EFFECTS OF WORKING CAPITAL MANAGEMENT ON THE GROWTH OF MANUFACTURING COMPANIES LISTED AT THE NAIROBI SECURITIES EXCHANGE

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MASTERS OF SCIENCE (FINANCE AND INVESTMENTS)

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OCTOBER, 2021

DECLARATION

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

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

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

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ABSTRACT

Manufacturing industry is one of the key pillars of economic development in Kenya. The purpose of the study is to find the effects of working capital management on the growth of manufacturing companies listed at the Nairobi Securities Exchange. Specifically, the study sought to establish the effects of inventory conversion cycle, payable conversion cycle, receivable conversion cycle and cash conversion cycle on the growth of manufacturing companies listed at the NSE. The study applied a historical longitudinal research design. This research targeted manufacturing companies listed at the NSE and collected data for 10 years from 2011 to 2020. The data was sourced from NSE website, and audited financial statements of the manufacturing companies under study. The data collected was analyzed through a panel data regression model (fixed effects) after conducting diagnostic tests that included Hausman specification test, test of multicollinearity, test of serial correlation, heteroscedasticity tests and test of normality of errors. The findings determined that inventory conversion cycle had a statistically significant and negative influence on the growth of manufacturing companies listed at the NSE (β= -0.0446, p = 0.003). Moreover, the study findings determined that payable conversion cycle had a statistically significant and negative influence on the growth of manufacturing companies listed on the NSE (β= -0.0503, p = 0.001). The receivables conversion cycle had no statistically significant influence on the growth of manufacturing companies listed on the NSE. Study findings further determined that cash conversion cycle had a negative and statistically significant influence on the growth of manufacturing companies listed on the NSE (β= -0.0496, p = 0.005). The study makes the following recommendations based on the study's findings. First, modern and automated inventory management practices, such as ABC analysis and just-in-time, should also be implemented by management. Secondly, management should consider taking early payment incentives and simplifying the payables management function to improve payables conversion cycle. Finally, the study recommends to management to adopt and implement effective internal controls that address specific aspects of cash collection cycle such as average length of account receivables, write-offs for uncollected receivables, and credit line management.

Key words: Working capital management, Manufacturing companies, Growth, Nairobi Securities Exchange.

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ACRONYMS AND ABBREVIATIONS

CCC	Cash Conversion Cycle
GDP	Gross Domestic Product
ICC	Inventory Conversion Cycle
KAM	Kenya Association of Manufacturers
NSE	Nairobi Securities Exchange
PCC	Payable Conversion Cycle
RCC	Receivable Conversion Cycle
SGR	Sustainable Growth Rate
WCM	Working Capital Management

TERMS AND DEFINITIONS

Cash conversion cycle - The amount of time it takes for a business to turn its raw materials and other resource inputs into cash.

Growth of manufacturing companies – Company's expansion, market expansion, and enlarging company's boundaries in the long run making sure of the long-term survival of a company (Baños-Caballero et al., 2012).

Inventory conversion cycle – The period it takes the company to convert inventory to sales revenue

Payable conversion cycle – the period between when the company receives inventory on credit and whet it pays for them

Receivable conversion cycle – The period between the sale of a finished product on credit and cash receipts for the debt.

Working capital management - The business strategy aims to ensure that the company runs smoothly by effectively monitoring and utilizing its existing obligations and assets (Öztürk & Vergili, 2018).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Working capital management entails the planning of the purchase and use of short-term obligations and assets. It illustrates the flow of readily available resources that are critical to the business's ongoing operations (Akomeah, 2019). Working capital is the difference between an organization's total investment in current assets and its current liabilities (Evci & Ak, 2018). Current assets are resources that a company intends to turn into cash within a year. Because investing in working capital involves shortages and holding expenses, the company must strike the best balance between the two (John, 2017). Working capital management is the process of managing a company's short-term claims and assets. Working capital management, according to Baos-Caballero, Garca-Teruel, and Martnez-Solano (2014), guarantees that a company has enough cash flow to fulfill its operational costs and short-term debt obligations. As a result, effective working capital management allows the company to achieve its liquidity, financial performance and growth goals.

Any country's manufacturing sector is important to the country's economic development (Akomeah, 2019). China (28.8%), South Korea (27%), Japan (21%), Germany (20.6%), and Indonesia (20.5%) are among the countries whose manufacturing sectors contribute significantly to their GDP (Evci & ak, 2018). Working capital management is seen as critical for all businesses, particularly manufacturing firms. Poor working capital management resulted in the biggest businesses in the United Kingdom (UK) tying up £125 billion in cash that might have been used to produce returns of up to 22%, according to PWC (2012). Working capital management will be essential for company growth and success in times of recession, which is now affecting most global economies.

Working capital management is still one of the most important elements of a company's financial management and a factor of growth. Due to the lack of depth in financial markets and limited variety in financial products, Ztürk and Vergili (2018) highlight that managing working capital components in developing economies is important. This results for the inadequate capital accumulation and saving volume in these economies. Firms with successful working capital management techniques in developing markets are better equipped to meet their growth, performance, and sustainability goals than those with ineffective working capital management. Profitability, financial hardship, and company collapse have all been related to working capital management.

In Bangladesh, Ahmed, Mahtab, Islam, and Abdullah (2017) found that inadequate working capital management techniques contributed to financial hardships in manufacturing firms. According to Singhania, Sharma, and Yagnesh (2014), more than 75% of publicly traded businesses in India that were losing money might become profitable if they used efficient working capital management methods. This demonstrates that working capital management is an important element of financial management that affects not just profitability but also the development, growth and sustainability of businesses. Despite the fact that working capital is essential to a company's growth and long-term viability, many businesses fail to implement effective working capital management strategies.

Working capital management is very essential according to 32 percent of chief financial officers in Nigeria, in a study by Olasode (2015). However more than half of the businesses do not follow best practices in working capital management. Working capital management is one of the most important responsibilities of the financial manager in Ghana, according to Akomeah (2019), since it has a significant impact on the firm's operations, profitability and growth. The manufacturing sector's contribution to Kenya's GDP has remained stagnant at about 10%. This is despite the fact that working capital management is important for

operations, profitability and growth manufacturing businesses in Kenya, according to Wambugu (2013). The majority of manufacturing companies fail as a result of ineffective working capital management. From the preceding, it is clear that working capital management remains one of the firm's most important management responsibilities that affects its growth both in the short term and long term. Most businesses, on the other hand, do not use effective working capital management techniques, which causes problems with profitability, growth, and financial hardship.

Manufacturing in Kenya has its own body known as Kenya association of manufacturers (KAM). This represents the manufacturers in Kenya pushing for policy formulation and regulations that affects manufacturing. This is the link between the government and manufacturers in Kenya therefore uniting all industrialists serving as the voice to all manufacturers. Vision 2030 blue print states clearly that manufacturing is one of the key drivers to achieving economic pillar objective. The goal is to create a robust, diverse, and competitive manufacturing process with an annual growth rate of 8%. According to Audix (2018), capital productivity in Kenya's manufacturing sector is particularly low when compared to regional and global productivity levels. Scaling down, closure, and relocation to other countries characterize the industry (Gitau & Githaiga, 2017). Manufacturing industries are among the sectors through which the sustainability of Kenyan economy is attributed to. Manufacturing firms are responsible for the production of finished products through the use of raw materials. The main aim of the firms incorporates adding value to the product intended for the market. Besides, the finished product can be used as a raw material in the production of another complex commodity. In Kenya, the development in manufacturing industries began in the early years of 1990, and the continued growth in the sector was transpired by the location advantage over other East African countries.

Despite changes in policy, the structure of the manufacturing sector in Kenya has undergone a minimum change. Production based primarily on commodities. Although manufacturing activities in Kenya are extensive, food and other agricultural products continue to play a major part in the manufacturing of GDP and in the refining of crude oil, respectively, followed by the textile and clothing industry. According to the growth theory, more GDP is generated by nations moving from agricultural development to manufacturing and technologies. The agricultural share of the GDP of Kenya has decreased in recent times, however, with the share of the production sector stagnating fairly (Deloitte East Africa, 2020). Exploiting the value addition of agricultural products may have the greatest potential for manufacturing output.

1.1.1 Working capital management

The management of current assets and liabilities and financing of these current assets are the functions of working capital management. Working capital is a key component of the financial decisions of a company as stated by Adam, Edward and Kawors (2017). Management of working capital means investment in current assets and liabilities that is liquidated within one year or lower and is therefore crucial to daily business operations of a company (Kesimli & Gunay, 2011). Working capital management (WCM) is the management of a firm's short-term finance, which includes keeping a balance between the components of working capital, which include accounts payable, accounts receivable, cash, and inventory for daily operations of the firm.

