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Effect of working capital management and firm characteristics on financial performance of listed agriculture firms in Kenya.

Ndirangu, Peter
Strathmore Business School
Strathmore University

EFFECT OF WORKING CAPITAL MANAGEMENT AND FIRM CHARACTERISTICS ON FINANCIAL PERFORMANCE OF LISTED AGRICULTURE FIRMS IN KENYA

PETER NDIRANGU

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DECLARATION

I, the undersigned, declare that this dissertation is my original work and has not been submitted for examination in any other institution.

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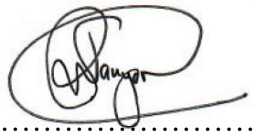
PETER NDIRANGU

MBA 68130/2018

Signature:  Date: …….9th November 2021……

This research dissertation has been submitted for examination with my approval as the university supervisor

Prof. S. Wagura Ndiritu

Associate professor

Strathmore Business School

ABSTRACT

The agricultural sector is one of the critical drivers of economic development among nations in Sub-Saharan Africa. However, since the 1990s, profitability in the sector has fluctuated widely. Kenyan listed agricultural firms have been experiencing financial performance concerns, manifested in increased loss-making among several listed firms. For instance, between 2014 and 2018, three out of seven listed agricultural firms reported losses, resulting in the delisting of one of the firms. This shows their extent of risk exposure. This study aimed to examine the effect of working capital management and firm characteristics on the fiscal outcomes of listed agricultural organizations in Kenya. Specific goals were to investigate accounts receivables, accounts payables, and cash management, with the control effect of firm size being considered the moderating variable. The research was grounded on the transactional cost theory and the cash conversion cycle, adopting positivist research philosophy and applying correlation research design. The unit of analysis was the seven listed agricultural firms in Kenya, with observations being made from the firm's audited financial statements. These were obtained from the Capital Markets Authority for the period between 2010 and 2019. The study used descriptive statistics in presenting results using means, sums, maximum, minimum, and standard deviation. The study used correlational analysis and panel regression in estimating the effect and magnitude of the relationship between variables, respectively. The study utilized tables and charts in the presentation of the research data. The study concluded that working capital management positively and significantly impact return on equity and return on assets of listed agricultural firms. The study concluded that inventory had a positive but insignificant influence on the return on equity and a positive and significant effect on the return on assets of the listed agricultural firms in Kenya. Recommendations were for the firms to improve the working capital management practices through effective cash management policies, better receivables management, and implementing better accounts payable procedures. The firms should further strengthen their liquidity management and maintain adequate capital ratios to cushion the firm against unexpected financial risks. The study also recommends that listed firms optimally manage their assets to help improve the firm value, which is critical to strengthening the financial performance.

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LIST OF ABBREVIATIONS

CCC	Cash Conversion Cycle
CMA	Capital Markets Authority
IMP	Inventory Management Practices
NIM	Net Interest Margin
NSE	Nairobi Securities Exchange
ROA	Return on Assets
ROE	Return on Equity
WCM	Working Capital Management
SME	Small and Medium Enterprises

DEFINITION OF TERMS

Accounts Payable	This is defined as the amount owed to a supplier whose payment has been processed but not yet paid (Achode & Rotich, 2016).
Accounts Receivable	The outstanding sales of the day and the average amount of time that a company holds its accounts receivables (Baños-Caballero, García-Teruel, & Martínez-Solano, 2014)
Cash Conversion Cycle	Temtime (2016) described the cash conversion cycle as the period between payment of raw materials and receipt of account receivable
Firm Characteristics	Firm-level characteristics are financial resources, technology, managerial skills, human resources, and firm size (Barney & Clark, 2014).
Financial Performance	This is the measurement of a firm's policies and operations regarding financial position after a period of time (Abubakar, 2017).

CHAPTER ONE

INTRODUCTION

This is the introductory section of the dissertation. It presents the study background, different conceptualizations of Working Capital Management (WCM), firm characteristics, financial performance, and a section on the overview of firms in Kenya's agricultural sector. It then presents the problem statement, research objectives and questions, scope and study significance.

1.1 Background of the Study

Efficient management of both short- and long-term assets is a prerequisite for desirable firm financials. However, most companies in the global economy focus on long-term sustainability, putting more resources into securing future finances and paying little attention to current assets and liabilities. Yet, current assets account for more than half of the total assets under businesses (Atseye, Ugwu, & Takon, 2015). Research involving company finances has evolved, with modern analysis involving long-term financial decisions emphasising investment portfolios, dividend policies, or capital structure (Snober, 2014). However, the main measures incorporate current assets and current liabilities (Nyabenge, 2014).

Nonetheless, increased market volatility has necessitated a reassessment of the impact of sound working capital management and the importance of managing short-term assets and liabilities Botoc (2017). Liquid investments that can be sold to generate quick capital for the firm require proper working capital management (Baños-Caballero, García-Teruel, & Martínez-Solano, 2014), and to ensure effective working capital management within an organization, and managers need to have clear objectives. These objectives should be to increase the firm's profitability and provide adequate liquidity (Aminu, 2012).

WCM comprises all the managerial accounting decisions revolving around managing a company's short-term assets and liabilities to ensure the firm has adequate finances to meet its short-term obligations (Akoto, Awunko-Vitor, & Angmor, 2013). Current assets can easily be liquidated within a business year to generate extra funds for more necessary expenses (Afrifa & Padachi, 2016). On the other hand, current liabilities consist of financial obligations intended to be catered for using extra monies generated from business operations within the year. WCM strategies are essential to firms' operations and significantly

contribute to wealth creation which is directly related to liquidity and profitability (Naser, Nuseith, & Al-hadeya, 2013). WCM concerns itself with promoting the firm's chances of maintaining adequate liquidity levels since this maintains a healthy relationship with suppliers and creditors. Abubakar (2017) reports that effective working capital management is crucial for businesses' financial health, regardless their size, age and industry. According to Baños-Caballero, García-Teruel, and Martínez-Solano, (2014); Ukaegbu (2014); Kieschnick, Laplante and Moussawi (2013) and de Almeida and Eid Jr. (2014), capital management has become increasingly crucial in literature due to the increasing focus on companies to generate shareholder returns. The researchers above note that WCM is key to determining the tradeoff between firm returns and risk. However, firms' intention to ensure proper working capital management depends on the firm's industry. Some industries demand more strict attention to working capital than others (Takon & Atseye, 2015).

Flexible trade credit policy and keeping extensive inventories can cause finance to get locked up in working capital. This can, in turn, cause firms to have trouble managing short-term finance, reduce the firms' profitability, and impact the firms' liquidity position (Kamara, 2014). However, it was determined that accounts receivable and cash collection days negatively impact profitability ratios (Nobanee, Abdullatif, & AlHajjar, 2011; Mathuva, 2010). Kieschnick et al. (2013) assert that holding high amounts of working capital or over-investment in working capital negatively impacts firm profitability attributable to the increased holding financing costs. Aktas et al. (2015) further note that holding high working capital levels becomes costly in the long term due to increased interest expenses and credit risk. Panda and Nanda (2018) found a convex relationship between WCM and firm returns among listed chemical, construction, and consumer goods sectors. This means that these firms could use short-term debts to finance operations without impacting their profitability ratios.

In 2014, eleven companies listed at the Nairobi Stock Exchange (NSE) issued profit warnings, a significant rise from the previous year, which witnessed eight companies issuing a profit warning. This indicates that the companies involved were experiencing the effects of the harsh business environment (Mwiti, 2016). Companies listed at NSE have shown poor performance, with Kenya Airways reporting a Ksh 25.7 billion loss. A loss attributed to operational inefficiencies (Okoth, 2015), Mumias sugar company reported a loss of Ksh 3.4 billion; Eveready East Africa Limited is exiting the Kenyan markets, having lost Ksh 248 million (Kanyugi, 2016). The Kenyan government has initiated strategies to improve

profitability within the agricultural sector, such as the agriculture sector development strategy 2010-2020. However, their impacts are yet to be felt (Kamara, 2014). The study further notes that listed agricultural firms in Kenya have mainly faced financial struggles due to the industry's volatility, with three of the current firms reporting losses between 2014 and 2018. Further, studies report varied effects of WCM components on firm profitability across different sectors (Iqbal and Zhuqan, 2015; Afrifa and Padachi, 2016; Nobanee, Abdullatif, and AlHajjar, 2011; Aktas et al. 2015; Mathuva, 2010). This is why this study specifically focussed on examining how working capital management impacts profitability within listed agricultural firms in Kenya.

1.1.1 Working Capital Management

Working capital is the sum of total short-term assets or currents assets net current liabilities (Baños-Caballero, García-Teruel, & Martínez-Solano, 2014). According to Nyabenge (2014), working capital management should be carried out daily to ensure that the company s ability to generate funds and resources, which are necessary for the realization of short-term goals. It involves activities that relate to how the firm receives and spends capital. WCM refers to firms' financing of their current debts to maintain a healthy balance between liability and profit generation capability. Yunos, Nazaruddin, Ghapar, Ahmad and Zakaria (2015) note that efficient management of current assets and current liabilities can increase profitability without getting into debt. This form of control prioritises short-term assets investments, including inventories, accounts receivables, cash, and short-term securities (Aktas, Croci, & Petmezas, 2015). Businesses must ensure that they have adequate working capital since holding inadequate capital has been noted to have adverse effects on profitability and liquidity positions. Maintaining a proper amount of working capital ensures that the business can operate effectively, with reserve funds being made readily available for any unexpected expenses (Nyabenge, 2014).

According to Akoto et al. (2013) and Wasiuzzaman and Chettiar (2013), working capital consists of four main components: cash, marketable securities, inventories, and accounts receivables. For each of these components, firms face a trade-off; since working capital is essential to the running of the business, the greater the holding of the working capital, the lower the operating risk and liquidity problems. However, holding working capital is costly due to handling charges, risk of spoilage, obsolescence of inventory, the opportunity cost of capital, among other expenses (Musau, 2015). Many firms operating in different economic

sectors may have an optimal level of working capital that maximizes their wealth (Rathiranee, 2017).

Ramesh, Hamad, and Tammam (2017) argue that working capital management should be the most important financial aspect of financial management. They contend that WCM involves managing monies invested in ensuring smooth execution and management of day-to-day activities and expenses. WCM is composed of the difference between current assets, which include cash reserves at hand, bank balances, inventories, trade, and other receivables, marketable securities, and current liabilities, which include trade and accounts payables, accrued expenses, short-term payables. In their study, Iqbal and Zhuquan (2014) scrutinized three elements of working capital management: creditors, debtors, and stock. Management of these three elements can be done in various ways according to the measure of profitability. They argued that some firms prefer using trade credit to attract new clients, denying themselves a significant amount of revenue. These firms are likely to face cash flow and liquidity problems because a significant proportion of capital will not be used to generate revenue.

