profitability

For the second objective, the regression model revealed that a unit increase in ARP negatively reduced profitability by 0.0742, although the effect was not statistically significant p>0.05. This implies that the hypothesis, H_{02}: Inventory Holding Period has no significant effect on the profitability of listed manufacturing firms in Kenya, is not rejected. The results are also inconsistent with Munene and Tibbs (2018) who carried out a study on accounts receivable management and financial performance of Embu Water and Sanitation Company Limited located in Embu County using secondary data collected from the published financial statements and found that there exists a negative insignificant

relationship between receivables management and financial performance, and stated trade receivables management has no influence on the financial performance of firms.

In addition, the results are inconsistent with those of Mugo (2016) who did study on the effect of trade receivables management on the profitability of manufacturing firms listed on the NSE. He found that accounts receivables collection period has a negative and insignificant effect on the financial performance of manufacturing firms listed on the Nairobi Securities Exchange.

4.5.3 Inventory holding period and profitability

To evaluate the effect of IHP, the regression model revealed a negative correlation with profitability. A unit increase in IHP led to a negative reduction of profitability with 0.513 units. This negative reduction was statistically significant with a p-value of 0.024, which is less than 0.05; hence the third hypothesis **H_{03}:** Accounts Payable has no significant effect on the profitability of listed manufacturing firms in Kenya is rejected. This confirms a very significant effect of IHP on the profitability of the manufacturing companies, holding other factors constant. This is inconsistent according to a study by Mwangi (2016) on the effect of inventory management on firm profitability and operating cash flows of Kenya Breweries Limited beer distribution firms in Nairobi County. She found there exists a significant relationship between inventory management and profitability of Kenya Breweries Limited.

4.5.4 Account payable period and profitability

Assessment on the effect of APP on the profitability involved using the hypothesis **H_{04}:** Accounts Receivable has no significant effect on the profitability of listed manufacturing firms in Kenya. From the results in Table 4.9 APP had a positive relationship with the dependent variable. With a unit increase in APP resulting in a positive

increase of 0.004 on profitability, and this effect was statistically significant with the p-value less than 0.05; hence we reject the null hypothesis and conclude that APP has a positive effect on the manufacturing firms' profitability. The results are contrary to the findings of Deloof (2003), Raheman and Nasr (2007), and Sharma and Kumar (2011), which hold that more profitable firms wait longer to pay their bills. This implies that they withhold their payment to suppliers to take advantage of the cash available for their working capital needs.

TABLE 4.9

Fixed Effect Model and Linear Regression

```
. xtreg ROA CM ARP IHP APP FirmSize,fe

Fixed-effects (within) regression               Number of obs      =        74
Group variable: Company1                        Number of groups   =         8

R-sq:                                           Obs per group:
     within  = 0.6060                                         min =         8
     between = 0.2192                                         avg =       9.3
     overall = 0.0126                                         max =        10

                                                F(5,61)            =     18.76
corr(u_i, Xb)  = -0.9075                        Prob > F           =    0.0000

------------------------------------------------------------------------------
         ROA |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          CM |  -.0151361   .0234314    -0.65   0.521    -.0619901    .0317179
         ARP |  -.0741995   .1037032    -0.72   0.477    -.2815669    .1331678
         IHP |  -.5133802   .2221331    -2.31   0.024    -.9575628   -.0691977
         APP |   .0041428   .0005859     7.07   0.000     .0029712    .0053144
    FirmSize |  -.1599181   .0347971    -4.60   0.000    -.2294991    -.090337
       _cons |   2.939793   .5757154     5.11   0.000     1.788579    4.091007
-------------+----------------------------------------------------------------
     sigma_u |  .33129451
     sigma_e |  .10208439
         rho |  .91328458   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0: F(7, 61) = 6.16                     Prob > F = 0.0000
```

Final regression model generated was as follows:-

$Y= 2.940-0.0151\ X_1 -0.0742X_2 -0.513\ X_3 +0.004\ X_4 -0.160\ X_5 + \acute{\varepsilon}_3$

Where Y = Dependent Variable (Return on Asset)

X_1, X_2, X_3, X_4 = Independent variables (Management (CM), Account Receivable Period (ARP), Inventory Holding Period (IHP) and Account Payable Period (APP) respectively

X_5= Moderating Variable (Firm Size)

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMEDATIONS

5.1 Introduction

This chapter presents the summary, conclusion and recommendations drawn from the findings of the study in the previous chapter. It also highlights areas for further studies as well as the limitations encountered while conducting the study. The chapter aids the users in gaining an in-depth understanding the research from the perspective of the objectives formulated. .