Working capital management is implemented to ensure that neither too much nor too little working capital is applied in order to achieve balance. Cash conversion cycle, receivables conversion cycle, inventory conversion cycle and payables conversion cycle are the key elements of working capital management (Kinuthia et al., 2020). The cash conversion cycle

(CCC) is measured in days and indicates how long it takes a business to convert its inventory into cash revenue (Evci & Sak, 2018). Receivable conversion cycle evaluates an organization's ability to assess credit clients, set credit conditions, and recover cash from credit sales. Following the determination of a customer's creditworthiness, appropriate credit conditions should be established for the customers, followed by ensuring that when cash is due from credit customers, it is collected effectively (Akomeah, 2019). Receivable conversion cycle is the period between the sale of a finished product on credit and cash receipts for the debt.

Inventory conversion cycle is critical in order to maximize the advantages and costs of keeping inventory. Inventory conversion cycle is the period it takes the company to convert inventory to sales revenue. Inventory conversion cycle or days sales of inventory is a useful indicator of inventory management success (Pinku & Mitra, 2018). Account payables conversion cycle, on the other hand, assesses a company's methods, procedures, and practices for managing its credit purchases. These determine the company's relationship with its creditors (Deloitte, 2015). Payable conversion cycle is the period between when the company receives inventory on credit and whet it pays for them. To optimize free cash flow, most businesses prolong payables as long as feasible. However, this strategy may undermine supplier trust, leading in slower answers to inquiries, a reduced desire to repair faults, more incorrect payment conditions, and longer delivery delays (Sadeghi & Kheirandish, 2016). This necessitates that the business improves its payables administration in order to get the most advantages (Nyangweso & Wepukhulu, 2019).

In his study, Onchangwa (2019) stated that liquidity is an important determinant of financial distress, and financial distress is an indication of a lack of profit accruing to a firm. However, Cheatham (2017) observed that being too liquid is costly as well as risky, implying that listed firms must make a trade-off between liquidity and profitability. A good working

capital management policy's objectivity is to ensure an optimal level of current assets in order to maximize shareholder wealth.

According to Padachi (2011), a company's ability to remain profitable is a function of its working capital management policies, which include aggressive, moderate, and conservative policies, as well as corporate governance structure. Working capital management is a measure of a firm's liquidity and profitability (Makori and Magongo, 2013).

1.1.2 Growth of manufacturing companies

Growth is the company's expansion, market expansion, enlarging company's boundaries in the long run making this the long-term survival of a company and profitability is dependent on growth. Sustainable growth refers to a progressive, structured and orderly process that influences profitability (Asimakopoulos et al., 2009; Aldulaimi & Abdeldayem 2018). For financial survival a company or a firm has to make profits, therefore, profitability and growth go hand in hand. For growth to be realized a firm need funds, these funds can either be sourced from short term financing or long-term financing.

In this context the study sought to establish whether short term funds management have an effect on the growth of the firm which is a long-term projection of the firm's operations. Sustainable growth rate (SGR) is used as the measure of growth of a company in this study. SGR is the growth achieved through a firm's internal sources of funds. This means that cost attributed to borrowing funds are minimized therefore proper utilization of funds generated internally fast-tracking growth. This is arrived at using the following formula: SGR= ROE multiplied by (1- dividend payout ratio).

1.1.3 Working capital management and growth of manufacturing firms

In manufacturing, firms are characterized by a huge working capital due to the nature of operations which include securitiess of raw materials, finished goods, work in progress debtors, creditors and cash for day-to-day operations. This means that a manufacturing company has a large working capital compared to other firms in other industries. Manufacturing companies are capital intensive in that they have a lot of capital from raw materials to end product. Firms have objectives to fulfill which is shareholder wealth maximization and profit maximization. These are two conflicting objectives that have to be achieved.

Working capital management affects liquidity as well as the company's profitability (Rahman & Nasr, 2007). In this the value of the firm which is also the shareholders wealth measure is affected either positively or negatively. The compromise between profitability and risk is essential to the management of working capital (Dash and Hanuman 2007). Because of their impact on profitability and risks of the company and its value, working capital management is important (Smith, 1980).

Strategic planning in managing a firm’s operations and cash flow is important in increasing a firm’s profitability (Ghani, Jamal, Puspitari & Gunard, 2018). Besides, the authors identified that profitability can be hindered by many factors which include liquidity, ownership structure and firms’ growth. Growth is an expansion, increase in market share, increase in profitability and long-term success.

The determinants and implications of publicly traded U.S. firm holdings of cash and marketable securities from 1971 to 1994 was investigated by Opler, Pinkowitz, Stulz, and Williamson (1999). The study backed up the trade-off model of cash holding. Successful firms have been found to accumulate more cash than the static trade model predicts by which management maximizes shareholder wealth. Excess money has little evidence that it has a

significant short-term effect on capital expenditure, procurement expenditure or shareholder payouts. The main cause of major changes in the amount of excess cash for companies is operational losses.

The relationship between working capital management and corporate profitability in 1,009 large Belgian non-financial firms over a five-year period from 1992 to 1996 was assessed by Deloof (2003). The findings suggest that managers can boost corporate profitability by shortening the number of days it takes for accounts receivable and inventories to be realized. As a result, profitability is increased by optimizing current asset investment and incorporating a portion of long-term financing into working capital.

1.1.4 Manufacturing companies listed at the NSE

Nairobi securities exchange commonly known as (NSE) was founded in 1954 during the British colonial rule. It is the principal bourse in Kenya offering trading and listing of securities. It supports trading and clearing of derivatives, debts, equities and other related instruments. NSE facilitates the trading of securities by various investors and is tasked with listing of firms on the securities exchange and protecting investors from rogue brokers to maintain investor confidence.

There are 13 sectors in the NSE namely Investments, Insurance, energy and petroleum, construction and allied, commercial and services, banking, automobiles and accessories, agricultural, investment services, manufacturing and allied, telecommunication and technology, real estate investment trust, exchange traded fund. The mandate is to regulate equity and bond trading platform opening Kenya to various global capital markets. The researcher is interested in the manufacturing and allied sector for the sake of this research. Under manufacturing and allied sector, there are 9 listed companies namely: BOC Kenya PLC, British American tobacco Kenya PLC, East Africa breweries LTD, Carbacid investment LTD,

Flame tree group holdings LTD, Kenya orchids LTD, Mumias sugar company LTD, Unga group LTD, and finally Eveready East Africa LTD.

1.2 Statement of the Problem

The researcher main concern was the importance of working capital management on growth of a firm due to the recent happening in the business environment in Kenya. Working capital is one of the areas in an industry that is directly associated with the profitability of a firm (Kinuthia et al., 2020). The Vision 2030 blue print states clearly that manufacturing is one of the key drivers to achieving economic pillar objective, the manufacturing sector's contribution to Kenya's GDP has remained stagnant at about 10% (Deloitte East Africa, 2020). Besides, the sector has reported sustained poor performance amongst the large manufacturing companies. There has been a wave of poor performance in manufacturing companies in Kenya including Mumias Sugar, and Eveready East Africa. Manufacturing companies have a large investment in working capital as compared to financial and service industries. Considering the contribution of manufacturing companies to the economy of the country, it is important to understand the operational grounds in order to measure efficacy in growth, continued productivity, and profitability of the companies (Dunn & Cheatham, 2016).

Several studies have been carried out concerning the effect of working capital management on manufacturing companies but have left conceptual, methodological and contextual gaps. Hossain (2020) conducted a study in Bangladesh that assessed the effect of working capital management on profitability of manufacturing firm. This study leaves some contextual gaps as it was conducted in a country with different operational environment from Kenya. Kinuthia et al. (2020) assessed the association between working capital management and financial performance of listed manufacturing firms in Kenya. The study left some methodological gap as it only considered a study period of five years and also left a conceptual

gap as it excluded cash conversion cycle and payables conversion cycle. Besides, the study by Kinuthia et al. (2020) considered financial performance as the independent variable, but not growth, thus leaving a conceptual gap. Wangari (2018) assessed the influence of working capital management on profitability of manufacturing companies. This study left a conceptual gap as it did not include payables conversion cycle which is a critical component of working capital management. Therefore, this research was seeking to bridge these knowledge gaps by assessing the effect of working capital management on the growth of manufacturing companies using sustainable growth rate (SGR) as the measure for growth.

1.3 Research objective

1.3.1 General objective

The study sought to investigate the effects of working capital management policies on the growth of manufacturing companies listed at the NSE

1.3.2 Specific objectives

i) To establish the effects of inventory conversion cycle on the growth of manufacturing companies listed at the NSE

ii) To establish the effects of payable conversion cycle on the growth of manufacturing companies listed at the NSE

iii) To establish the effects of receivable conversion cycle on the growth of manufacturing companies listed at the NSE

iv) To establish the effects of cash conversion cycle on the growth of manufacturing companies listed at the NSE

1.4 Research Questions

i) What effect does inventory conversion cycle has on the growth of manufacturing companies listed at the NSE?

ii) Does payable conversion cycle have any effects on the growth of manufacturing companies listed at the NSE?

iii) What effect does receivable conversion cycle have on the growth of manufacturing companies listed at the NSE?

iv) What are the effects of cash conversion cycle on the growth of manufacturing companies listed at the NSE?