Muhammad and Umair (2017) investigated the relationship between WCM and profitability to determine the optimal operating level for the firms. The results confirmed the existence of inverted u-shaped relation between working capital management and reported returns. This shows that WCM practices are only effective up to a certain level beyond which they can lead to negative firm performance. Similarly, Baños-Caballero, García-Teruel, and Martínez-Solano (2014) reported that there exists an inverted u-shape relationship between WCM and sugar companies' financial outcomes. In a study by Iqbal and Zhuqan (2015), an inverse relationship between WCM and profitability was identified. (Safdar, Awan, Ahmed, Qureshi, & Hasnain, 2016) assessed the relationship between liquidity and profitability and noted that liquidity improved firm returns. Anojan, Arulalan and Nimalathasan (2013) found no significant relationship between WCM and profitability of beverage, food and tobacco firms in Sri Lanka. (Adolphus, 2014) noted that liquidity negatively influences profitability, advocating for increased investment in current assets among Nigerian firms.

Mathuva (2010) investigated WCM components and firm profitability of NSE-listed firms reporting a positive relationship between the two variables. Makori and Jagongo (2013 construction firms) focussed on performance among the top 20 firms listed at the NSE and noted that managing current inventory is key to enhancing firm returns. This explained the difference in performance between the firms. Mwangi, Makau and Kosimbei (2014) reported

that reducing investment results in increased current assets and could reduce the quality of fixed assets, leading to negative performance in the long term. Afrifa et al. (2015) and Banos-Caballero et al. (2016) found evidence of a concave (non-linear relationship) between the WCM components and profit generation. Both of these studies involved medium-sized firms.

The above studies show that various researchers investigate WCM components using different variables. However, the most common representations for annual WCM management are in the form of CCC, accounts receivables, and account payables (Mathuva, 2010); Akoto et al., 2013); hence this study sought to determine the relationship between these variables on the financial performance of listed agricultural firms in Kenya.

1.1.1.1 Accounts Payable

Gul et al. (2013) define accounts payable as the amount owed to a supplier whose payment has been approved but not confirmed. They include trade credit and accrued expenses. It is also known as Accounts Payables Outstanding (APO) and infers the number of days a firm takes to settle its debts (Akoto et al., 2013). These funds can provide the needed finance to ensure the successful execution of objectives on a short-term basis. Most businesses prefer to complete their financial transactions on a cash-in-hand basis. However, due to business reasons, some firms are forced to exchange goods and services on credit terms. When firms hold high amounts of accounts payable, they could fail to honour their financial obligations in times of financial constraints. This could significantly impact their ability to keep up with the required inventory levels since these damages supplier relationships (Ponsian, Chrispina, Tago, & Mkiibi, 2014).

Efficient WCM entails planning and controlling current assets and liabilities to ensure that the firm eliminates the risk of not paying off its debts. This is especially so in SMEs whose current liabilities significantly impact their balance sheets (Afrifa, Tauringana, & Tingbani, 2015). This form of credit is different from credits received from financial institutions such as banks. They require little to no collateral; they are almost always guaranteed by word of mouth and depend on trust and reputation (Wasiuzzaman and Chettiar, 2013). The accounts payable turnover ratio is one of the liquidity ratios which shows a firm's ability to repay owed accounts payable by comparing net credit purchases to the average accounts payable during a particular period (Achode & Rotich, 2016). Iorpev and Kwanum (2012) indicated that the relationship between Short term debt and total assets, long-term debt and total assets, and ROA and profit margin is negative and insignificant. Mugo (2016) reports that

deferment of payments can negatively impact a firm reputation in the market and discourage lenders; this could harm operations should the firm need quick cash. Mwangi, Makau and Kosimbei (2014) affirm that late payment makes the company forego possible discounts on early repayment, and this could affect profits generated in the short-term.

1.1.1.2 Accounts Receivable Management

Kakeeto, Timbirimu, Kiizah and Olutayo (2016) define accounts receivable as a firm's legal and enforceable claim for payment from a business to its customers for goods supplied and services rendered by following the demands made by the customer. It constitutes all the finances that a firm is expecting from loans it offered to players in its supply chain (Kontuš, 2013); they result from the firm's crediting strategies (Kofi, 2015). Management of accounts receivable is key to objective realization and corporate finance and involves the following parameters; the length of the loan period, early payment benefits, performance quality and collection procedure (Kilonzo, Memba, & Njeru, 2016). Managers need to have the capacity to analyse their customers or supplier's ability to pay for goods and services since this is directly related to the firms' liquidity levels, hence level of profitability (Munene & Tibbs, 2018).

Accounts receivable form a substantial part of some firm's current assets; therefore, managers consider effective accounts receivable management as a strategy that can be developed to ensure the firm's longevity (Hagberg & Johansson, 2014). It directly impacts a firm's value by influencing the firm's profitability (Kumaraswamy, 2016). Firms with the necessary competency to effectively synchronize cash inflows with cash outflows under a cash flow management strategy are assured of positive financial outcomes Shin and Soenen (1998) (quoted in Makori & Jagongo, 2013). The study contends that firms tend to plan for the average collection period be less than the average payment period. Gorondutse, Ali, Abubakar and Naalah (2017) report that credit terms significantly impact the revenues generated from receivables. Having tight policy results in less investment in receivables, thus shielding firms from bad loans. Accounts receivable, being components of the statement of cash flows, directly impacts profit generation Lu (2013). However, keeping longer accounts payables period could reduce earnings if there is a discount on early debt repayment. Cash flow management controls cash inflows and outflows, and it involves the management of accounts payable, accounts receivables, inventory, and cash flow planning (Zakari & Saidu, 2016). Kumaraswamy (2016) noted that the average repayment period and average collection period both have significant effects on the level of profitability within the

firm. From the resultant regression model, the average collection period was noted to significantly impact profitability.

1.1.1.3 Cash Management

Besley and Brigham (2013) referred to the cash conversion period as the period between payment to acquire raw materials when the purchaser completes the transaction. It has been associated with income generation and values realization since it improves its capacity to use working capital efficiently. This period is key to businesses' profitability margins since it indicates the firm's time to realize gains from investments. They are key performance indicators and show the firm's financial health (Audax, 2018). Furthermore, it is helpful when the firm seeks to eliminate unnecessary expenses that significantly impact an organization's financial soundness, as Ramesh, Hamad, and Tammam (2017) noted, who argue that WCM involves the management of invested funds to ensure the smooth running of day-to-day operations. Further, Nijam (2016) concluded that a long cash conversion cycle negatively impacts the firm's return on assets. Firms that strive to minimize their cash conversion cycles remain competitive and profitable over the long term than firms that hold long-term cash conversion cycles. Muturi (2015) noted that among tea companies, long cash conversion cycles significantly impact their profitability.

1.1.1.4 Inventory Management

An inventory management practice (IMP) is required for a retail business to thrive. A successful inventory policy is one that guides the stores on how much to order, the reorder points, and the optimum replenishment cycles (Adolphus, 2014). For this to work, demand planning and forecasting is needed and required safety stocks should be defined (Enqvist, Graham, & Nikkinen, 2013). Firms therefore tend to hold excess inventories while avoiding the poor service levels and lost sales. The excess inventories on the other hand can cause unnecessary costs to the firm (Atseye, Ugwu, & Takon, 2015). Dirie and Ayuma (2018) results imply that cash flow management, credit policy management, inventory management significantly influenced financial performance of the SME's in Mogadishu Somalia.

1.1.2 Firm Characteristics

Firm-level characteristics are financial resources, technology, managerial skills, human resources, and firm size (Barney & Clark, 2014). Yegon (2014) noted that smaller firms had less risk-averse strategies and were more vulnerable to economic fluctuations. Due to their size and financial power, large firms can exploit economies of scale more effectively, and as

a result, are better placed during negotiations. The study thus relates size with leverage capacity (Ibhagui & Olokoyo, 2018). Further, they can acquire credit services with ease, thus ensuring continued investment in emerging technologies and other firm processes. These firms also have a larger pool of employees who possess the requisite skills and competencies to achieve greater strategic diversification (Diabate & Benzazoua, 2015). Majumdar (2012) looked into how the size of the company relates to its profit margins. The study controlled all other variables that may impact financial returns. The findings pointed to evidence that although large firms realized more significant profit margins, they were not productive. Malombe (2014) affirms that firms that have been in the market for more extended periods are at an advantage over new entrants since they have better knowledge of market dynamics and a more dedicated sales team. This study examined the firm's size as a moderating factor in the interaction between working capital management and financial performance.

1.1.3 Financial Performance

Financial performance is a measure of an organization's policies and operations in monetary terms. It is an indicator of the organization's financial health from one period to another. It is, therefore, a suitable means to compare firms across different industries and is also known as profitability (Abubakar, 2017). It is a subjective measure of an organization's financial capabilities over a given period and is used to compare firms that operate within similar industries (Rathiranee, 2017). According to Ganag, Kalaiselvan, and Suriya (2015), liquidity, solvency, profitability, debt repayment capacity, and financial efficiency are the key measures of financial performance. De Carvalho et al. (2013) notes that it is a factor of numerous determinants, including the firm's asset governance structure, liquidity, age, size, debt, government support, and risk.

According to Kayani (2018), firms assess performance in three main ways: through accounting measures, through market measures, and a mixture of both. Effective financial performance evaluation systems have to promote goal congruence and coordination, communicate expectations, motivate, provide feedback, and provide assurances for and opportunities for benchmarking (Aminu, 2012). According to Iorpev and Kwanum (2012), accounting measurement refers to determining the cost of economic or financial activities in terms of money, hours, and other units or a measurable element that allows for comparison and evaluation of accounting data.

Financial performance measures include return on assets (ROA), return on equity (ROE), and net interest margin (NIM) (Ryu, Kim, & Ryu, 2019). Nguyen (2020) reports that the

primary measures of financial performance include return on assets (ROA) and return on equity (ROE). ROA is among the critical predictors of sustainability and can forecast business failure (Aminu, 2012). This study measured the financial performance using ROA and ROE since they are among the most commonly represented measures of financial performance in literature. Further, their analysis is easier since these are usually well described in the companies' annual financial reports and are usually the first indicators of a firm's capability to meet its financial obligations.

1.1.4 Listed Agricultural Firms in Kenya

Nairobi Securities Exchange (NSE) was established in 1994 (Kamara, 2014). Its establishment was informed by the need to sell shares of public companies listed at NSE and other private companies intending to go public. Today NSE is a significant securities exchange market in East Africa, with 61 companies quoted and categorized into industries. There are seven leading companies listed under the agricultural segment. They include Kakuzi, Sasini, Kapchorua Tea, Limuru Tea, Williamson Tea, Rea Vipingo Plantations, and Eaagads (NSE Report, 2015). Financial reporting data indicates that these seven companies generate less income than companies with similar financial capability. Further investigation reveals that most investment goes into liquid counters whose primary sources of income are not impacted by climatic conditions, which increase the risk of uncertainty.

This study is unique in that it aims to investigate performance in a largely unexplored industry. While many studies focus on the relationship between WCM and financial outcomes of listed firms in general, few focus on the agricultural firms reporting dismal performances in recent years. Results dominated by non-agricultural firms cannot be adequately generalized to the agricultural sector. Further, these firms reported increased losses and reduced income despite other listed firms recording improved performances. This is despite their significance to the economy and their importance to realising the country's Vision 2030, which aims to ensure food security to the whole country by 2030. In recognition of the influence of the agricultural sector in promoting the attainance of national goals, this study focuses on the agricultural firms listed at the NSE.