5.2 Summary of Findings

The main objective of the study was to examine the influence of working capital management on profitability of listed manufacturing and allied category of firms on Nairobi Securities Exchange.. Multiple regression analysis results explicitly showed that variations in working capital management elements tested, that is, CM, ARP, IHP and APP are explained by the variations in profitability performance of listed firms on Nairobi Securities Exchange.

The first objective sought to explain the effect of cash management on overall profitability of manufacturing firms listed in Kenya. The findings indicated a weak positive relationship with ROA, which is not statistically significant. A shortcoming of Pearson Correlations is that it does not allow distinguishing of causes from consequences. Hence, regression analysis was used to investigate the effect of CM on profitability. Regression model indicated a negative relationship between CM and profitability, with the results showing that a unit increases in CM results in a decrease of ROA; although the decrease is not statistically significant, holding other factors constant. This implies that when working

capital is managed improperly, allocating more than enough of it will render management non-efficient and reduce the benefits of short-term investments. On the other hand, if working capital is too low, the company may miss a lot of profitable investment opportunities or suffer short-term liquidity crisis, leading to degradation of company credit, as it cannot respond effectively to temporary capital requirements. Several studies have explored various external and internal factors that may induce the firms to strike a balance between meeting unforeseen capital requirements and avoiding non-efficient management of working capital.

The second research objective sought to evaluate the effect of account receivable period on the profitability of manufacturing firms. The findings indicated a statistically significant a correlation with ROA, even though a unit increase on ARP led to a decrease in ROA. However; this decrease was not statistically significant. Other studies have found contradicting evidence. Notably, Sharma and Kumar (2011) established that accounts receivables had a positive relationship with ROA. In his study to determine the influence of working capital management on the net bottom line profitability of an entity, Mathuva (2010) established that a significant and negative association between the cash collection cycle and profitability existed. Further, a study by Nyaga (2012) to establish the impact of receivables management on the Technical, Industrial, Vocational, and Entrepreneurship Training (TIVET)'s financial performance revealed that a positive interlink existed between receivables management and performance of these institutions, which is contrary to the relationship identified in this study.

The third objective was to evaluate the effect of inventory holding period on firms' profitability. The variables showed a weak correlation. However, regression revealed a

statistically significant relationship, that is, a unit increase in IHP led to a decrease in ROA. This in turn implies that an increase in inventory turnover period results in an increase in gross operating profit and vice-versa. The relationship between ROA and IHP can be explained by the fact that firms which maintain high inventory levels increase the cost of possible interruptions in the production process. This may lead to loss of business due to the scarcity of products and reduce the cost of supplying the goods. Therefore, for a company to operate efficiently, receivables and inventory must be tightly monitored and controlled.

The last research objective aimed to address the effect of APP on profitability. A strong significant positive correlation was observed, indicating that low cash conversion cycle of manufacturing firms results into higher profitability and vice-versa. Therefore, lack of funds, insufficient inventory, and acquisition of good on credit, regular budgeting for future firm expenditure, as well as meeting of both short-term and long-term obligations had a bearing on the firm's overall profitability. The positive relation between ROA and APP can be explained by the fact that lagging payments to suppliers ensures that the firm has some cash to purchase more inventory for sale thus increasing its sales levels and boosting its profits. Further, firm size is positively related to ROA, which means that larger firms report higher profits compared to smaller ones. This may be due to larger firms' ability to exploit the economies of scale.

On the basis of the above analysis, it may also be concluded that these results can be strengthened further if the firms manage their working capital in more efficient ways. Management of working capital means management of current assets and current liabilities, and financing current assets. If the manufacturing firms properly manage their cash,

accounts receivables and debts in a proper way, they will ultimately increase their profitability.

5.3 Conclusion

5.3.1 Cash Management Effect on Profitability

Firms should minimize current liabilities in order to increase operating cash flows and thus increase their ability to generate returns, as operating cash can be put to relevant use. Cash management showed statistically significant findings with positive effects on return on assets. Conversely, an investigation by Mutesi and Mulyungi (2018) into the impact of cash management on Rwanda's corporative banks' financial performance using a case study of Zigama Credit and Savings Bank found consistent results showing that cash management has a significant impact on financial performance. In order to ensure optimality in the available cash for use in a company's activities, cash management should be treated seriously and be supported by applicable models. Companies should not hold more cash than they need at any given time, and they should also increase liquidity to avoid running out of money before the end of the financial period. A firm's management should keep a keen eye on receipts and payments of cash in order to avoid misappropriation, theft, embezzlement, and other forms of cash mismanagement by finance personnel.