1.5 Significance of the Study

The study gives more insight on the study area and will be of benefit to various stakeholders

1.5.1 Researchers and Academicians

Much has been done on the area but it is not yet exhaustive. During the cause of the study more areas of study come up also the research itself will serve as empirical evidence for further research in future. Apart from being a significant addition to the existing literature on the effect of working capital management and growth of manufacturing companies, the study will also provide suggestions for further research that researchers can explored in future.

1.5.2 Managers of manufacturing companies

Management is concerned with profitability, growth and company's day to day operations. The consequences of the decisions they make concerning short-term financing is crucial since it affects the operations of a company. Those factors being researched on in this study will be able to influence how managers make decisions concerning working capital. Failure to meet obligations when they fall due affects the credit rating affecting the value of a c company. This is to all manufacturing companies considering the research is focusing on listed companies to eliminate delimitation of availability and correctness of data.

1.5.3 Financial advisors and policy makers

While formulating policies governing working capital management the study will be of great insight to the policy makers in the manufacturing sector. This will act as a body of knowledge to influence on new policies regarding WCMP in manufacturing companies. Those in charge of making book of accounts and checking on the fairness of the financial reports will benefit from the research in that this will be able to help them apply the best practices in accounting and auditing for the benefit of the company.

1.5.4 Lenders

Those giving credit to the company will be able to understand the effects of some WCMP applied by the company, this will be able to assist them in managing the level of debts and also able to learn when they fall due in line with the policy. They will be able to draw a line on when to collect and give credit.

1.5.5 Shareholders

Being the owners of the company, they have their interest at hand which is wealth maximization. The study will empower shareholders on the policy used by companies to ensure the best results are achieved through proper working capital management.

1.6 Scope of the Study

There is a wide range of research concerning capital management and its effects on profitability of a firm. The opportunity cost of working capital management is not well documented. The aim of the study was to understand how each working capital management policy applied by each company at a particular given point of time affects growth of the company. Growth is long term as compared to profitability which is an objective to be achieved in the short run. The research was carried on the manufacturing companies that were listed on the NSE for a period of 10 years between 2011 and 2020. NSE listed companies were preferred

by the researcher since they are regulated and required to publish books of account annually. The data was readily available in the NSE website and also increased reliability since the books of account are subjected to statutory audits before publishing. The study used census in order to study all the 9 listed manufacturing companies for a period of 10 years from 2011 to 2020. Secondary data was used for analysis and results. Using a data collection sheet, the data was collected from company's financial reports that were audited and published on the NSE.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter examines the theoretical literature, empirical literature, and summary and knowledge gap of the study**:**

2.2 Theoretical review

This chapter presents the theories that show a relationship between the independent and the dependent variables.

2.2.1 Keynesian liquidity preference theory

Investors prefer liquid assets to illiquid ones, according to John Keynes' 1936 paper liquidity preference theory, and will always demand a premium for investments with longer maturity periods if all other conditions remain equal. Cash is held for transactional, speculative, and precautionary reasons, according to this theory. In order to profit from future rising interest rates and favorable exchange rate fluctuations in the case of international firms, an investor must hold highly liquid assets. Interest rates determine this; the higher the interest rate, the lower the speculative demand. The precautionary motive stems from the need for security, for liquid funds to serve as a financial reserve. It enables a company to finance its investments or projects when no other sources of funding are available. It serves as a buffer for companies in need of quick cash to fund their projects.

Cash is needed to satisfy the transaction motive; which is the day-to-day operations of a firm. The need to have cash on hand is pay bills and cater for other daily operating expenses which are payment of wages and salaries, trade debts, taxes and dividends. The need for working capital to run the day-to-day activities and hence stimulate growth for the firm is vital. According to Pandey (2010) entities have a need to invest enough funds in current assets for the success of its operation and also to stimulate their growth prospects. Manufacturing being

a capital-intensive venture, most of the funds is held up in inventory in form of raw materials, work in progress and finished goods and this is a key area of day-to-day operations and firm growth. Therefore, the need to put in measures of working capital management for transitionary motive to be achieved. This theory was applicable to this study as it linked the holding of cash for speculative, operational and precautionary motives to the positive outcomes of the firm such as frim growth.

2.2.2 Fisher's separation theorem

Fisher's separation theorem maintains that the primary goal of a corporation is to maximize profit rather than try to achieve the utility preferences of shareholders. This theory was developed by Irving fisher in 1930 his work contributing to economic development. This theorem states that preferences of its owners should not affect the productive value of a firm, neither should shareholders' preferences be affected by value. According to the theory the shareholders of a firm have different investment objectives separate from the firm's managers. This theorem identifies that the investment decision is independent of the financing decision. The value of a capital project (investment) is independent of the mix of financing methods used by a company, for example equity, debt, or cash. Therefore, maximizing the value or profit of the firm is the managers' main objective ignoring the utility preferences of shareholders. The firm can make the investment decision that maximizes its present value, (growth) independent of its owner's investment preferences. The firm can then ensure that the owner achieves his optimal position in terms of "market opportunities" by funding its investment either with borrowed funds, or internally as appropriate. During the process of selecting investments the attitudes of a company's owners or shareholders are not taken into consideration.

Assumption of Fisher's theorem are that shareholders and managers have differing motives/ objectives and therefore conflicting interest between the two parties. Shareholders

lack deep business knowledge as compared to managers. Therefore, management make decisions without taking much consideration of shareholders wishes focusing on the main objective of the firm which is maximizing profits.

This theory was applied to this study as working capital take up a large portion of capital in manufacturing, and hence the management makes working capital decisions to ensure long-term growth of the firm. The decision of how to finance working capital need to be done by the management in order to maximize profits which is the shareholders main objective. Since shareholders have very little management knowledge the theory is best in this scenario since its assumptions give the management the mandate to make the decision on how to manage and finance working capital of a firm, to ensure longevity and growth of the firm.

2.2.3 Cash conversion theory

The cash conversion theory proposed by Gitman, Bacon, and Joehnk (1984) describes how the firm's cash cycle influences the cash available for operations and investment, and therefore the firm's operations, financial performance, and competitiveness. The cash conversion theory explains the relationship between a company's cash flow, its activities, its financial performance, and its working capital components. This theory describes how much cash is needed to run a business successfully and how that cash should be produced from the company's activities. According to Baos-Caballero et al. (2014), the cash conversion cycle is the day-to-day operational cycle, which is determined by adding up the purchases and inventory outstanding payments according to payment conditions to the sales made on credit for the period, then subtracting payables. This cycle aims to estimate the time lag between the purchase of goods and raw materials needed for the company's activities and the receipt of cash from subsequent credit sales. This gives you an idea of how much money the company need to keep its operations running well for a certain number of days.

Because it incorporates both balance sheet and profitability components to develop this benchmark metric, the CCC is an important indication of a company's liquidity (Jose and Lancaster, 2006). Because it shows the time gap between collection from credit sales and when inventory was bought, the cash cycle is used as an all-encompassing method for evaluating working capital management (Akomeah, 2019). This emphasizes how critical it is for the company to maintain control over its short-term commitments and assets in order to continue operating. According to Richards and Laughlin (2010), traditional liquidity ratios such as current, acid test, and quick ratios do not offer sufficient information on the state of working capital, therefore CCC is suggested to evaluate the efficiency of the firm's working capital management.

According to Abioro (2013), this theory is applicable in assessing working capital management and how it affects the growth of manufacturing companies. Effective cash management and having optimal cash outlays, shorter inventory conversion, shorter receivables conversion and longer payables conversion has a beneficial impact on the financial performance and long-term growth and sustainability of the companies. Because the firm's continuous liquidity is an indication of its cash conversion cycle, it is critical to evaluate working capital management in terms of cash inventory, payables and receivables conversion cycle rather than liquidity. As a result, this theory was applicable to this study as it linked the four working capital management components to outcomes of the firm such as profitability, sustainability and growth.

2.3 Empirical review

2.3.1 Cash conversion cycle and growth of companies

In measuring cash conversion cycle three main components of working capital are involved, Inventory, payables and creditors. All the three make up the CCC, thus termed as the

comprehensive measure as it entails three main working capital facets reflecting the amount of time needed to convert cash from raw materials to finished goods. (Padachi, 2006). For Companies to remain solvent in the long run and maintain a sustainable financial capacity have to adapt a proper liquidity management (Jose et al., 1996). The main characteristic of a cash conversion cycle is that it is expected to be both negative and positive depending on the company's working capital management strategy. When a company delays payment to creditors this increases CCC and therefore positive, when payables are paid within the set days without delay indicates a negative CCC (Hutchison et al., 2007). Firms work towards having an efficient cash management system which is short CCC or near negative.