1.2 Statement of the Problem

Working capital management is one of the critical determinants of firm outcomes, especially among agricultural sector firms whose returns are realized after long periods. Mismanagement of funds in these companies could easily lead to their collapse, necessitating the efficient management of working capital, especially among these firms where increased

competition has seen the country importing essential foodstuff such as maize and sugar (Gamze, Ahmet, & Emin, 2012). Musau (2015) reports that WCM relations with profitability differ from one country to another and from one industry to another. Further, most of the studies primarily focus on firms in the manufacturing sector.

Findings from (Afrifa & Padachi, 2016) indicate the existence of a concave relationship between working capital level and profitability. Further, it was determined that profitability is maximized only at the optimal working capital level. Over-investment or under-investment of some operations are some of the indicators of financial mismanagement. Most of the managers in this sector lack adequate motivation to invest in working capital management measures as a strategy for lowering holding costs (Achode & Rotich, 2016). As such, some of these companies fail to meet their financial obligations in time.

Multiple studies have been carried out in relation to WCM components and firm profitability. Jamalinesari and Soheili (2015) noted that WCM is an essential component in businesses and should be handled coherently to ensure long-term business sustainability. Working capital mismanagement affects the supply chain relationship, negatively impacting the firm's relationship with creditors, customers and suppliers (Muturi, 2015). Kazimoto (2016) found a positive relationship between the cash conversion cycle in sales volume and profitability. Safdar et al. (2016) and Omondi and Muturi (2013) reported a positive relationship between liquidity and profitability. Nyamweno and Olweny (2014) noted that accounts receivables and cash conversion cycles negatively impact firm profitability, while Hillergren and Björkman (2014) found a positive relationship between Cash Conversion Cycle and profitability.

Kanji (2017) examined the effects of net working capital on performance among the service firms listed at the NSE. They found that net working capital influences a firm's financial performance, and Capital Market Authority should regulate the net working capital of listed companies to improve financial performance. Njuguna (2015) investigated the association between stock return and working capital management and discovered a strong link between accounts payable, inventory days, and stock return. However, the studies have not explicitly focused on the listed agricultural firms in Kenya, thus creating an empirical gap that this study seeks to solve. Odalo and Achoki (2016) investigated liquidity and agricultural firm's financial outcomes reporting a positive relationship between liquidity ratio and financial return. His study specifically analyzed liquidity and profitability; the current will encompass all WCM components.

In Kenya, most agricultural companies leverage on availability of funding to run their operations. While the above studies show the relationship between capital management and firm performance, they mainly focus on manufacturing, financial and service industry players. Additionally, despite the financial support from the government, the sector has continued to perform poorly, leading to the closure of some companies. Furthermore, there is the conflicting empirical observation on the relationship between working capital management components and the measures of financial performance in listed firms in different industries, which is vague and requires a more thorough investigation. This study enhanced available literature by examining the relationship between working capital management, firm characteristics, and the financial outcomes of listed agricultural companies in Kenya. By focussing on a single industry, this study sought to determine the specific aspects of working capital management that impact returns among agricultural listed firms in Kenya.

1.3 General Objective

The study's main aim was to establish the effect of working capital management and firm characteristics on the financial performance of listed agricultural firms in Kenya.

1.3.1 Specific Objectives

i. To establish the effect of accounts payable on the financial performance of listed agricultural firms in Kenya
ii. To establish the effect of accounts receivables on the financial performance of listed agricultural firms in Kenya
iii. To establish the effect of cash management on the financial performance of listed agricultural firms in Kenya
iv. To establish the effect of inventory management on the financial performance of listed agricultural firms in Kenya
v. To establish the moderating effect of Firm Characteristics on the financial performance of listed agricultural firms in Kenya

1.4 Research Questions

i. What is the effect of accounts payable on the financial performance of listed agricultural firms in Kenya?
ii. What is the effect of accounts receivables on the financial performance of listed agricultural firms in Kenya?

iii. What is the effect of cash management on the financial performance of listed agricultural firms in Kenya?

iv. What is the effect of inventory management on the financial performance of listed agricultural firms in Kenya?

v. What is the effect of firm characteristics on the financial performance of listed agricultural firms in Kenya?

1.5 Scope of the Study

The study's contextual scope focused on examining the working capital management components, firm characteristics, and the financial performance of listed firms in Kenya. The theoretical scope of the study was the transactional cost theory and the cash conversion cycle theory. The sample scope of the study was the 7-listed agricultural firms in Kenya. The time scope of the study was panel data collected for the period 2010-2019.

1.6 Significance of the Study

1.6.1 To Management

This study will provide an overview of the impact of effective working capital management on the financial results of listed agricultural companies in Kenya. The study's findings are expected to yield vital information that the firm management can utilize in stimulating better financial results within the firms. The study findings will help the management make decisions regarding WCM components and strategies to help manage the level of current assets and liabilities for optimal firm performance.

1.6.2 To Academia

To researchers and academicians, the study will form a basis for future research work as reference material. Its suggestions for future studies will provide an identified gap that future researchers may explore, thus fostering sustained exploration in the field. Further, its findings will be key to increasing empirical evidence of the impact of WCM components on returns among listed agricultural firms.

1.6.3 To Policy

The results are expected to enhance knowledge on policies needed to improve performance among agricultural listed firms. The results are also expected to foster policy guidelines meant to foster regulation of firms trading at the bourse in general.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presented the theories that guided the study and reviewed empirical studies in line with study variables. The chapter further presented the gaps that exist in previous studies and the conceptual framework.

2.2 Theoretical Review

2.2.1 Transactional Cost Theory

The Transaction Cost Theory was proposed from the seminal work of Coase (1937) and Williamson (1975), and Ferris in 1981 expounded it by linking it to firm transactions. Accordingly, the theory postulates that firms are viewed as a set of transactions that influence every decision made by the firm both in the long and short term (Ferris, 1981). According to this theory, firms prioritize using equity modes only when they need a particular key asset and a high level of uncertainty in the market environment (Howorth & Westhead, 2003). However, firms will employ non-equity modes when the need for a critical asset is low, and there is little or no uncertainty in the market since they have no incentive to maintain high control levels (Hofman & Kotzab, 2010).

Ferris (1981) supposes that the management of payables is key to reducing transactional expenses when catering for other expenses. To accomplish this, the firms have to establish a culture in their payment mechanism that prompts them to carry forward bills and settle them monthly instead of settling the bills upon delivery of the respective goods and services. Williamson (2013) asserts that this strategy allows firms to distinguish between the payment cycle and the delivery schedule. According to this theory, firms that can settle bills on a transaction basis are better placed to ensure effective cash flows, enabling the firm to meet its short-term obligations adequately. WCM, according to this theory, can be key when planning the level of and improving the firm's level of liquidity.

Espino-Rodriguez and Gil-Padilla (2006) suppose that high transaction costs translate to the high cost of acquiring information, negotiating, and ensuring compliance. Further, these rising costs discourage the firms from engaging in activities such as outsourcing, which have been noted to have a positive impact on the firm's overall output. The primary factors contributing to transactional difficulties include bounded rationality, opportunism; small numbers bargaining; information impacted news (Kanji, 2017). However, critics of this

theory argue that the theory ignores the contextual grounding for human actions, thus making its view of human motivation under-socialized and over-socializing the view of institutional control. The assumptions of opportunism are also controversial since it assumes that people involved in every business transaction will be opportunistic. Several scholars argue that the pre-emptive expectation for partners to be opportunistic brings rise to dishonest managers.

The theory has been applied in research to shed light on a wide range of firm phenomenon such as private-public partnerships, multinational corporations, strategic alliances and supply chain relationships. Further, TCT has been advanced to integrate factors determining governance choice and the consequences of these choices on firm performance. This theory implies that managements of listed agricultural firms should consider the cost implications before outsourcing the cash management services, account receivable services, account payables and evaluate whether the decision is appropriate in the short and long term. Hence this theory was adopted in this research in supporting how various WCM components can influence the financial measures explored by managements of listed agricultural firms.

2.2.2 Cash Conversion Cycle Theory

Richards and Laughlin developed this theory in 1980, intending to find other means of measuring functioning working capital without relying on financial ratios. Hagberg and Johansson (2014) propose that the computations for WCM and the CCC have strong correlations; subsequently, the cycle is essentially the number of days taken to receive a particular payment. Further, the research found that the CCC can be an essential factor when determining inventory level changes, accounts receivable, and accounts payable, which is key when the firm seeks to meet the recommended standards of financial transparency.

Hagberg and Johansson (2014) pinion that traditionally, CCC was viewed as a means for firms to formulate and implement a model designed to handle working capital more effectively, resulting in increased profit margins. However, the study notes that adopting this method has several limitations; focusing on minimizing the volume of CCC results in budget constraints in other departments within the organization, such as sales and customer relations departments. Any adjustments instituted in these departments would lead to unforeseen damages. Further, since CCC is a sum of the number of days taken to receive payments from clients, three components restrain it; the number of days inventories outstanding, receivable days outstanding, and outstanding days (Uyar, 2009).

According to Nobanee, Abdullatif, and AlHajjar (2011), CCC assesses three main elements; inventories, accounts receivables, and accounts payables of the operative working capital of

a firm. Afrifa, Tauringana and Tingbani (2015) indicate that it is more prudent to adopt weighted CCC to analyse a firm's financial position. It links the economic values of operational working capital components to their cycle times. The weighted CCC is computed by determining the weighted operating cycle, less weighted day on accounts payables (Ahmed, Mahtab, Islam, & Abdullah, 2017).

Viskari and Kärri (2012) had elaborated the weighted CCC into a familiarised CCC. The computation logic of a familiarised CCC is based on a weighted CCC, which can be used at customers or products. With these modifications, it is possible to present the level of efficiency of WCM in days. This is similar to the original CCC. Ahmed, Mahtab, Islam, and Abdullah (2017) noted that fewer resources are invested in net working capital if the cycle is short. Inversely, if the cycle is long, more resources are invested.

The Cash Conversion Cycle is used as a comprehensive measure of working capital management. According to the CCC theory, longer lead to reduced returns. Since the study focuses on agricultural firms, the negative relationship can be explained in need for farmers to quickly deliver perishable food products and collect their receivables. The CCC theory represents a means to measure ongoing management of liquidity since it combines data from both the balance sheet and income statement with a time dimension. The model, therefore, provides a tool that ensures the working capital of a firm is appropriately managed, thus maximizing return to shareholders. This theory was essential in this study is examining how agricultural firms' management of current assets and liquidity influences their financial performance. This theory explains the cash conversion cycle period variable.

This study employed a multi-theoretical approach to recognise the failings of the Transaction Cost Theory in recognition and appreciation of the criticisms involving the opportunism assumption. The CCC and the TCT can both explain the managements' decisions that are beyond their attitudes. While the TCT seeks to explain managers' cost-benefit considerations, the CCC attempts to identify those factors they cannot directly control, such as the accounts collection period. In applying both of them in this study, the researcher ensured that all explorable variables are captured in the study.

2.3 Empirical Review

This section presents the review of various studies that helped in identifying the gaps motivating this research work.