5.3.2 Account Receivable Effect on Profitability

With good receivable management, one may increase the shareholders' ROA and so improve performance. The longer the collection period, the lower the level of profitability, as the firm will look for alternative financing options for its working capital in order to run the firm's operations. Other studies such as Mugo (2016), and Munene and Tibbs (2018) found inconsistent results between the debtor collection period and the firm's profitability. In order for the firm to come up with strategies to deal with defaulters, for example, by not

selling on credit to buyers who are not frequent customers or by selling small quantities on credit, it is critical that all stakeholders involved in the management of the firm ensure that receivables are properly managed using key policies and controls.

5.3.3 Inventory Effect on Profitability

The study shows that inventory holding period has a substantial positive association with a firm's ROA. Scholars such as Mwangi (2016), Ondimu et al. (2018), Mbula et al. (2016) and Adamu (2016)have previously criticized the strong link between inventory holding period and a company's ROA .Stock management lowers a company's potential to produce profits in this way. Accountants and shop managers need to be always cautious when determining the best stock level since management can interpret the variables that influence the stock level in a company. A few of these variables include, but are not limited to: the lead time, consumption level, durability, market availability, ordering cost, storage cost, and availability of quantity discounts. Inventory management decisions have a direct impact on the firm's return on assets, thus management must exercise caution while making them.

5.3.4 Account Payable Effect on Profitability

Moreover, the time it takes to pay down debt had a considerable impact on ROA. In keeping with Kapil's (2011) explanation, the study findings show that a longer payment period means that the company gets to benefit from using cash for a certain amount of time. One scholar, a professor, says the hike in payment period costs should not go above a certain threshold because it could harm the company's reputation. When a credit line is too large, future business with specific suppliers suffers. Another aspect of shorter payment periods is that the company does not value cash because it only holds it for a short period of time.

ROA and the receivables period are intimately linked. Since debtor management has a significant impact on the firm's profitability, as shown by the ROA, management must be capable of managing credit risk correctly without being overly restrictive.

5.4 Recommendations of the study to policy makers and practice

Cash flow planning is concerned with management of current assets, which include cash and any other assets that a firm plans to either turn into cash or consume within one year or in the operating cycle of the asset. The study recommends that ideal cash flow levels, which keep on changing with circumstances, need to be regularly reviewed to maintain optimal and minimum cash levels. Both too high and too low cash flow levels are undesirable. Since inventory management is important in facilitating the firms' efficient operations, a firm needs a control system to effectively manage inventory, and the system it adopts must be the most efficient and effective. The study recommends that small firms adopt simple two-bin systems, while large firms may choose to adopt very complicated systems such as ABC inventory control systems or Just-in-Time systems.

Manufacturing firms should regularly review their credit criteria and ensure extension of credit only to creditworthy customers. Pre-determined credit terms should be adhered to by customers. Moreover, minimization of bad debt risk should be at the core of the ideal credit policy. Recovery and monitoring of debt should be a key function in the firms, as well as having competent debt recovery mechanism. Paying promptly for purchases ensures good reputation and goodwill. Early payment ensures that the firms enjoy cash discounts. Cash discounts help increase profits and also create a good relationship with the supplier to ensure availability of supplies with no disruption of operations.

Firms should have and maintain good inventory levels and control techniques such as the EOQ and Just-in-Time. This will ensure that the firms maintain ideal levels of inventory, which minimizes waste and improves financial performance. The management should ensure there are qualified staffs to perform duties assigned efficiently and effectively. Managers should ensure maintenance of inventory records and avoid holding stock for long periods which become obsolete thereby affecting the financial performance of the firms. Firms should establish optimal cash levels, lower and upper cash limits. This ensures that a firm does not have too low or too high levels as both levels have a cost implication and impact on their operations, as borrowing for operations is costly.

Accounts payable are a firm's unsecured loans which imply a good relationship between supplier and customers. Well utilized accounts payable is a major source of cheap short-term financing, and so managers should strive to retain relationship with supplier to enhance their firms' financial performance. Inventory control system is important to management of inventory level to avoid business interruptions, since it involves financial investment and cost. Manager should consider ordering costs, carrying cost and stock-out costs in defining inventory levels to avoid having obsolete inventory, which is costly and affects the financial performance of a business.

5.5 Limitations of the Study

The study was faced with a variety of challenges in its execution, some of which include the following: The secondary information used in the analysis of was not easily available and therefore the researcher had to go an extra mile to sourcing them from the various manufacturing firms. Resources have never been sufficient. In economics resources are said to be ever scarce since it is world of scarcity. Both finances and research materials

for reference were scarce. The impediment of financial resources hit the research process, but a prudent budget enabled the researcher to overcome its detrimental effects and to work within the budget thus achieving optimal results.

5.6 Recommendation for Future Research

The study focused on investigation on the effect of working capital management parameters namely, CM, ARP, IHP and APP on the profitability of manufacturing firms listed in Kenya. There is need now to research on other areas that have not been explored. A further study could be conducted to find out the effect of working capital on financial performance of firms in the financial sector and other available sectors in the market to compare the findings with the ones in the current study. Additionally, a study could be conducted within East African countries on non -financial firms and allied firms listed in their respective securities exchange.