In Japan, Nobanee et al. (2011) undertook a study with the goal of finding out how a company's cash conversion cycle affects its profitability. Using dynamic panel data analysis, the relationship between a firm's cash conversion cycle and profitability was investigated using a sample of Japanese businesses from 1990 to 2004. The analysis was carried out on the whole sample as well as sub-samples by size and industry. Except for consumer products and services businesses, all of the other research samples show a significant negative relationship between financial performance of the firms and the duration of the cash conversion cycle.

A study to investigate the relationship between the cash conversion cycle and the firm's size and profitability was conducted to Panigrahi (2013). The study took into account existing literature on the role of cash conversion cycle in improving companies return on assets and equity of the companies and to measure the impact of cash conversion cycle on profitability of the manufacturing companies. For a period of ten years, the top five cement companies in India were studied from 2001 to 2010. When the data was regressed, the results revealed a low return on assets and equity, as well as a negative cash conversion cycle. To reduce effects of outlier heteroscedasticity test was carried and the results showed a cash conversion cycle being

positive on both return on assets and equity. After heteroscedasticity of data test ROA and ROE was seen as having a positive association which was significant.

In Nigeria, Ikechukwu (2016) assessed the influence of cash conversion cycle on the financial performance of paint, chemicals and building materials manufacturing businesses. The factors examined in this research include the and inventory ratio, receivable ratio, cash conversion cycle, and payable ratio. The information was gathered from annual reports of the businesses. The Hypotheses were tested using the Generalized Least Square Multiple Regression analytical tool. Inventory ratio and accounts receivable ratio had a substantial and positive impact on company profitability, whereas accounts payable ratio and cash conversion cycle had a positive and non-significant effect on firm profitability, according to the results.

In Indonesia, Jahan (2020) investigated the Cash Transformation Cycle in six categories, including, Food and Allies, Pharmaceuticals and Chemical, Cement, Textile and Miscellaneous, of 30 companies listed on the Dhaka securities exchanges. On panel data, a regression analysis was performed. The cash conversion cycle of various manufacturing businesses did not show any significant differences in our investigation. The findings show a statistically negative correlation which is significant between profitability and CCC. The findings also revealed that a manufacturing firm's CCC has a substantial negative association with its size.

In New Zealand, McInnes (2014) sought to shed light on how working capital is managed by listed limited liability companies. Questionnaires were administered to collect data to and sent a WCM model which was empirical. The results indicated that working capital management in New Zealand was significant issue to address in businesses. The statistic’s showed that financing decision had greater impact, with the investment decision largely taken for granted. The results also showed that working capital management impacted on the maximization of the business's liquidity, efficiency, solvency, profitability, and shareholder

wealth. From the results of the study working capital functions were not clear and insufficiently recognized and further empirical research needed to be carried to investigate more on the same.

A study in Malaysia by Ali, Hussin, and Ghani (2019) investigated the relationship between liquidity, growth, and profitability of Malaysian non-financial firms listed on the Bursa. The research focused on 50 Malaysian non-financial publicly traded companies. 250 entries were collected using panel data for a period of 5 years. The relationship between liquidity and profitability was strong as compared to return on assets. On the other hand, quick ratio showed that liquidity had no impact on profitability. This study also shows that profitability and growth had a negative relationship. Furthermore, the study found that liquidity and growth in general have no impact on profitability in terms of return on equity, despite the fact that the conclusion indicates that a high rate of sustainable growth has a good impact on profitability.

In Greece, Lyroudi and Lazaridis (2000) investigated the food industry and discovered that CCC had a positive relationship with current and quick ratios which was significant. Lazaridis and Tryfonidis (2006) examined WCM practices in relation to performance whose results showed a WCM has having a relationship with performance which was strong. CCC regressed against profitability indicated that both had a strong relationship. From the results they were able to deduce that in order to increase shareholders value CCC should be optimized and efficiently managed.

A study conducted in Indonesia by Sarasvati, (2020) assessed how the cash conversion cycle and firm size influence the profitability of manufacturing companies using data from 309 listed firms on the Indonesian Securities Exchange. The data was for 3 years between 2011-2013 and the results had a positive profit and equity. A regression analysis carried on the data indicated that the cash conversion cycle and firm size had a significantly effect on the

profitability of the company, whether measured by ROA or ROE, for CCC the effect was negative on profitability.

In Sri Lanka, Haleem, (2019) did his study focusing on the impact of working capital on the liquidity and profitability of the listed Hotels and Travels sector companies of Colombo securities exchange in Sri Lanka. This research was intended to contribute to Sri Lanka's aspects of financial management known as working capital management. The study was to identify the influence of the effect of working capital on liquidity and profitability. The study period was 5 years on 20 hotel & travel companies listed in Colombo securities exchange from 2012-2016 form which a total of 100 observations were made. The results of regression analysis performed indicated that an impact of working capital was significantly noticed on profitability of hotels and travels sectors companies.

Kamau and Ayuo (2014) examined the the connection between working capital management (as measured by the cash conversion cycle, or CCC) and organizational performance (as measured by profitability) amongst manufacturing companies in Eldoret, Kenya. The research population was a group of 13 manufacturing firms. For a ten-year period, historical financial performance data was gathered from the selected companies' yearly financial statements. Through questionnaires and interview schedules, further data was collected from the managements of the firms. Current liabilities to total assets, CCC and ratio of current assets to total assets, were employed as metrics of working capital management, while performance was evaluated in terms of return on equity and return on assets. The data was analyzed using regression and correlation analysis. Working capital management is adversely associated with return on equity (ROE) and return on assets (ROA) and with regression coefficients of -0.148 and -0.231, respectively, according to the results.

A study in Iran by Soukhakian and Khodakarami (2019) assessed the influence of working capital management on firm performance among listed Iranian manufacturing

companies. The ordinary least squares method with robust standard errors was used to analyze panel data from 2010 to 2016. The endogeneity issue was controlled using two-stage least squares with robust standard errors. The CCC is adversely linked to return on assets and refined economic value added, according to the findings. That is, the better the performance, the shorter the period between an expenditure for raw materials and the recovery of receivables for sold products. When the endogeneity issue is taken into account, however, CCC loses its connection with REVA. Furthermore, the study determined that macroeconomic variables have little effect on the link between WCM and business performance.

In Vietnam, Pham et al. (2020) examined the impact of various working capital management variables on the profitability of steel firms listed on the Vietnam Securities Exchange. Data was gathered from businesses' audited financial accounts over a ten-year period, from 2010 to 2019. Twenty out of the 26 businesses had samples suitable for study, which is equal to 76.9%. Multivariate regression models were used to determine the effect of CCC as one of the working capital components on the firm's profitability. Working capital management component of CCC has a significant negative effect on company profitability, according to research findings from firms in the steel sector in Vietnam during this time period.

Yousaf and Bris (2021) conducted a study with the primary goal of assessing the link between business performance and working capital. The study population was 326 Czech companies from the Albertina database, including 20 accredited companies from the EFQM (European Foundation for Quality Management) Excellence Model. The Czech companies in the sample came from three industries: construction, automobiles, and manufacturing. The findings were determined using a two-step system generalized method of moment (GMM) methodology. The study's findings showed that working capital (CCC) has a negative influence on company performance; furthermore, companies with an EFQM Excellence Model quality accreditation perform better.

2.3.2 Inventory conversion cycle and growth of companies

A study by Makori and Jagongo (2013) conducted a study on the impact of working capital management and firm profitability of manufacturing and construction firms listed at the NSE, in Kenya. Data was collected using secondary data technique and multiple linear regression was used to analyze the data. The results showed inventory period and payable period had a positive effect on profitability.

On a study in Meru County, Kenya, Muturi (2015) investigated the effects of working capital management on profitability of tea companies. The objective of the study was to investigate the effects of cash conversion cycle, accounts receivable, inventory period and accounts payable on profitability of tea factories. To analyze the data multiple linear regression model was used and the results were used to illustrate the relationship between components of working capital and company's profitability. In a five-year period of 2009 to 2013, the data were collected. The relationship between net cash conversion, the payable day and inventory conversion was found to be negative. This meant that these durations had to be shortened in order to improve profitability.

Munya et al. (2015) conducted a study with the purpose of determining the influence of inventory conversion period on the profitability of manufacturing SMES in Nairobi. The study utilized a descriptive research design since it was a good way to use cause-and-effect statistical techniques like regression analysis. The impact of the inventory conversion time on the profitability of manufacturing SMEs was assessed using basic linear regression analysis. The data for this regression study was collected during a five-year period, from 2010 to 2014. Because the population was big, the Census technique was employed to examine the responses. Questionnaires were utilized to gather primary data from the population for the research. To validate or reject the hypothesis, these data were examined and assessed using Pearson's

correlation coefficient and ANOVA. According to the findings, the inventory conversion time has a statistically negative impact on profitability.