2.3.1 Accounts Payable and Financial Performance

Hassan, Imran, Amjad, and Hussain (2014) studied the effects of WCM on firm outcomes among non-financial listed firms in Pakistan. The study relied on panel data collected for 2007-2010 with econometric analysis and pooled least square regression being utilized. Findings showed that the average age of inventory significantly impacts gross profit margin and ROA. In contrast, the age of inventory has an insignificant negative effect on ROE. The study also determined that the average collection period has a significant and positive interaction with the gross profit margin and ROA. The current study, in contrast, relied on two financial performance proxies, ROA and ROE, which focus on listed agricultural firms in Kenya.

Abdulazeez, Baba, Fatima, and Abdulrahaman (2018) based their study in Nigeria, assessing the outcomes of listed multinational companies to determine the relationship between WCM and financial performance. The study relied on panel data collected for the period 2005-2014. Employing ordinary least squares regression, it was determined that the debtor's collection period, creditors' payment period, and firm size had negative impacts on ROI. The study revealed that the cash conversion cycle had a positive and insignificant effect on the firm's financial outcomes. The study focuses on listed firms in Nigeria, while this study examines Kenyan listed firms' financial results.

Kazimoto (2016) studied the link between WCM and the financial results of selected companies based in Kampala, Uganda. Employing a descriptive correlation research design, the study collected responses from sixty-three respondents. The study employed descriptive analysis, and the results show that there was low adoption of working capital management practices. The research found a moderately significant relationship between WCM components (accounts receivables, accounts payable, and cash management) with financial performance. The study utilized primary research data, while the current study relies on panel data regression, which is superior in determining the causality between financial components.

Kipkemoi (2018) explored the effect of inventory and cash conversion cycles on the financial results of listed commercial and service firms listed at the NSE, Kenya. The research adopted a descriptive research design with a focus on the twelve listed firms. The research used panel data for the period between 2007 and 2017. The study employed panel data regression analysis. The study found out that the inventory conversion period did not correlate with the financial performance of the firms. The study also noted that accounts receivables and

accounts payable significantly influence the ROA of the listed firms. The current study shall examine the financial performance of listed agricultural firms using ROA and ROE.

Masinde and Elly (2017) studied the effects of WCM on the financial results of energy and petroleum companies listed at the NSE. Employing a correlation survey design, the researcher collected quantitative data for the period between 2007 and 2014. The study indicated that 17.8% of the variations in the ROA of listed firms could be attributed to working capital management components. The study found a weak and negative effect of the inventory conversion period, accounts collection period, accounts payable period, and CCC with the profitability of the listed energy and petroleum firms. The study, however, is not focused on listed agricultural companies in Kenya.

Mathuva (2010) looked into WCM components and their impact on firm outcomes. Data reported between 1993 and 2008 were collected from a sample of 30 companies listed at the Nairobi Stock Exchange (NSE). The analysis involved the use of the pooled OLS and the fixed effects regression models. The study revealed that the longer the average collection period, the higher the profitability ratios for the companies. This means that the accounts payable period is has a positive relationship with returns. In the same breath, firms with longer accounts receivable were noted to suffer from reduced returns since the monies not collected could have been used for investment in other income-generating activities.

2.3.2 Accounts Receivable and Financial Performance

Aguenaou, Abrache, and Brahimi (2015) assessed the relationship between WCM and profitability of forty-three non-financial firms listed at the Casablanca Stock Exchange between 2006 and 2012, revealing the correlation between average collection period and firm's profitability is negative. The inverse relationship between the average collection period and firm profitability indicates that reducing the debtors' collection period in days is associated with increased profitability and vice versa. However, the study is not focused on listed agricultural firms in Kenya; hence, the results may not be generalizable in this study context.

Enqvist, Graham and Nikkinen (2013) investigated the impact of the average collection period on firms' profitability. The study involved companies listed in Finland between 1990 and 2008. Conclusions suggested that the relationship between cash conversion ratio and profitability is negative. Profitability in this study was measured in terms of ROA and gross profit margin. This means that as the firms' cash conversion period reduces, the profitability increases. It was also found that the relationship between debtors and profitability is

inversely proportional. The study, however, fails to identify how other WCM components influence the financial performance of listed firms, which is a focus of this research.

Osman and Ayuma (2018) studied the impact of accounts receivable management on the financial performance of Small and Medium Firms in Mogadishu-Somalia. The target populations had one hundred and two SMEs from three sectors conducted a study to determine. The study used both probability and non-probability sampling procedures and obtained eighty-one samples based on the Slovene formula. Inferential statistics such as Pearson correlation coefficient and coefficient correlation were used to analyze quantitative data, and descriptive statistics are employed for variables of the study. The study concluded that cash flow management and other independent variables (debt management, credit policy management, and inventory management) have a significant positive effect on financial performance at a 5% significance level. The study focuses only on account receivable, while this study examined how three main components of WCM impact the financial performance of listed agricultural firms.

Kiptoo (2017) sought to determine the link between WCM practices and the profitability of tea processing firms in Kenya. Adopting a descriptive research design that sampled fifty-four tea processing firms, descriptive and inferential statistics were executed. The findings showed that working capital management components significantly impact profitability among tea processing firms. Receivables and inventory management practices have a negative and significant impact on profitability among tea processing firms, with cash management having a positive and significant effect. The study's focus on tea processing firms makes its findings inadmissible in the current study, which focuses on the profitability of listed agricultural organizations in Kenya.

Waema and Nasieku (2016) investigated the impact of WCM on the profitability of listed manufacturing companies in Kenya. Employing a quantitative approach, the study focused on ten listed companies. The study utilized panel data collected between 2005 and 2014. The results show that creditor management positively impacts the firms' ability to generate profits. Debtor management, inventory management, and cash management were determined to negatively influence the firms' ability to generate profits among the listed manufacturing companies. The study focus is not on listed agricultural firms, which this research examined.

2.3.3 Cash Management and Financial Performance

Nobanee and Haddad (2014) investigated the link between WCM and profitability in Japan. The study sampled two thousand one hundred and twenty-three non-financial Japanese companies. The firms were listed on the Tokyo Stock Exchange for fifteen years between 1990 and 2004. Those firms' profitability was found to increase with the shortening of CCC, the debtors' collection period, stock conversion period, and lengthening of the creditors' deferral period. The study focuses on listed Japanese firms, while this research examined the listed agricultural firms in Kenya.

Ponsian, Chrispina, Tago and Mkiibi (2014) assessed the relationship between WCM components and profitability using a sample of manufacturing firms listed at the Dar Es Saalam Stock Exchange. The study sourced data reported between 2002 and 2011. Regression analysis involving ordinary least square reported that CCC is positively related to profitability, liquidity is negatively related to profitability, and the average collection period significantly impacts returns generation. The average payment period was also reported to improve firm returns significantly. Finally, it was determined that inventory turnover in days reduced profitability. The study context was focused on manufacturing companies, while this study context is profitability among agricultural companies.

Anser and Malik's (2013) studied the impact of CCC on the profitability of firms listed in the Karachi Stock Exchange manufacturing sector for the period 2007-2011. The study confirmed that the average CCC yields a low ROA but a high ROE. Regression results, however, indicate an inversely proportional relationship between CCC and both ROA and ROE. The study context was manufacturing firms, while this study examines agricultural listed firms in Kenya, facing increased financial performance problems.

Zakari and Saidu (2016) studied the effect of CCC on profitability among listed telecommunication firms in Nigeria. The study relied on descriptive research with panel data being collected for the period between 2010 and 2014. The research adopted multiple regression analysis. The findings showed that CCC positively and significantly impacts the corporate profitability of listed telecommunication firms in Nigeria. The research indicates that better management bills payment and collection of their receivables are key to better financial performance. The research, however, did not assess the profitability of listed agricultural firms in Kenya.

Yegon, Kiprono, and Willy (2014) studied the association between WCM and corporate profitability of selected quoted tea companies in Kenya. The study utilized panel data

between 2005 and 2012, focusing on six listed firms in Kenya. The result indicated that the net trade cycle, the inventory turnover, and the cash conversion cycle significantly impact the firms' profitability. It is, therefore, necessary that conservative working capital management policies should be fostered within quoted firms for better performance. The current study focused on different proxies of WCM accounts payable, receivable, and Cash management and their impact on the financial performance of the seven listed firms.

Oruko (2020) sought to assess the influence of financial risk management on returns among listed agricultural firms in Kenya. The research adopted a longitudinal research design and used secondary research data reported between 2009 and 2018. The study showed a significant negative relationship between financial performance and financial leverage risk. Recommendations were for the agricultural firms to source less costly credit sources and negotiate longer credit terms in terms of interest rate and repayment terms. The study did not assess firm characteristics.

2.3.4 Inventory Management and Financial Performance

Inventory management is a process of maintaining an optimal inventory levels across the firm premises. The cost of the possible interruptions and loss preventions can only be achieved by maintaining an optimal inventory levels across the firm premises (Adolphus, 2014). It helps to reduce the losses that arise as result scarcity products and cost of the supply and guard against price fluctuations. One of the main goals of the firm is to establish an optimal inventory management (Enqvist, Graham, & Nikkinen, 2013). To establish an optimal inventory level, it is much easy and possible to adjust the items of the raw material and finished goods than the inventory as whole (Aguenaou, Farooq, Abrache, & Brahimi, 2015).

Panigrahi, Jena, Tandon, Meher and Mishra (2021) reviewed the effect of inventory management and performance of manufacturing firms. The research showed that consistent management and control of inventory is critical to ensuring the soundness of the firm. The findings showed that concludes that inventory management practices have significant impact on firm performance. The study however was conducted in India and only focussed on inventory management and did not review other working capital management practices that were adopted in this survey. Ajayi, Olutokunbo, Obafemi and Araoye (2021) conducted research on the effective inventory management practice and firm performance: Evidence from Nigerian consumable goods firms. The findings implied that a positive and non-

significant relationship between return on investment and effective inventory management practice. The study was however not focussed on the listed firms in Kenya.

Muchaendepi, Mbohwa, Hamandishe and Kanyepe (2019) research revealed that a firm with sound and effective management of the inventory have high chances of reducing inventory to a suspected optimum level which pose no negative effect on the performance and sales unlike the poor and ineffective inventory management which have adverse and negative impact on sales and hamper the long-term profitability of the firm. Mburugu (2020) study focused on examination of the effect of inventory management on financial performance of commercial and service firms listed at the Nairobi Securities Exchange. The analysis showed that inventory management, liquidity and management efficiency have a positive and statistically substantial influence on performance of the NSE listed commercial and service firms. The study was however not focused on the listed agricultural firms that were the scope of the current research.

2.3.5 Firm Characteristics and Financial Performance

Matar and Eneizan (2018) assessed factors contributing to profitability among industrial firms operating in Jordan. The study utilized secondary data collected from the listed firms between the period between 2005 and 2015. The study utilized regression analysis and revealed that the financial leverage and the firm size negatively impact the firm's profit levels. The study revealed that liquidity, profitability, and revenues positively impact ROA. However, the study is not focused on the Kenyan context in which this study examined the financial performance of listed agricultural firms.