Research can also be done focusing on specific working capital items and their effect on financial performance rather than generalizing them for example research on the effect of inventory management practices and inventory forecasting techniques, and how they influence the financial performance of all manufacturing firms both listed and not listed on the Nairobi Securities exchange. In addition, a similar study should also be carried out on the accounts receivables management and financial performance of manufacturing firms in Kenya incorporating more financial and accounting variables and taking into account the prevailing business environment in light of the changing situation in the country including but not limited to the post-effects of Covid-19 pandemic.

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APPENDIX I

SECONDARY DATA COLLECTION FORM

FIRM										
YEAR	**Accounts Receivable Period**	**Inventory holding Period**	**Accounts Payable Period**	**Sales**	**Purchases**	**Cost of Sales**	**Profit**	**Assets**	**Cash flow**	**Current Liabilities**
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										
2019										
2020										

APPENDIX II

VARIABLE DATA FORM

YEAR	CM= (Cash flow from operation activities/current liabilities)	ARP= (ARP/Sales)*365 Days	IHP=(Inventory/Cost of Goods)*365Days	APP=Accounts Payable/Purchases* 365 Days		ROA =Net income/total assets
2011						
2012						
2013						
2014						
2015						
2016						
2017						
2018						
2019						
2020						

APPENDIX III

LISTED MANUFACTURING FIRMS IN KENYA 2021

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 Ord
7. Kenya Orchards Ltd
8. Flame Tree Group Holdings Ltd

Source: *Nairobi security exchange website* - 2021

APPENDIX IV: HAUSMAN TEST

```
. xtreg ROA CM ARP IHP APP FirmSize,fe

Fixed-effects (within) regression               Number of obs      =        74
Group variable: Company1                        Number of groups   =         8

R-sq:                                           Obs per group:
     within  = 0.6060                                         min =         8
     between = 0.2192                                         avg =       9.3
     overall = 0.0126                                         max =        10

                                                F(5,61)            =     18.76
corr(u_i, Xb)  = -0.9075                        Prob > F           =    0.0000

------------------------------------------------------------------------------
         ROA |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          CM |  -.0151361   .0234314    -0.65   0.521    -.0619901    .0317179
         ARP |  -.0741995   .1037032    -0.72   0.477    -.2815669    .1331678
         IHP |  -.5133802   .2221331    -2.31   0.024    -.9575628   -.0691977
         APP |   .0041428   .0005859     7.07   0.000     .0029712    .0053144
    FirmSize |  -.1599181   .0347971    -4.60   0.000    -.2294991    -.090337
       _cons |   2.939793   .5757154     5.11   0.000     1.788579    4.091007
-------------+----------------------------------------------------------------
     sigma_u |  .33129451
     sigma_e |  .10208439
         rho |  .91328458   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0: F(7, 61) = 6.16                     Prob > F = 0.0000

. estimate store fe
```

```
. xtreg ROA CM ARP IHP APP FirmSize,re

Random-effects GLS regression                   Number of obs      =        74
Group variable: Company1                        Number of groups   =         8

R-sq:                                           Obs per group:
     within  = 0.4421                                         min =         8
     between = 0.3670                                         avg =       9.3
     overall = 0.4179                                         max =        10

                                                Wald chi2(5)       =     49.08
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         ROA |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          CM |    .012015   .0148449     0.81   0.418    -.0170805    .0411105
         ARP |  -.1019651   .0503731    -2.02   0.043    -.2006946   -.0032356
         IHP |  -.3407834   .2038143    -1.67   0.095     -.740252    .0586852
         APP |   .0042057   .0006458     6.51   0.000      .00294    .0054714
    FirmSize |   .0039621   .0097064     0.41   0.683    -.0150621    .0229863
       _cons |   .1801204   .1860027     0.97   0.333    -.1844382    .5446789
-------------+----------------------------------------------------------------
     sigma_u |  .00924983
     sigma_e |  .10208439
         rho |  .00814325   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. estimate store re
```

```
. hausman fe re,sigmamore

                ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |       fe           re         Difference          S.E.
-------------+----------------------------------------------------------------
          CM |   -.0151361      .012015      -.0271511        .0247076
         ARP |   -.0741995    -.1019651       .0277656        .1172045
         IHP |   -.5133802    -.3407834      -.1725969        .1820155
         APP |    .0041428     .0042057      -.0000629        .0003201
    FirmSize |   -.1599181     .0039621      -.1638802        .0416908
------------------------------------------------------------------------------
                           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

                  chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       26.40
                Prob>chi2 =      0.0001
```