In Nigeria, Tsagem and Ishak (2018) investigated the relationship between performance and the cash conversion cycle of Nigerian SMEs. The data was gathered from secondary sources and analyzed using panel data regression analysis. 311 SME were sampled and data collected for period of 6 years running from 2007 to 2013. The results of the analysis showed that cash conversion cycle, inventory conversion cycle and payable period had a negative effect on profitability and the effects of accounts receivable period on profitability was negative and statistically significant.

In a study in Sri Lanka, Samiloglu and Demirgunes (2008) investigated the impact of WCM on firm profitability. The data have been analyzed by multiple linear regression. The study found a negative relationship between profitability and debtor sales days, inventory sales days, and financial leverage with the exception of sales growth with a positive impact on the company's profits.

A study in Vietnam by Nguyen et al (2020) carried out statistical approaches to address econometric issues and improve regression coefficients for eight WCM models, which examine the effects of WCM using regular least squares (OLS) and fixed effect model (FEM) models on 119 Vietnamese listed industries on the securities market. The study period was for the 9-years from 2010 to 2018. From the analysis carried out of data collected the results indicate there was a negative effect of WCM on the firm’s profitability and it was significant. Both measures by ROA and TOBIN Q. The research concluded that a decent work capital policy will allow companies to increase profits and create value for investors. The study recommended that the period of money collected from customers be reduced, the flow of securitiess accelerated and payment for creditors reduced will contribute to increasing the company's profitability.

A study by Kipkemoi et al. (2018) had the primary goal of examining the impact of inventory and cash conversion cycles on financial performance in Kenya. The 12 companies in the Nairobi Securities Exchange's Commercial and Services Segment were the study's target audience. Secondary data was gathered from audited financial reports from 2007 to 2017. The research conducted a census of all businesses in the commercial and service sectors that did not need a sample method. To determine the cumulative impact of the four components of working capital management on financial performance, data was examined using panel data regression models and correlation analysis with the assistance of Stata Statistical Software. Inventory Conversion Period had no significant relationship with financial performance, r=.509, p=.050, indicating that Inventory Conversion Period did not affect financial performance of firms in the commercial segment of the NSE.

A study conducted in India by Sivashanmugam and Krishnakumar (2016) examined the relationship between working capital management strategies of a firm and its profitability on Indian cement companies. For 5 years between 2010 and 2014 data was collected and analyzed from 35 Indian cement companies. 175 observations were made and analyses was done on the same and the results indicated that the management in order to improve profitability needed to reduce the receivables period and increase the inventory period. Efficiency in working capital management was important to improve the profitability of companies.

A study in Ethiopia by Wassie (2021) evaluated the fundamental impact of working capital management on the performance of export firms in Ethiopia. A total of 164 exporters operating in Ethiopia were chosen as a sample for this research, and both secondary and primary data collecting techniques were utilized. The study findings determined that working capital management, as evaluated by the inventory conversion time, has a favorable and statistically significant influence on return on investment, but has no effect on the performance of selected Ethiopian export companies as assessed by return on assets.

In Jordan, Obeidat (2021) undertook a study with the goal of determining whether there is a link between the inventory management of listed pharmaceutical companies on the Amman Securities Exchange and their profitability, and if inventory management impacts company profitability. By the end of 2020, only three pharmaceutical companies were discovered registered on the Amman Securities Exchange, thus yearly data for the three firms from 2009 to 2019 were collected and utilized in the analysis and hypothesis testing. Return on assets was employed as a measure of company profitability, while inventory turnover and average inventory holding time were used as reciprocal indications for inventory management. The study and hypothesis testing revealed that there is a substantial positive connection between inventory turnover and return on assets, and a significant negative relationship between average inventory holding time and return on assets, using the Pearson correlation technique. Furthermore, the research indicates that inventory management has a positive significant impact on business profitability using the ordinary least square technique.

2.3.3 Receivable conversion cycle and growth of companies

A study by Mathuva, (2010) examined the influence on profitability of working capital management. Secondary data were collected and analyzed using the regression analysis by means of statistical tools, which showed that the relationship between the duration necessary for companies to collect cash from their clients and profitability is highly negative. It should be further explained that the more profitable companies take the shortest time to collect customers' cash.

In Turkey, Vural et al. (2012) observed that because of its impact on the firm's liquidity and performance, working capital management plays a critical role in its failure or success. This prompted their study that was based on secondary data gathered from 75 manufacturing companies listed on the Istanbul Securities Exchange from 2002 to 2009, with the goal of

utilizing dynamic panel data analysis to examine the connection between company performance and working capital management components. The findings from the study showed that by reducing the time it takes for accounts receivables to be collected and the time it takes for cash to be converted, businesses may improve profitability as measured by gross operating profit.

Munene (2017) conducted a study with the purpose of determining how accounts receivable management affected Embu Water and Sanitation Company Limited's financial performance. The following precise goals drove this research: to look at the impacts of average payment period, inventory turnover, average collection period and cash conversion period on the financial performance of Embu Water and Sanitation Company Limited. To investigate the study's connection factors, this study used descriptive research. Secondary data was collected from the accounting and finance departments for the research. The research discovered that return on equity had a significant positive relationship with average collection period and current ratio, indicating that if the time period for debtor payments is extended, the overall financial performance of Embu Water and Sanitation Company Limited in Embu County, Kenya improves as well.

In Nigerian SMEs, Tsagem (2017) carried an investigation on the relationship between cash conversion cycle and its components with SMEs' profitability. 311 SMES in Nigeria were sampled and data collected from 2007 to 2013. The data was analyzed using SPSS data analysis tool for a period of 7 years. The findings are similar to that of Deloof (2003) and Raheman and Nasr (2007) which stated that shorter accounts receivable period would increase profitability this is according to capital management theory. The results showed that profitability of a firm can be improved by shortening the accounts receivable period as stated by Deloof (2003), García-Teruel and Martínez-Solano (2007) and Afeef (2011).

On a study on oil companies, Masinde and Ochieng (2017) examined the impact of working capital management on the financial performance of the NSE-listed energy and oil companies. Secondary data from a survey of published books was collected for 8 years from 2007- 2014. The Pearson correlation, regression, and ANOVA analysis of data were carried out with both descriptive and quantitative analyses. The results of the analysis showed that profitability was affected by WCM strategies used. Further upon investigating the components of working capital management it was found that a week profitability relation exists for the inventory period, receivable period and payable period. The study concluded that there was a significance on the unfavorable accounts payable period, cash conversion cycle and profitability relations.

Hassan, Mberia and Muturi (2017) established the effect of working capital management on financial performance of water processing firms in Puntland state of Somalia. The study period of 5 years between 2011 and 2016. Descriptive research was used to deduce the results of the analyzed data. Multiple linear regression was used to analyze profitability measured by ROA against components of working capital which in this case were analyzed as ratios. In the light of the high coefficient values of variation for each of the variables the results of descriptive statistics showed that all the variables are very volatile Receivable's turnover ratio gave a negative effect of ROA.

Al-Mohareb (2019) investigated the impact of working capital management and its components on profitability by using a sample of Jordanian manufacturing firms listed in the Amman Securities Exchange for the period three years (2016-2018). Profitability of the firms and cash conversion cycle manifested a relationship. To create value for shareholders the research found that accounts receivable and inventory held should be decreased. This way profitability will be enhanced. Smaller collection periods and an effective lending policy will also have a positive impact on companies' profitability.

In Poland, Anton and Nucu (2020) investigated the influence of working capital management on firm profitability for 719 Polish publicly traded companies from 2007 to 2016. The study on the financial performance-working capital connection was motivated by the paucity of empirical data for developing economies and the significance of working capital efficiency. Using several panel data methods, the study adopted a quantitative approach (panel-corrected standard errors models, fixed effects, and ordinary least squares). The empirical findings showed an inverted U-shape connection between firm profitability and receivables management, indicating that receivables conversion cycle has a positive impact on Polish firm profitability up to the break-even point (optimum level). Receivables conversion cycle begins to have a negative impact on firm profitability beyond the break-even point.

2.3.4 Payable conversion cycle and growth of companies

Muturi (2015) investigated the effects of working capital management on profitability of tea companies in Meru County. It investigated all the seven incorporated manufacturing companies located within Meru County. The study was based on specific objectives which were to establish the effects of cash conversion cycle, accounts receivable, inventory conversion period and accounts payable. To analyze secondary data collected multiple linear regression was used to show working capital components relationship on profitability. For a period of 5 years from a population of 21 companies' census was used to collect data the period ranging between 2009 and 2013. From the questionnaire's data was coded and analyzed using Pearson's correlation coefficient and ANOVA to test hypotheses. It was found that the net cash conversion cycle, days account receivable and the inventory conversion period each had an adverse effect on the profitability. This implied that shortening these durations would improve profitability. Conversely, accounts payable had a positive effect on profitability. This later finding could be so because delaying payment to suppliers gives the paying firm an opportunity

to invest the money in the short run to generate additional returns. There is need therefore for the finance managers to shorten the net cash conversion cycle, the days account receivables and the inventory conversion period to increase the profitability. Further, managers need to delay making payment to creditors in order to increase profitability.