Dioha, Mohammed, and Okpanachi (2018) explored how firm characteristics impact financial outcomes among Nigerian listed consumer goods firms. The study population was twenty-two listed firms with research data collected for the period between 2011 and 2016. The study applied multiple linear regression analysis. The results determined that firm characteristics do not have a significant impact on firm profitability. Further, it was determined that firm size, sales growth, and leverage significantly impact the volume of profits generated by the firms. On the other hand, the firm's age and its liquidity level did not have a significant effect. The research, however, was not focused on WCM components, which this study prioritizes.

Audax (2018) conducted a study on the factors affecting the financial returns of manufacturing companies listed in the NSE, Kenya. The study sampled the ten listed firms at the NSE, with secondary data being analysed. The study employed correlation and

regression analysis, establishing that firm size significantly influences profitability among manufacturing firms listed in NSE. The study then determined that among. The study considered firm size as a predictor variable, yet this study's control variable is the effect of firm size on WCM and financial results.

Muhindi and Ngaba (2018) studied how firm size impacts profit generation among Kenyan commercial banks. The study relied on secondary data of the forty-two commercial banks operating in Kenya between 2012 and 2016. The study utilized regression analysis, and the findings indicated that the firm's size accounts for 58.5% of the variations in commercial banks' returns in Kenya. The study does not consider the level of firm assets as a proxy of the firm size, which this study employed. Furthermore, the current examination is limited to listed firms in the agricultural segment of the NSE.

Ukaegbu (2014) carried out a multi-national analysis involving sub-Saharan African countries to determine WCM's significance in impacting firms' profitability. The study sourced data from financial statements obtained from the Orbis database. The study involved 102 large-sized manufacturing firms listed in Kenya, Egypt, Nigeria and South Africa. The WCM factors investigated were the number of days accounts receivables and the cash conversion cycle, while gross profit measured firm productivity. The study revealed that Kenyan firms were more profitable than the companies in the other countries, even though the other countries had higher industrialization rankings. The study found that firm characteristics such as board size and firm size were positively related to firm outcomes. The study noted that information asymmetry increased with an increase in firm scale and operational complexity. The study also noted an inverse relationship between the cash collection period and firm profitability. The study noted that having a less complex board composition is important to promoting firm operations and management characteristics have a major impact on firm operations, hence profit margins.

2.4 Summary of Research Gaps

The table below presents a summary of some of the gaps identified in the empirical literature review.

Table 2.1 Research Gaps

Author	Title	Findings	Research Gap and Focus of this study

Abdulazeez, Baba, Fatima, and Abdulrahaman (2018)	WCM and the financial performance of listed conglomerate companies in Nigeria.	The study revealed that the cash conversion cycle had a positive and insignificant effect on the financial performance of the firms.	The study focuses on listed firms in Nigeria, while this study examines the financial performance of quoted firms in Kenya.
Kipkemoi (2018)	Effect of inventory and cash conversion cycles on the financial performance of listed commercial and service firms in the Nairobi Securities Exchange.	The study found out that the inventory conversion period did not correlate with the financial performance of the firms.	The current study examined the financial performance of listed agricultural firms using ROA and ROE.
Osman and Ayuma (2018)	Impact of accounts receivable management on the financial performance of Small and Medium Firms in Mogadishu-Somalia.	The study concluded debt management, credit policy management, and inventory management have a significant positive effect on financial performance.	The study focuses only on account receivable, while this study examined how three main components of WCM impact the financial performance of listed agricultural firms.
Yegon, Kiprono, and Willy (2014)	Working capital management and corporate financial performance of selected quoted tea companies in Kenya.	The study indicates that conservative working capital management policies should be fostered within quoted firms for better performance.	The current study focuses on different proxies of WCM, accounts payable, receivable, and Cash management and their impact on the financial performance of the seven listed firms.
Zakari and Saidu (2016)	Impact of the cash conversion cycle on firm profitability focusing on Nigerian listed telecommunication companies.	The research indicates that better management bills payment and collection of their receivables are key to better financial performance.	The research, however, was not focused on the financial performance of listed agricultural firms in Kenya.

2.5 Conceptual Framework

The below conceptual framework identifies the hypothesized interaction between working capital management, firm characteristics (firm size), and the financial performance of listed agricultural firms in Kenya.

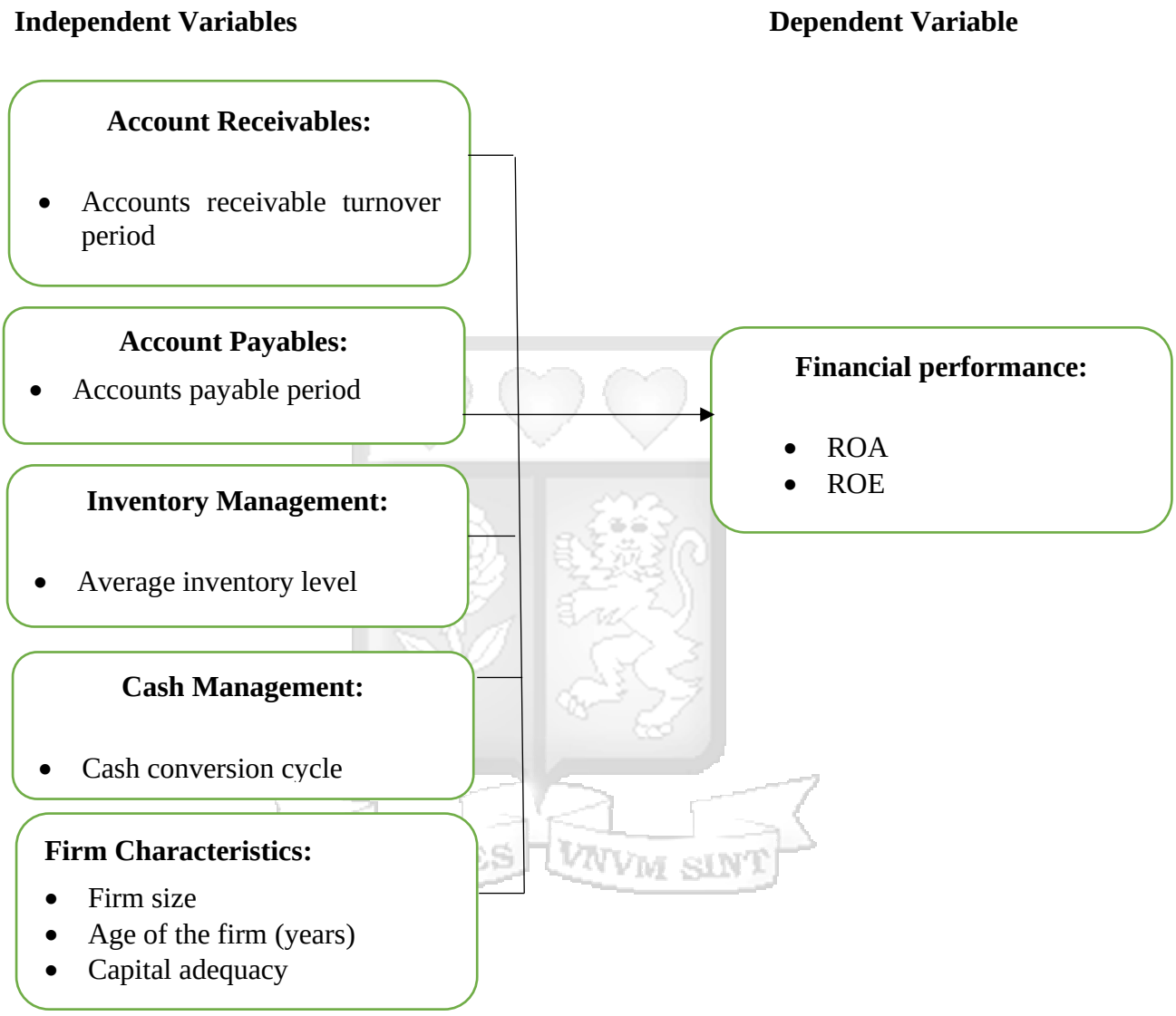

Figure 2.1 Conceptual Framework

The above framework indicates that the working capital management components are assessed by the accounts payable, accounts receivable, inventory level, and cash management and how they influence the financial performance measured by ROA and ROE. The control variable for the study was the firm size, age of the firm, and capital adequacy of the listed agricultural firms in Kenya.

Table 2.2 Operationalization of Study Variables

Variable	Constructs	Data Collection Tool	Data Analysis	Supporting studies
Accounts receivable	Account receivables turnover period	Panel data 2010-2019.	Descriptive analysis Inferential analysis.	Kipkemoi (2018); Masinde and Elly (2017).
Accounts payable	Account payable period	Panel data 2010-2019.	Descriptive analysis Inferential analysis.	Kiptoo (2017); Waema and Nasieku (2016)
Cash management	Cash conversion cycle	Panel data 2010-2019	Descriptive analysis Inferential analysis.	Zakari and Saidu (2016); Yegon, Kiprono, and Willy (2014)
Inventory management	Average level of Inventory	Panel data 2010-2019	Descriptive analysis Inferential analysis.	(Abdulazeez, Baba, Fatima, & Abdulrahaman, 2018; Enqvist, Graham, & Nikkinen, 2013)
Firm characteristics	Log of total assets Years in operation Capital adequacy	Panel data 2010-2019	Descriptive analysis Inferential analysis.	Audax (2018); Muhindi and Ngaba (2018)
Financial performance	1. ROA 2. ROE	Panel data 2010-2019	Descriptive analysis Inferential analysis	(Gill, Biger, & Mathur, 2010; Aminu, 2012).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology employed to solve the research problem. The chapter contains the research philosophy, the research design, population, and sampling procedures. It also presents the data collection instruments and the data analysis techniques.

3.2 Research Philosophy

An important consideration in research is the philosophical assumption that supports the study. The central part of the research is usually to develop an effective research strategy (Sekaran & Bougie, 2011). Research philosophy outlines the way data of certain phenomena should be gathered and analyzed (Saunders, Lewis, & Thornbill, 2012). This study employed a positivism research philosophy. The philosophy advocates for examining research phenomena in their original context and allows for quantitative statistical analysis to be employed in making research inferences.

3.3 Research Design

Research design can be defined as a detailed scientific plan that guides how research is conducted to obtain valid findings (Vogt & Johnson, 2011). A well-articulated research design encompasses a well-defined purpose, which is consistent with the research questions or hypothesis, and the research method proposed (Sekaran & Bougie, 2011). This study employed a descriptive research design. This helped in identifying the causation between the study variables using quantitative secondary research data.

3.4 Population and Sampling Design

3.4.1 Population of the Study

The research population consists of all the individuals, objects, organizations, or even items that the researcher may use to make references for measurement. It is the entirety of all people, organizations, or elements with something in common that is of interest to the researcher (Kombo & Tromp, 2009). The unit of analysis of the research was the listed agricultural firms in Kenya. There are currently seven (7) firms listed at the NSE, which formed the study's population. The study employed a census survey of all the listed

agricultural firms in Kenya. This ensured there is equal representation of all the firms in the observation made in this research work.

3.5 Data Collection Instruments

When deciding on the data collection procedure, one should care against bias and unreliability of the procedure employed (Saunders, Lewis, & Thornbill, 2012). The study relied on panel data in the examination of the research variables. Secondary data comprises the data collected by another individual and has undergone statistical analysis (Kothari, 2004). The study utilized a data extraction form in collecting the research data from the listed firm's audited financial statements. The study relied on the Capital Markets Authority repository as the source of the research data. The study collected research data for the financial years between 2010 and 2019.

3.6 Data Collection Procedures

This study relied on secondary data that the listed firms have published. This study will obtain audited financial statements and annual reports of agriculture listed firms at NSE in Kenya using secondary data collection form. The study ensured that ethical approval is sought from Strathmore University Ethical Review Committee. The research ensured that necessary permits from the National Commission for Science Technology and Innovation are obtained before retrieving research data.

3.7 Data Analysis and Presentation

The collected research data was edited, sorted, and analyzed. The study employed both descriptive and inferential analysis. Descriptive analysis is considered maximum, minimums, sums, standard deviation, and means. The study also adopted spearman correlation to analyze the type of effect between the study variables. The regression analysis was conducted using a panel data model with two approaches; the random-effects model (also called Error Components Model, ECM) and the fixed-effects model. The study conducted the Hausmann specification test to determine the selection of the study model. The research relied on F-test to determine the model's statistical significance. The study tested for regression assumptions using collinearity tests, autocorrelation tests, heteroscedasticity tests, and normality tests.

The main panel regression model for the research was as follows;

$$FP_{it} = \alpha + \beta_1 AP_{it} + \beta_2 AR_{it} + \beta_3 CM_{it} + \beta_4 INV_{it} + \beta_5 CNTRL_{it} + \varepsilon_i \qquad (3.1)$$

Where FP denotes the financial performance of listed agricultural firms *i* at time *t (measured by ROA, ROE)*

i denotes the observation (listed agricultural firms) i = 1--------7

t is the time period t= 2010--------2019

AP_{it} denotes accounts payable of listed agricultural firms *i* at time t

AR_{it} denotes accounts receivable of listed agricultural firms *i* at time t

CM_{it} denotes cash management of listed agricultural firms *i* at time t

INV_{it} denotes inventory management of listed agricultural firms *i* at time t

CNTRLit denotes the control variables of the listed agricultural firms *i* at time t

β 1- β5 are coefficients

ε is the error term

The analyzed data was presented using trend lines, charts and tables.

CHAPTER FOUR

PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

The study examined the relationship between WCM and financial returns among listed agricultural firms in Kenya, and the results of the analysis were presented in this chapter. The chapter contained the summary of the statistics extracted, the descriptive summary, the correlation analysis, diagnostic tests, and the regression analysis results.

4.2 Summary of Descriptive Results

The study focus was on the 7-listed firms within the agricultural sector in Kenya. Secondary data was collected for 2010-2019 with three WCM components, ROA, ROE, firm size, liquidity, capital adequacy, and the age of the firm data being extracted. The descriptive results are summarized in Table 4.1 below. The key for interpretation is as follows; ROE-return on equity, ROA – return on assets, CM– Cash Management, APP – accounts payable period, ARP -accounts receivables period, INV – Inventory, LQ – liquidity, FS – firm size, YR -years in service and CA – capital adequacy.

Table 4.1 Summary of Research Observations

	ROE	ROA	CM	APP	ARP	INV	LQ	FS	YR	CA
Mean	0.10	0.11	199.09	102.82	118.23	234.09	0.41	6.39	44	0.19
Median	0.07	0.09	204.00	73.53	86.62	198.05	0.33	6.51	45	0.19
Standard Dev	0.14	0.13	161.09	94.11	118.62	209.89	0.22	0.56	13	0.04
Maximum	0.63	0.66	574.15	472.0	538.38	865.81	0.93	7.23	68	0.31
Minimum	-0.15	-0.12	-156.35	0.00	20.28	0	0.15	5.20	14	0.12
Skewness	1.33	1.65	-0.092	1.97	1.95	.87	0.66	-0.53	-1	0.57
Kurtosis	2.89	4.89	-0.744	4.12	4.65	3.59	-0.70	-0.81	1	0.19

The study findings indicated that listed agricultural firms had attained an average of 10.3% ROE between 2010-2019, with ROA on average being 11.2%. The study results show that the maximum attained ROE was 62.7%, with a ROA of 65.9% within the same period. The findings also show that, on average, the average payables period was 102.81 days, with an average account's receivables period of 118.23 days. The research also showed that the oldest firm was in operations for 68 years, with an average growth rate of 44%. The findings

further showed that on average the firms held an inventory of 234.09 million shillings with a maximum inventory of 806.5 million shillings with the research period.

4.3 Diagnostic Analysis

The research employed tests for linear regression assumptions to ensure that the research data was suitable for regression analysis. The study conducted various tests, and the findings are presented in this section.

4.3.1 Test for Heteroskedasticity

The research sought to test for the presence of heteroscedasticity through the utilization of Breusch-Godfrey LM test statistic Heteroskedasticity is perceived as a selected feature of cross-sectional data, but that does not mean it cannot be related to time-series/panel data (Birău, 2012). The null hypothesis was no heteroscedasticity for all models with or without control variables.

Table 4.2 Heteroskedasticity Results

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of Return on Equity
chi2(1) = 1.94
Prob > chi2 = 0.163
Variables: fitted values of Return on Assets
chi2(1) = 7.59
Prob > chi2 = 0.059

The results above indicate Prob > chi2 = 0.163 for model one and Prob > chi2 = 0.059 for second model which were all greater than the critical value of 0.05. This shows that there was a constant variance and no problem of heteroscedasticity.

4.3.2 Collinearity Tests

Multicollinearity occurs when there is a high degree of association between independent variables (Kombo & Tromp, 2009). The research employed VIF in the tests for collinearity problems within the study predictor variables. The findings are presented below.

Table 4.3 Collinearity Results

Variable	VIF	1/VIF
Capital adequacy	2.06	0.486
Firm size	2.50	0.485
Liquidity	1.76	0.569
Years in operation	1.74	0.576
Accounts payable	1.57	0.638
Cash Management	1.54	0.651
Accounts receivables	1.49	0.672
Inventory Management	1.78	0.561

Dependent Variable: Financial Performance

As a rule of thumb tolerance value that falls above 0.10, there is no multicollinearity; the above findings indicated that all values had tolerance (1/VIF) of above 0.1. Further, factors (VIF) were below 10, indicating that multicollinearity was not a problem. This indicated that the study variables were not associated/linearly dependent on each other. The associated VIF values for the study variable are as follows; capital adequacy (VIF= 2.06), firm size (VIF= 2.50), liquidity (VIF= 1.76), years in operation (VIF= 1.69), accounts payable (VIF= 1.57), cash management (VIF= 1.54), inventory (VIF = 1.78) and accounts receivables (VIF= 1.49) which are all below 10 which meets the threshold for no collinearity problems.

4.3.3 Normality Tests

The study adopted both skewness and kurtosis to tests for the normal distribution assumption of the data adopted.

Table 4.4 Normality Results

	ROE	ROA	CCC	APP	ARP	LQ	FS	YR	CA	INV
Skewness	1.327	1.653	-0.092	1.967	1.954	0.664	-0.534	-1	0.574	.867
Kurtosis	2.896	4.885	-0.744	4.118	4.647	-0.701	-0.807	1	0.192	3.589

Tabachnick and Fidell (2007) argued that normally distributed data should have skewness values lower than 2 and kurtosis values lower than 7. The above findings indicated that no variable had a skewness of above 2, and all Kurtosis values were below 7, which indicated that research data was from a normal distribution.

4.3.4 Autocorrelation Tests

According to Gujarat (2009), autocorrelation occurs when the error terms are correlated with one another. In the regression model, the key assumption is that the error terms are independent of every other. The study applied the Durbin-Watson statistic to estimate autocorrelation problems in the model.

Table 4.5 Autocorrelation Results

Model	F-value	Durbin-Watson Statistic
1: ROE	11.92	1.98
2: ROA	3.96	1.79

With autocorrelation, the statistical significance of those estimators is not reliable and, therefore, the hypothesis-testing. Gujarati (2009) observed that the Durbin-Watson statistic ranges from 0 to 4, with values from 1.5 to 2.5, indicating no autocorrelation presence. The findings indicated that the D-W statistic within the two models was between 1.5-2.5, which meets the threshold prescribed for concluding there was no presence of autocorrelation within the data set.

4.4 Correlation Analysis

The aim of the study was to establish the effect of WCM and firm characteristics on listed agricultural firms' profitability. The study utilized Pearson correlation analysis to establish the association of the independent, controls, and dependent variables. Where; ROA is return on assets, ROE is return on equity, CM is the cash management, APP is the accounts payable period, ARP is the accounts receivable period, LQ is the liquidity, FS is the firm size, YIP is the firm's years in operation and CA is the capital adequacy.

Table 4.6 Correlation Matrix

	ROA	ROE	CM	APP	ARP	LQ	FS	YIP	CA	INV
ROA	1.000									
ROE	0.699*	1.000								
	0.000									
CM	-0.150	0.035	1.000							
	0.226	0.779								
APP	-0.169	-.104	-.325*	1.000						
	0.172	0.401	0.007							
ARP	0.118	0.137	0.134	0.030	1.000					
	0.343	0.269	0.279	0.809						
LQ	-0.004	-.104	-0.131	0.447*	-.458*	1.000				
	0.977	0.402	0.293	0.000	0.000					
FS	0.032	-.124	-.268*	0.244*	-0.174	0.467*	1.000			
	0.800	0.315	0.028	0.047	0.160	0.000				
YIP	-.392*	-.249*	-0.058	0.196	-0.231	0.001	0.220	1.000		
	0.001	0.042	0.639	0.112	0.060	0.991	0.073			
CA	0.027	-.052	-.287*	0.507*	-0.184	0.306*	0.388*	0.505*	1.000	
	0.829	0.678	0.018	0.000	0.137	0.012	0.001	0.000		
INV	0.248*	0.117	-0.081	-0.043	-0.158	0.319*	0.684*	-0.001	0.189	1.000
	0.042	0.344	0.517	0.729	0.201	0.008	0.000	0.989	0.123	

The first objective was establishing the effect of accounts payable on financial returns of the firms measured by ROA and ROE. The findings above indicate that accounts payable negatively influence the ROA of listed agricultural firms in Kenya (P= -0.104, Sig = 0.04<.05). The second objective was establishing the impact of cash management on profitability, measured by ROA and ROE. The findings established that Cash Management has a negative and insignificant effect on ROE of listed agricultural firms in Kenya (P= -0.150, Sig = 0.226>.05).

The third objective was establishing the effect of accounts receivables period on profitability of the firms measured by ROA and ROE. The findings established there is a positive and insignificant effect of accounts receivables period on ROA (P= 0.112, Sig = 0.343>.05) and ROE (P= 0.137, Sig = 0.269>.05) respectively of listed agricultural firms. The findings of the fourth objective indicated that inventory had a positive and significant effect on the ROE of the listed agriculture firms (P= 0.248*, Sig = 0.042<.05) with an insignificant effect on the ROA of the firms (P = 0.1174, Sig = 0.344 > .05).