The study by Nwakaego (2016) assessed the impact of accounts payable administration on the financial performance of Nigerian industrial and domestic manufacturing firms. The information was gathered from the businesses under investigation's annual reports. Multiple regression techniques were used to test the hypotheses. The study's findings revealed that accounts receivable had a favorable and substantial impact on the profitability ratio at 1% levels of significance. This implies that a unit rise in the receivables conversion days would result in a commensurate increase in the profitability ratio of Nigerian construction/chemical and paint firms.

Sugathadasa (2018) examined the relationship between cash conversion cycle and profitability of manufacturing sector organizations listed in Colombo Securities Exchange. ROA and ROE were used as measures of profitability, on the other hand components of working capital were used as the independent variables. Secondary data was used collected from 10 companies listed on Colombo securities exchange from 2013 to 2017 for a period of 5 years using stratified sampling. Two linear multiple regression analysis was carried out on the data. Each measure of profitability gave different results where ROA had a positive relationship as compared to inventory period and receivable period. Also, ROA had a negative relationship with receivables period as well as ROE having a negative relationship with all the components of working capital

Waema and Nasieku (2016), sought to establish the effect of working capital management on the financial performance of listed manufacturing firms in Kenya. Objective, to identify the effect on the financial performance of the listed manufacturing companies in

Kenya of the effect of work capital elements, namely the time limit, receivable period, payable period and inventory period. The study took a quantitative research design that targets the Nairobi Securities Exchange of 10 manufacturing companies in Kenya (NSE). From the published books secondary data was obtained using panel data for the period between 2005 and 2014 for 10 years. Management of the creditors and the company's financial performance had a positive impact, while the rest of the management of working capital had a negative impact on companies' profits. Therefore, from the research working capital management significantly impacted on the financial performance of the listed manufacturing firms in Kenya.

Mbithi, Muiruri, and Kingi, (2015) identified the effects of working capital management practices on the financial performance of Tourist Hotels in Mombasa County, Kenya. Panel data method was used to collect and analyze the data was collected. Linear regression was used as the analysis method and the results found a strong negative relationship between the hotels net operating profit and the various measures of working capital management components which are accounts receivable, accounts payable, the inventory turnover period and the cash conversion cycle.

A study in India by Bhatia and Srivastava (2016) was conducted with the objective of assessing the link between working capital management and business performance in a developing market. The study used payables conversion cycle as the measure of working capital management and used 2,327 firm-year observations. This panel data was from 179 companies listed on the S&P BSE 500 Index of the Bombay Securities Exchange. The study was conducted over a long window spanning 2000–2014 using generalized method of moments (GMM), fixed- and random-effects model, and ordinary least square (OLS). In addition to accounting performance, market-based performance measures were used to evaluate company performance for robustness. This research discovered a negative connection between working

capital management (payables conversion cycle) and business performance, requiring the necessity to manage working capital effectively in order to increase profitability.

2.4 Research Gaps

The review of literature has provided a discussion of various existing empirical literature on the effect of working capital management on profitability of manufacturing companies. The review has indicated the areas of divergence and convergence in the various studies and demonstrated gaps that needs to be bridged. The review has indicated the various contextual, conceptual, methodological and knowledge gaps that have been left by the previous studies on the subject which justified the current study.

Regarding contextual gaps, there had been various reviewed studies that had been conducted in other countries and due to the differences, that exist between Kenya and those other countries, the findings from those studies may not be generalizable to the manufacturing companies in Kenya. Such studies include Al-Mohareb (2019) in Jordan, Sugathadasa (2018) conducted in Sri Lanka, and Tsagem and Ishak (2018) in Nigeria. Besides, other studies were conducted in other sectors such as construction sector, retail sector and other amongst SMEs. These include McInnes (2014), Ali, Hussin and Ghani (2019) and Lyroudi and Lazaridis (2000) among others. Findings from these studies cannot be generalized to manufacturing companies in Kenya and hence justified the current study to investigate the influence of working capital management on growth of manufacturing companies listed in the NSE in Kenya.

The review of literature also unearthed some conceptual gaps as most of the reviewed studies focussed on the effect of working capital management on financial performance of firms. Mbithi, Muiruri, and Kingi, (2015) studied the effects of working capital management practices on the financial performance of Tourist Hotels in Mombasa County, Kenya. Additionally, Waema and Nasieku (2016) investigated the effect of working capital

management on the financial performance of listed manufacturing firms in Kenya. Moreover, Muturi (2015) investigated the effects of working capital management on profitability of tea companies in Meru County. These studies provided evidence of the effect of working capital management on financial performance but not on growth of firms. The current study sought to fill this gap by investigating the effect of working capital management on growth of manufacturing companies listed in the NSE in Kenya.

The reviewed studies also left some methodological and knowledge gaps. The study by Sivashanmugam and Krishnakumar (2016) examined the relationship between working capital management strategies of a firm and its profitability on Indian cement companies. The study included cash conversion cycle, number of day's receivables and inventory turnover in days, but did not include payable conversion cycle. Samiloglu and Demirgunes (2008), on the other hand, analyzed the effect of WCM practices on firms' profitability, but applied a multiple linear regression model on panel data. Additionally, Muturi (2015) investigated the effects of working capital management on profitability of tea companies in Meru County and applied multiple linear regression analysis for the panel data collected. Findings from these studies may not be robust since panel data analysis models are the ones appropriate for analysing panel data. The current study therefore sought to fill these gaps by using panel data analysis models to establish the effect on working capital management on growth of manufacturing companies listed in the NSE in Kenya.

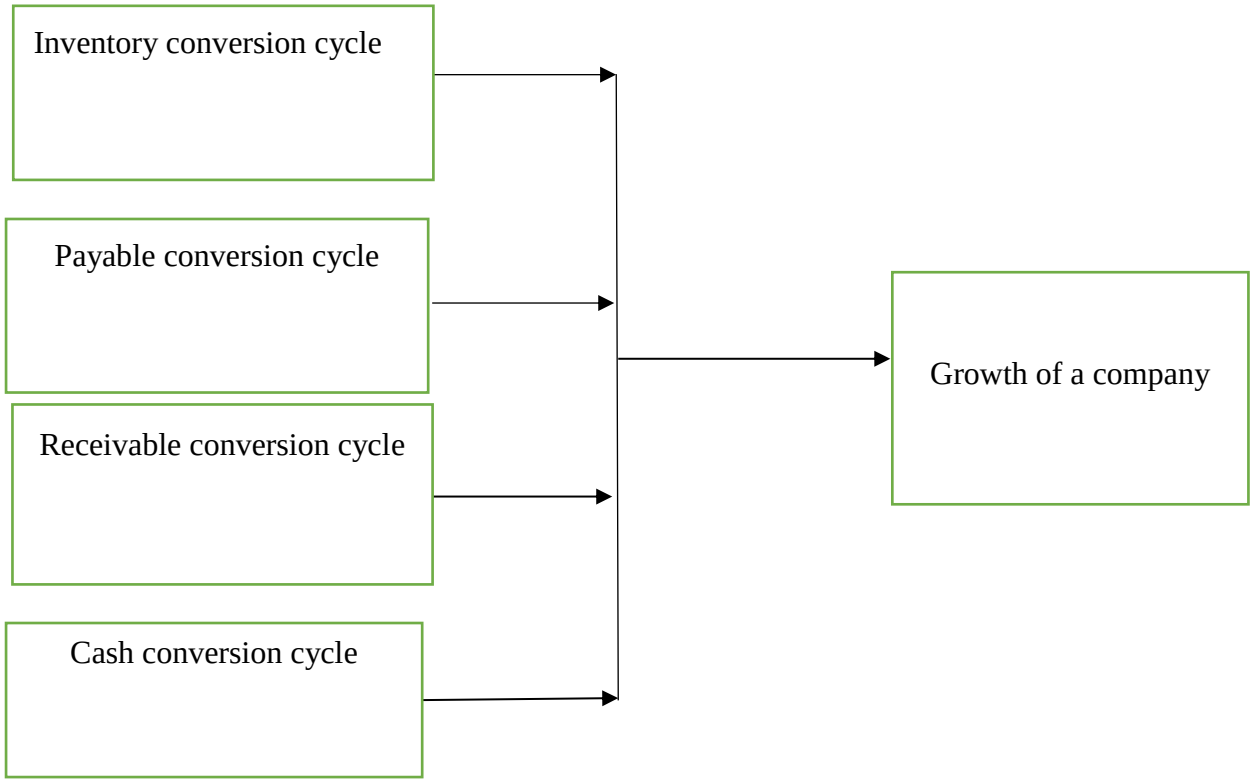
2.5 Conceptual Framework

A conceptual framework is a model representation of the working capital components in the study and the relationship to the growth of manufacturing companies listed on Nairobi securities exchange (Figure 1). This is derived from the literature review and the objectives of the study. Independent variables were the working capital components under study and the

independent variables were represented by the growth of manufacturing companies listed the Nairobi securities exchange. The conceptual framework hypothesizes that the inventory conversion cycle, payables conversion cycle, receivables conversion cycle, and cash conversion cycle will have a significant effect on growth of the manufacturing companies.