The research also sought to establish the effect of firm size as measured by log of total assets on the financial performance of the firms measured by ROA and ROE. The results indicated that firm size had a positive but insignificant effect on ROE of the listed agricultural firms (P= 0.031, Sig = 0.801>.05). The research wanted to determine the effect of liquidity on financial returns of the firms measured by ROA and ROE. The findings showed there is a negative and insignificant effect of liquidity on the ROE (P= -0.003, Sig = 0.976>.05) and ROA (P= -0.104, Sig = 0.402>.05) of listed agricultural firms in Kenya. The research sought to determine how capital adequacy impacts a firm's financial returns measured by ROA and ROE. The study results indicated that capital adequacy has a negative and insignificant effect on ROA of listed agricultural companies (P= -0.052, Sig = 0.678>.05). The research examined the effect of age of the firm (years in operation) on the financial returns of the firms using ROA and ROE as the main measures. The study results above indicated that the age of the firm had a significant and negative influence on the financial returns (ROE) of the listed agricultural companies (P= -0.393, Sig = 0.001<.05).

4.5 Regression Analysis

A panel data regression was adopted. The study applied a panel fixed-effect model in the estimation.

4.5.1 Hausman Specification Tests

The research applied the Hausman tests to identify the best model to be selected in conducting the panel regression. The findings are presented in table 4.13 below.

Table 4.7 Hausman Specification Results

Model 1. Fitted for Return on Equity				
Variable	**(b) fe**	**(B) re**	**(b-B) Difference**	**sqrt(diag(V_b-V_B)) S.E.**
Cash Management	-.001	-.005	-.001	.
Accounts Payable	.004	-.003	.003	.
Accounts Receivable	-.009	-.002	.0001	.001
Inventory	.001	.0001	.001	.001
Liquidity	-.204	-.033	-.192	.081
Firm Size	.369	-.053	.401	.146
Years in Operation	-.031	-.006	-.025	.008
Capital Adequacy	-.001	1.182	-1.214	.335
Test: Ho: difference in coefficients not systematic				
chi2(7) = (b-B)'[(V_b-V_B) ^ (-1)] (b-B) = 124.37				
Prob>chi2 = 0.0000				
Model 2. Return on Assets				
Variable	**(b) fe**	**(B) re**	**(b-B) Difference**	**sqrt(diag(V_b-V_B)) S.E.**
Cash Management	-.0001	.068	-.001	.
Accounts Payable	.00002	-.021	.002	.
Accounts Receivable	-.0004	.015	-.001	.001
Inventory	.0002	.0003	-.001	.001
Liquidity	-.0215	-.009	-.041	.112
Firm Size	.0920	-.043	.106	.161
Years in Operation	-.016	-.003	-.011	.009
Capital Adequacy	-.295	.684	-1.023	.521
Test: Ho: difference in coefficients not systematic				
chi2(7) = (b-B)'[(V_b-V_B) ^ (-1)] (b-B) = 12.66				

Prob>chi2 = 0.049

The Hausman test is distributed as chi-square with 1 degree of freedom. From the results above the probability of the cross section in the first model yielded a Prob>chi2 = .000 and in the second model the Prob>chi2 = .049, which is were less than 0.05 implying that it's appropriate to adopt fixed effects model.

4.5.2 Regression Between Working Capital Management and Return on Equity

The first model was adopted to estimate the relationship between the WCM components and the ROE of the listed companies. The study applied fixed effects panel data regression.

Table 4.8 Panel Regression Working Capital Management and Return on Equity

R-sq:		Number of obs = 67	
within = 0.416		F(3,57)	= 9.95
between = 0.102		Prob > F	= 0.000
overall = 0.014			

Return on Equity	Coef.	Std. Err	t	P>|t|
Cash Management	-.0002	.001	-2.11	0.040
Accounts payable	.0002	.001	1.41	0.165
Accounts receivable	-.001	.002	-5.22	0.000
Inventory	.001	.001	1.70	0.095
_cons	.217	.048	4.58	0.000

F test that all u_i =0: F (6, 57) = 11.03 Prob > F = 0.000

The above results indicated that working capital management had a positive and significant relationship with ROE among listed agricultural firms in Kenya *(R2 = 0.014, Prob > F = .000<.05)*. The study also indicated that cash management had a significant negative impact on ROE (B = -.001, P>|t| 0.040>.05). The findings also showed that accounts payable had an insignificant positive influence on ROE (B = -.0002, P>|t| 0.204>.05). The findings noted that accounts receivables have a significant and negative influence on the ROE (B = -.001,

P>|t| 0.00<.05). Findings also indicated that inventory had a positive and insignificant effect on the ROE of the firms (B = .001, P>|t| 0.095>.05).

4.5.2.1 Regression between Working Capital Management, Firm Characteristics and Return on Equity

Another objective was establishing the control effect of firm characteristics on the relationship between WCM components and the ROE of the listed firms. The study applied fixed effects panel data regression.

Table 4.9 Panel Regression Working Capital Management, Firm Characteristics and Return on Equity

R-sq:		Number of obs = 67	
within = 0.564		F(7,53)	= 8.40
between = 0.117		Prob > F	= 0.000
overall = 0.088			

Return on Equity	Coef.	Std. Err	t	P>|t|
Cash Management	-.001	.001	-1.23	0.224
Accounts payable	.004	.001	0.28	0.784
Accounts receivable	-.009	.002	-4.00	0.000
Inventory	.001	.000	2.09	0.041
Liquidity	-.204	.129	-1.58	0.121
Firm size	.369	.147	2.51	0.015
Years in operation	-.031	.008	-3.80	0.000
Capital adequacy	-.001	.645	-0.00	1.000
_cons	-.556	.818	-0.68	0.500

F test that all u_i =0: F (6, 53) = 9.92 Prob > F = 0.000

The findings established that WCM and firm characteristics were positively and significantly related to ROE of listed agricultural firms in Kenya (R2 = 0.088, Prob > F = .000<.05). The study indicated that accounts receivables had a significant and negative influence on ROE. The study established that liquidity had a negative and insignificant influence on the ROE (B = -.204, P>|t| 0.121>.05). Findings also showed a positive and significant influence of firm size on ROE (B = .369, P>|t| 0.015<.05). Firm age had a negative and significant influence on the ROE (B = -.031, P>|t| 0.000<.05). The findings demonstrated that inventory

had a positive and significant effect on the ROE of the listed firms (B = .001, P>|t| 0.041<.05). The study also showed that capital adequacy had a negative and insignificant impact on the ROE of the listed agricultural firms in Kenya.

4.5.3 Regression Between Working Capital Management and Return on Assets

The second model was adopted to estimate the relationship between WCM components and the ROA of the listed firms. The study applied fixed effects panel data regression.

Table 4.10 Panel Regression Working Capital Management and Return on Assets

R-sq:			Number of obs = 67	
within = 0.260			F(3,57) = 4.92	
between = 0.272			Prob > F = 0.001	
overall = 0.001				
Return on Equity	Coef.	Std. Err	t	P>|t|
Cash Management	-.006	.0001	-0.73	0.466
Accounts payable	.001	.001	1.29	0.202
Accounts receivable	-.005	.002	-2.77	0.008
Inventory	.002	.0001	2.57	0.013
_cons	.119	.046	2.60	0.012
F test that all u_i=0: F (6, 57) = 5.93			Prob > F = 0.000	

The panel regression output indicated that WCM was positively and significantly related to ROA of listed agricultural firms in Kenya (R2 = 0.001, Prob > F = 0.001<.05). CCC was determined to have an insignificant negative effect on the ROA (B = -.006, P>|t| 0.466>.05). The findings also showed that the accounts payable period has a positive and insignificant effect on ROA (B = .001, P>|t| 0.202>.05). The study indicated a negative and significant effect of accounts receivables on the ROA (B = -.005, P>|t| 0.008<.05). The study showed that inventory had a positive and significant effect on the ROA of the listed firms (B = .002, P>|t| 0.013<.05).

4.5.3.1 Regression between Working Capital Management, Firm Characteristics and Return on Assets

The research further analyzed the control effect of the firm characteristics on the relationship between WCM components and the ROA of the listed firms. The study applied fixed effects panel data regression.

Table 4.11 Panel Regression Working Capital Management, Firm Characteristics and Return on Assets

R-sq:	Number of obs = 67
within = 0.327	F(7,53) = 3.16
between = 0.031	Prob > F = 0.005
overall = 0.045	

Return on Assets	Coef.	Std. Err	t	P>|t|
Cash Management	-.0001	.0001	-0.72	0.474
Accounts payable	.00002	.0002	0.14	0.893
Accounts receivable	-.0004	.0002	-1.65	0.104
Inventory	.0002	. 00009	2.72	0.009
Liquidity	-.0215	.137	-0.16	0.876
Firm size	.0920	.156	0.59	0.558
Years in operation	-.016	.009	-1.80	0.078
Capital adequacy	-.295	.685	-0.43	0.668
_cons	.276	.846	0.33	0.746

F test that all u_i=0: F(6, 53) = 3.65 Prob > F = 0.004

The findings established that WCM and firm characteristics were positively and significantly correlated to ROA of listed agricultural firms in Kenya (R2 = 0.045, Prob > F = 0.005<.05). The research results show that although insignificant, liquidity negatively impacts ROA (B = -.049, P>|t| 0.733>.05). The study findings further established that inventory had a significant and positive effect on the ROA of listed agricultural firms ROA (B = .0002, P>|t| 0.009<.05). The panel results also noted that though insignificant, firm size positively impacts ROA (B = 0.633, P>|t| 0.702>.05). The findings also indicated that the firm age and capital adequacy had a negative and insignificant effect on the return on assets of the listed agricultural firms in Kenya.

4.6 Summary

The results indicated that working capital management had a positive and significant relationship with the return on equity of listed agricultural firms in Kenya. The panel regression output indicated that working capital management had a positive and significant relationship with the ROA of listed agricultural firms. The above results indicated that

working capital management had a positive and significant relationship with the ROE of listed agricultural firms in Kenya.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

The fifth chapter of the study presented the study results according to the research objectives. The chapter further presented the conclusions and recommendations of the study.

5.2 Discussion

The study noted that working capital management has a positive and significant relationship with financial performance. This was in line with Hassan, Imran, Amjad, and Hussain (2014), who indicated that WCM is positively related to gross profit margin and ROA. This study was also supported by findings by Kazimoto (2016), who found a moderately significant relationship between WCM components (accounts receivables, accounts payable, and cash management) and financial performance in Kampala. This was in contrast to Hassan, Imran, Amjad, and Hussain (2014), who found out that WCM has an insignificant negative effect on ROE. Masinde and Elly (2017) also noted the existence of a weak and negative effect of WCM on the profitability of the listed energy and petroleum firms.

5.2.1 Accounts Payable and Financial Performance

Findings also showed that accounts payable had an insignificant positive influence on ROE. The findings also showed that the accounts payable period has a positive and insignificant effect on the ROA. This was in line with Waema and Nasieku's (2016) study, whose results showed that creditor management is positively related to a firm's profitability. Nobanee and Haddad (2014) also indicated that firms' profitability increased with the shortening of the CCC, the debtors' collection period, stock conversion period, and lengthening of the creditors' deferral period. Kipkemoi (2018) noted that accounts receivables and accounts payable significantly influence the ROA of the listed firms in the NSE. Anojan, Arulalan and Nimalathasan (2013) also found out that account payables management has no direct impact on the performance of listed firms. Mwangi, Makau and Kosimbei (2014) also established that poor management of accounts payables may affect the profitability of listed firms. However, Wasiuzzaman and Chettiar (2013) noted that account payable ratio can be integral to driving the performance of the financial institution. Further, Mugo (2016) indicated that improvement in the accounts payable may help the organization in managing their cash in hands which could improve their value.

5.2.2 Accounts Receivables and Financial Performance

The findings noted that accounts receivables result in negative and significant results on ROE. The study indicated there is a negative and significant effect of accounts receivables on the ROA. This was supported by Aguenaou, Abrache, and Brahimi (2015), who revealed a negative correlation between the average collection period and the firm's profitability. Enqvist, Graham, and Nikkine (2013) also found that the relationship between debtors and profitability is inversely proportional. This was also concurred by Kiptoo (2017), whose study indicated that receivables and inventory management practices had a negative and significant effect on the financial performance of tea processing. This study was disputed by Hassan, Imran, Amjad, and Hussain (2014). His study indicates that the average collection period has significant and positive interaction with the gross profit margin and return on assets. Osman and Ayuma (2018) also concluded that accounts receivable management positively impacts firm productivity among SMEs in Mogadishu-Somalia. Kilonzo, Memba and Njeru (2016) in their study indicated that accounts receivables were critical to the performance quality and collection procedure within institutions. Also, Gorondutse, Ali, Abubakar and Naalah (2017) report that credit terms significantly impact the revenues generated from receivables. Kumaraswamy (2016) found out that average repayment period and average collection period both have significant effects on the level of profitability within the firm.

5.2.3 Cash Management and Financial Performance

The study showed that CCC had an insignificant negative effect on ROE and ROA. This was in line with a study by Enqvist, Graham, and Nikkine (2013), who concluded that there is a negative correlation between cash conversion ratio and profitability measured in terms of ROA and gross profit margin. Anser and Malik's (2013) also indicated that the relationship between Cash Management and ROA and ROE is inversely proportional. This was disputed by Abdulazeez, Baba, Fatima, and Abdulrahaman (2018), whose study revealed that Cash Management positively influences financial returns among Nigerian companies. Kiptoo (2017) also found that cash management results in increased returns on investment among tea processing companies. These studies were further supported by Zakari and Saidu (2016), whose findings revealed that CCC is positively related to the corporate profitability of listed telecommunication firms in Nigeria. The results are also consistent with Nijam (2016) who revealed that institutions that have a long cash conversion cycle negatively impacts the firm's return on assets. However, the findings were not in line with Muturi (2015) who noted that

among tea companies, long cash conversion cycles significantly impact their profitability. Ramesh, Hamad, and Tammam (2017) indicated that management of invested funds to ensure the smooth running of day-to-day operations is key to expanding the financial outcomes within listed institutions.

5.2.4 Inventory Management and Financial Performance

The analysis results revealed that inventory had a positive but insignificant influence on the return on equity of the listed agricultural firms in Kenya. The study established that inventory had a positive and significant effect on the return on assets of the listed agricultural firms in Kenya. Panigrahi, et.al, (2021) contends that proper control of inventory and limiting the losses in managing inventory movement is critical to expanding the financial outcome of a firm. These findings are consistent with Muchaendepi, Mbohwa, Hamandishe and Kanyepe (2019) research which indicated that proper management of inventory within the firm reduces operational costs and losses which result in improvement in the financial results of the firm. Similarly, Ajayi, Olutokunbo, Obafemi and Araoye (2021) showed that improved inventory management practice was vital to the financial performance of firms in Nigeria. Makori and Jagongo (2013) findings showed that firm management undertake to create higher shareholders value by; reducing accounts receivable days but adding the inventories days to a reasonable level and lastly using longer time to settle their debts. The adoption of these tactics can lead to competitive advantage that can in turn lead to higher shareholder wealth value.

5.2.5 Firm Characteristics and Financial Performance

The findings established that firm characteristics significantly influence the ROE of listed agricultural companies in Kenya. The findings established that firm characteristics had a positive and significant relationship with the return on assets of listed agricultural firms in Kenya. This was, however, contrary to studies by Dioha, Mohammed, and Okpanachi (2018), whose results showed that firm characteristics do not significantly influence profit generation.

Liquidity was found to have a negative and insignificant influence on ROE. The research results show that liquidity has a negative and insignificant effect on the ROA. Dioha, Mohammed, and Okpanachi (2018) supported this study when they found out firm age and liquidity level have an insignificant effect on profitability. This was disputed by Matar and Eneizan (2018), whose study revealed that liquidity, profitability, and revenues are all positively related to ROA.

Findings also showed that firm size has a significant effect on ROE. However, panel results noted that firm size has an insignificant positive influence on ROA. This was in line with Dioha, Mohammed, and Okpanachi (2018), who indicated that firm size, sales growth, and leverage significantly impact profitability. Audax (2018) also determined that firm size significantly influences the volume of profits generated over a certain period among manufacturing firms listed at NSE. However, Matar and Eneizan (2018) revealed that the financial leverage and the firm size negatively impacted financial outcomes.

The findings also indicated that the firm age and capital adequacy had a negative and insignificant effect on the ROA of the listed agricultural firms in Kenya. The results also indicated that the firm's age had a negative and significant influence on the ROE. The study also showed that capital adequacy had a negative and insignificant influence on the ROE of the listed agricultural firms in Kenya. This was in line with Dioha, Mohammed, and Okpanachi (2018), who indicated that the age of a firm and leverage have significant effects on profitability.

5.3 Conclusions

The study concluded that WCM components had a positive and significant effect on the return on equity of listed firms. The research concluded that the Cash Management had an insignificant negative effect on the return on equity, while accounts payables had a positive and insignificant effect on ROE. Account's receivables had a negative and insignificant effect on the ROE of listed agricultural firms. The analysis revealed that inventory management had a positive but insignificant effect on the ROE of the listed agricultural firms. The research concluded that inventory had a positive and significant effect on the ROA of the listed agricultural firms in Kenya.

The study found that firm characteristics and working capital management have a positive and significant effect on ROE. The research concludes that liquidity and capital adequacy have a negative and insignificant effect on the ROE of listed agricultural firms. The number of years in operation had a significant and negative effect on ROE, while firm size had a positive and significant effect on the ROE.

The research concluded that working capital management had a positive and significant relationship with ROA. The Cash Management was noted to have a negative and insignificant influence on ROA. The research established that accounts payable have an insignificant positive effect on ROA. Accounts payable were determined to have a significant negative

influence on ROA. Further, working capital management and firm characteristics positively influence ROA (implying a positive control effect of firm characteristics). The research found out that liquidity had an insignificant negative effect on ROA. The age and capital adequacy were determined to have a negative and insignificant effect on ROA. The research concluded that firm size had a positive and insignificant influence on the ROA of listed agricultural firms in Kenya.

5.4 Recommendations

The research recommends that listed agricultural firms negotiate with strategic partners for better credit terms, allowing the firm to reorganize its financial obligations and ensure that the firm has better accounts management. The study also suggests that the firms should reduce the period for collecting receivables from customers as this will help improve the health of their books. Overall, the research recommends that the firms should strive to shorten the debtors' collection period and extend the creditors' payment period to ensure that the firm has enough liquid assets to ensure the successful execution of daily operations. The study further recommends that firms adopt credit monitoring, which can help assess the quality of accounts receivables to reduce over-investment in accounts receivable.

The study recommends that the firms should conduct a regular review of the accounts payable policies to ensure the firm is attaining maximum benefits from their partners. This can be achieved by improving the staff's financial competency through professional development programs on emerging accounts payable practices within the industry. The study recommends that the listed agricultural firms increase the leverage ratios since this has been linked to increased profit generation. This is enhanced through increasing debt levels by taking longer to pay their suppliers. This, however, needs to be optimally implemented to ensure there is no strain on the supplier/creditor's relationship. Finally, the listed firms should manage their trade credits prudently to remain profitable and competitive.

The study also recommends that the listed firms formulate better cash flow management, which will be pivotal to their debt servicing and improve the firms' financial soundness. The firms should further strive to reduce the Cash Management as this can shore up the firm's liquidity and strengthen the cash in hand, which can be utilized for further investments. This study recommended amongst others that consumable goods firms' management should emphasis on the proper effective inventory management practice techniques and measuring of efficiency deviations to identify weaknesses in the process of managing inventories. The study also

recommends that firms should efficiently manage their assets, which will help to improve their firm size and value. Further, firms should adopt better liquidity management practices, which can foster profit generation. Further, the firms should ensure that they meet the regulator capital adequacy and maintain better capital levels, which can cushion the firm from financial volatility and improve soundness within the firm.

5.5 Limitations of the Research

The study was only limited to two measures of financial performance (profitability metrics) hence further research can be conducted incorporating more measures of financial performance. Further, the study was limited to listed agricultural firms hence there is need for more studies to be conducted focusing on the all-listed firms in Kenya to get a better understanding of how WCM impacts the financial performance of firms.

5.6 Areas for Further Research

The findings indicated a marginally low magnitude of influence of WCM components on the financial outcomes of listed agricultural companies. Further research work should be conducted to examine how various accounting variables impact the firm's profitability. Further studies should focus on more extended periods and adopt different study constructs to foster the available managerial recommendations that can be implemented to stimulate financial performance within the listed firms.

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APPENDICES

Appendix I: Data Extraction Form

Variables	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Accounts payable										
Accounts receivable										
Cash Management										
Inventory management										
Firm size										
Liquidity										
Age										
Capital adequacy										
ROA										
ROE										

Appendix II: Ethical Research Committee Approval

Strathmore UNIVERSITY

21st October 2020

Mr Ndirangu, Peter
peter.wangombe@strathmore.edu

Dear Mr Ndirangu,

RE: Effect of Working Capital Management and Firm Characteristics on Financial Performance of Listed Agriculture Firms in Kenya

This is to inform you that SU-IERC has reviewed and **approved** your above research proposal. Your application approval number is **SU-IERC0910/20.** The approval period is **21st October 2020 to 20th October 2021.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-IERC.
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-IERC within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-IERC within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to SU-IERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://oris.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

Dr Virginia Gichuru,
Secretary; SU-IERC

Cc: Prof Fred Were,
Chairperson; SU-IERC

STRATHMORE UNIVERSITY INSTITUTIONAL ETHICS REVIEW COMMITTEE (SU-IERC)
21 OCT 2020
TEL: +254 (0)703 034 000
P. O. Box 59857 - 00200
NAIROBI - KENYA

Appendix III: NACOSTI Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **288954**

Date of Issue: **05/October/2020**

RESEARCH LICENSE

This is to Certify that Mr.. Peter Wangombe Ndirangu of Strathmore University, has been licensed to conduct research in Nairobi on the topic: EFFECT OF WORKING CAPITAL MANAGEMENT AND FIRM CHARACTERISTICS ON FINANCIAL PERFORMANCE OF LISTED AGRICULTURE FIRMS IN KENYA for the period ending : 05/October/2021.

License No: **NACOSTI/P/20/7003**

288954

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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Appendix IV: List of Listed Agricultural Firms

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