FIGURE 1

Conceptual Framework



Source: Author (2021)

2.6 Operationalization of Variables

The variables of the study (both predictor and dependent) were measured to ensure that they are applicable in the study. Table 1 provides a summary of how the variables were defined and measured.

TABLE 1

Operationalization of Variables

Variable	**Proxy**	**Measure**
Growth	SGR	Return on equity (ROE)*retention rate (1-d)
Cash conversion cycle	CCC	ICC+ RCC + PCC
Inventory conversion cycle	ICC	(Inventory/sales) * 365
Payable conversion cycle	PCC	(Creditors / COGS) * 365
Receivable conversion cycle	RCC	(Debtors / sales) *365

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides the research design and tools used in the research. The following topics are discussed in the chapter, research design, population, measurement instruments, data collection procedure and analysis tools used.

3.2 Research design

MacMillan and Schumacher (2001) define research design as a plan for selecting subjects, research sites and data collection procedures to answer when, where and which circumstances was studied. The research overall plan on how to collect data to answer research questions and understand the study population. It is blue print on how to carry out the research: data collection, measurement and analysis. In this research, a historical longitudinal design was used. Historical longitudinal design, according to Creswell and Creswell (2017), is a type of correlational research study that involves assessing variables over an extended period of time in the past. This entails observing various study units over various time periods and establishing the link between the variables therein. This study benefited from this approach since it allowed the study to gather historical panel data on working capital in manufacturing companies listed in the NSE and link it to growth of the firms.

3.3 Target population

Target population refers to the entire group of objects or individuals under study from which the researcher will derive conclusions. This research targeted manufacturing companies listed in Nairobi securities exchange for 10 years starting 2011 and 2020. The target population is made up of nine companies which were as provided in Table 2.

TABLE 2

Population of the Study

	MANUFACTURING COMPANIES LISTED ON THE NSE AS AT July 2021		
1	B.O.C Kenya Ltd	6	East African Breweries Ltd
2	British American Tobacco Kenya Ltd	7	Carbacid Investments Ltd
3	Mumias Sugar Co. Ltd	8	Unga Group Ltd
4	Kenya Orchards Ltd	9	Flame Tree Group Holdings Ltd
5	Eveready East Africa Ltd		

3.4 Sampling Procedure

Chandra and Sharma (2019) stated sampling as the process of selecting elements or individuals that represent the target population of study. The research will utilize census sampling based on the characteristic of study. The nine companies in the population include: BOC Kenya, Eveready East Africa, Kenya Orchards, Flame tree group holdings, East Africa breweries, Mumias sugar, Carbacid Investment, Unga group and British American tobacco. All the nine listed manufacturing companies were included in the study for a period of 10 years from 2011 to 2020.

3.5 Data Collection Tools and Procedure

The research sourced data from secondary sources. Data was collected over time involving repeated observations of the same variable, and put in a data collection sheet for analysis. The data was sourced from NSE website, and from the audited financial reports of the companies under study for a period of 10 years between 2011 and 2020 financial year. The

researcher used data collection sheet to collect, edit and label data for analysis. The choice of data source was mainly because of data availability and reliability since the books of account are audited representing a fair view of the company's financial position.

3.6 Data Processing and Analysis

Data analysis is the critical application of statistical techniques on figures and numbers to describe illustrate and evaluate data. The research used panel data analysis which is best suited for the research. Data was collected, classified and coded and an analysis tool used to analyze the data using panel data analysis method. Panel data may be analyzed using two models: a panel data regression model and a pooled ordinary least squares (OLS) regression model. When there are no significant time constant attributes for the different entities, the pooled OLS model is employed. Panel data regression may be done using either fixed or random effects models. These are used to deal with the potential of a cross-sectional impact on each company or group of firms.

The Breusch Pagan LM test and a Hausman specification test were used to evaluate the appropriateness of each model in order to determine which of the three models is most suited for the research. The three models that were examined in the research (pooled OLS, fixed, and random effects models) are listed below.

3.6.1 Fixed effects model

As an analytical tool, the fixed effect model accommodates for entity heterogeneity by allowing each entity to have its own intercept value while assuming that the slope coefficients are constant across the different entities. Individual intercepts may differ across entities, but they will not change significantly over time, suggesting that they are time invariant.

$$Y_{it} = \alpha + \beta_1 CCC_{it} + \beta_2 ICC_{it} + \beta_3 PCC_{it} + \beta_4 RCC_{it} + \mu_{it} \qquad \text{(Equation 1)}$$

Where μ_{it} = error term

3.6.2 Random effects model

Individual differences are random and unrelated to the independent variables in the random effects model, which isolates variances across components (panels). As a consequence, the error term includes both the random effects of the panels as well as the random instabilities. Random effects are treated as separate errors for each panel, with a normal distribution, zero mean, and variance of 2. When utilizing the random effects method, it is necessary to identify specific characteristics that may or may not have an influence on the independent variables. Certain elements, however, may be unavailable in the research, leading the model to be skewed by the missing variables.

$$Y_{it} = \alpha + \beta_1 CCC_{it} + \beta_2 ICC_{it} + \beta_3 PCC_{it} + \beta_4 RCC_{it} + \varepsilon_{it} + \mu_{it} \quad \text{(Equation 2)}$$

Where ε_{it} = within entity error term

μ_{it} = between entity error term

3.6.3 Pooled OLS

By using ordinary least square method this model uses a combination of cross-sectional data and time series data.

$$Y_{it} = \alpha + \beta_1 CCC_{it} + \beta_2 ICC_{it} + \beta_3 PCC_{it} + \beta_4 RCC_{it} + \varepsilon_{it} \quad \text{(Equation 3)}$$

Where ε_{it} = error term

From the equations,

Y = Growth of manufacturing companies

α = Constant term

β_1, β_2, β_3 , β_4 = Regression coefficients

CCC = Cash conversion cycle

ICC = Inventory conversion cycle

PCC = Payable conversion cycle

RCC = Receivable conversion cycle

i = manufacturing company (1....9)

t = Year (2016—2020)

3.7 Diagnostic Tests

Various diagnostic tests were conducted to determine the most appropriate model to apply and to ascertain that the linear regression assumptions were not violated. The tests conducted were the Breusch Pagan Lagrange Multiplier test, Hausman specification test, test of multicollinearity, test of serial correlation, heteroscedasticity tests and test of normality of errors.

3.7.1 Test of multicollinearity

When the predictor variables are strongly related with one another, there is multicollinearity. This is a problem since the regression model will be unable to properly link variation in the outcome variable with the appropriate predictor variable, resulting in spurious findings and erroneous conclusions (Angrist & Pischke, 2014). This study tested multicollinearity using the variance inflation factor (VIF). VIF values of above 10 indicates indicate multicollinearity while VIF values of below 10 indicates no multicollinearity.

3.7.2 Test of serial correlation

The assumption that the errors associated with one observation are not linked with the errors associated with any other observation is the assumption of no serial correlation. With data collected for several years for the same entity, the errors for observations across consecutive years are more likely to be strongly linked than for observations separated in time. This is referred to as autocorrelation (Gujarati, 2011). This study applied the Breusch–Godfrey test to assess serial correlation. The null hypothesis in this test is that there is no serial

correlation. As a result, if the p-value is below 5%, the null hypothesis must be rejected and adopt the alternative hypothesis that the errors are serially correlated.

3.7.3 Test of normality of residuals

The normality of residuals assumption ensures that the p-values for the t-tests and F-tests are correct, which is needed for valid hypothesis testing. However, to get unbiased estimates of the regression coefficients, normality is not required. However, linear regression demands that the residuals be distributed equally and independently (Linton, 2019). In this study, after running the appropriate regression analysis model, the predict command was used to generate the residuals, and then kdensity was used to verify the residuals' normality.

3.7.4 Test of heteroscedasticity

The homogeneity of variance (homoscedasticity) of the residuals is one of the key requirements for linear regression. If the variance of the residuals is not constant, the variance of the residuals is said to be "heteroscedastic." For identifying heteroscedasticity in this study, White's test was applied (Linton, 2017). The null hypothesis in this test is that the residual variance is homogeneous. As a result, if the p-value is very low, the null hypothesis must be rejected and adopt the alternative hypothesis that the variance is not homogeneous. If heteroscedasticity would have been present, robust errors would be used instead of standard errors.

3.7.5 Breusch Pagan Lagrange multiplier test

Breusch Pagan Lagrange Multiplier (BPLM) Test was applied to assess which models between POLS and random effects models is appropriate for the collected data. The null hypothesis of the BPLM test is that the variance of the random effect is zero: Var[ui]=0 (Linton,

2019). This effectively implies that all the entities have the same intercept, and therefore, POLS can be applied. Rejection of the null hypothesis hence implies that the random effects model is the one most appropriate for the data set.

3.7.6 Hausman test

To determine which is the best model between fixed and random effects, a Hausman test will be used. The null hypothesis of the test is that the preferred model is random effects and the alternative model is fixed effects model (Gujarati, 2011). In a regression model, the Hausman test identifies endogenous regressors whose values are dictated by other variables in the system. The test basically seeks to determine whether there is a relationship between the unique errors and the regressors in the model. The null hypothesis states that no connection exists between the two. Therefore, if the p value of the test is below 5%, the fixed effects model was fitted, otherwise, the random effects model would be fitted.

TABLE 3

Panel Data Diagnostic Tests

Test	Test Used	Conclusion
Multicollinearity	Variance inflation factor (VIF)	VIF >10, Multicollinearity
Use of pooled or random effects model	Breusch-Pagan Lagrange multiplier (LM)	If P value >0.05, use pooled effects model.
Heteroscedasticity	White test	If P value <0.05, absence of Heteroscedasticity
Serial correlation	Breush –Godfrey test	If P< 0.05, no serial correlation, reject the null hypothesis
Random or fixed effects	Hausman test	If P value< 0.05, use fixed effects model.
Normality	k-density	If P>0.05 then this implies normality.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

The data analysis, as well as the research outcomes and findings, are discussed in this chapter. This is based on data gathered from eight manufacturing firms over a ten-year period (2011–2020). This study's purpose was to examine the effects of cash conversion cycle, receivables conversion cycle, inventory conversion cycle and payables conversion cycle on growth of manufacturing companies listed in the NSE. Though the study targeted nine manufacturing companies listed in the NSE, the study collected data from eight manufacturing companies since one (Mumias Sugar Company) was under receivership. This chapter provides the descriptive results of the study variables, the panel data line plots for the variables, the diagnostic test and the fitted panel data models.

4.2 Descriptive Statistics

The obtained panel data was subjected to descriptive analysis in this research. This was done to give a summary of the data's overall distribution in terms of ranger, dispersion and central tendency. Table 4 summarizes the research results. The findings indicate that the mean of cash conversion cycle (CCC) was 67.77 with a standard deviation of 29 days for the manufacturing companies listed in the NSE. The study findings also indicated inventory conversion cycle (ICC) had a mean of 81.07 and a standard deviation of 35.06. This means that it took an average of 81.07 days for manufacturing companies listed in the NSE to convert their inventory into cash. Furthermore, the receivables conversion cycle (RCC) had a mean of 79.65, with a standard deviation of 25.94, according to the results. According to these findings, manufacturing firms took on average 79.65 days to receive cash from their credit sales. Additionally, the payables conversion cycle (PCC) had a mean of 73.12 and a standard

deviation of 25. The implication of these findings is that on average, the manufacturing companies took 73 days to clear their payables. Moreover, the findings indicated that the mean of the sustainable growth rate (SGR) was 7.01 with a standard deviation of 3.56. This shows that the manufacturing companies listed in the NSE were expected to sustainably grow at an average of 7.01% into the foreseeable future.

TABLE 4

Descriptive Statistics

CCC	overall	67.76846	29.00546	25.51	129.39	N =	80
	between		26.39295	33.485	98.431	n =	8
	within		14.96954	26.63446	98.72746	T =	10
ICC	overall	81.07308	35.06032	27.13512	148.5487	N =	80
	between		32.31743	40.41497	122.3466	n =	8
	within		17.42968	46.81332	136.4499	T =	10
RCC	overall	79.64616	25.94032	29.8815	140.084	N =	80
	between		23.36746	44.21785	114.2391	n =	8
	within		13.75023	48.78299	105.4911	T =	10
PCC	overall	73.12987	25.00055	33.22382	124.4797	N =	80
	between		18.24784	51.2686	102.6497	n =	8
	within		18.16532	31.18252	116.5048	T =	10
SGR	overall	7.012491	3.556752	.35	14.52	N =	80
	between		2.542678	4.692	11.925	n =	8
	within		2.630934	2.133491	13.12449	T =	10

4.3 Study Variables

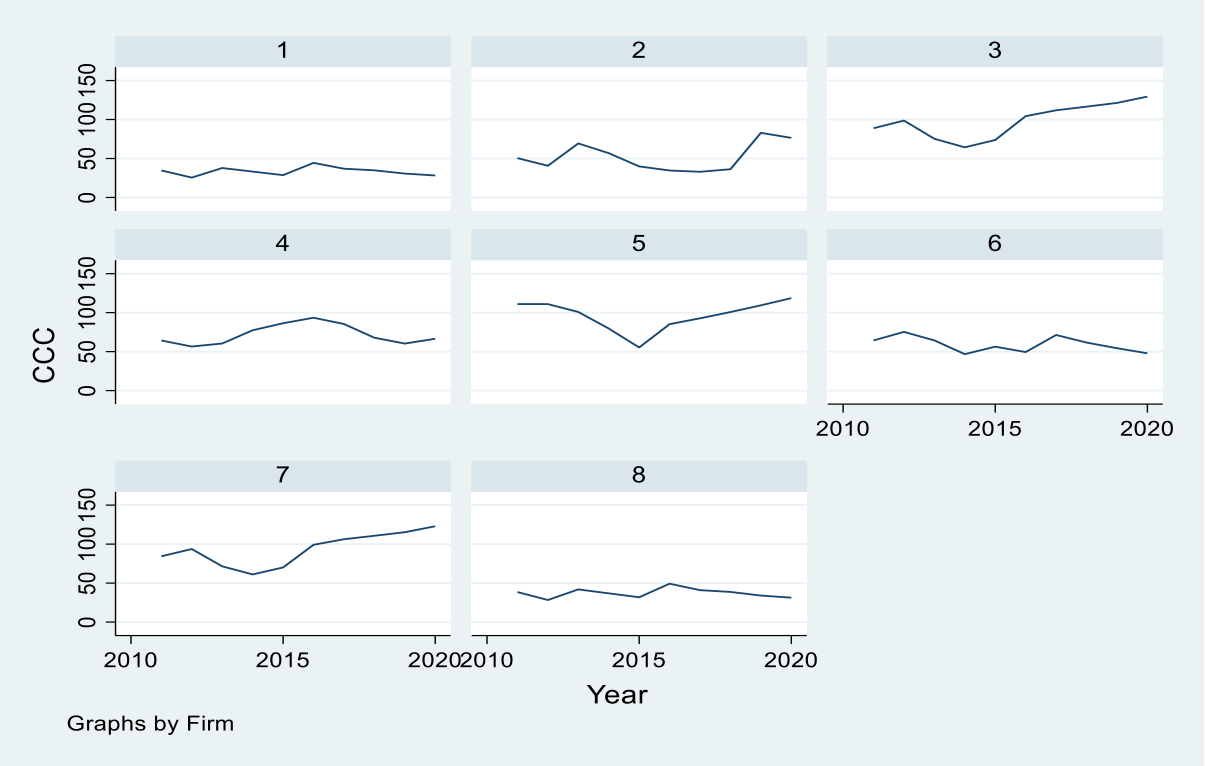
The exploratory analysis (panel data overlain plots and line plots) for the study variables for the eight manufacturing firms involved in the research is shown in this part. This shows the companies' patterns over the last ten years, which is critical for comparison.

4.3.1 Cash conversion cycle

In this study, the cash conversion cycle was used as one of predictor variables in the study. This shows how long it takes a company to earn cash from its inventory, also when considering the time it takes to pay for inventory procured on credit. Figure 2 shows the cash conversion cycle patterns for the eight manufacturing companies over the 10-year study period.

FIGURE 2

Panel Data Line Plots for Cash Conversion Cycle



The study findings displayed in Figure 2 show that during the 10-year period, all of the companies' cash collecting cycle changed significantly year on year. Specifically, company 1 had the lowest shocks, while companies 2, 3, and 5 received considerably larger shocks.

4.3.2 Inventory conversion cycle

Figure 3 shows the panel data line plots for inventory conversion cycle that were created. These trends examine the eight manufacturing firms' inventory conversion cycle over the ten-year study period.

FIGURE 3

Panel Data Line Plots for Inventory Conversion Cycle

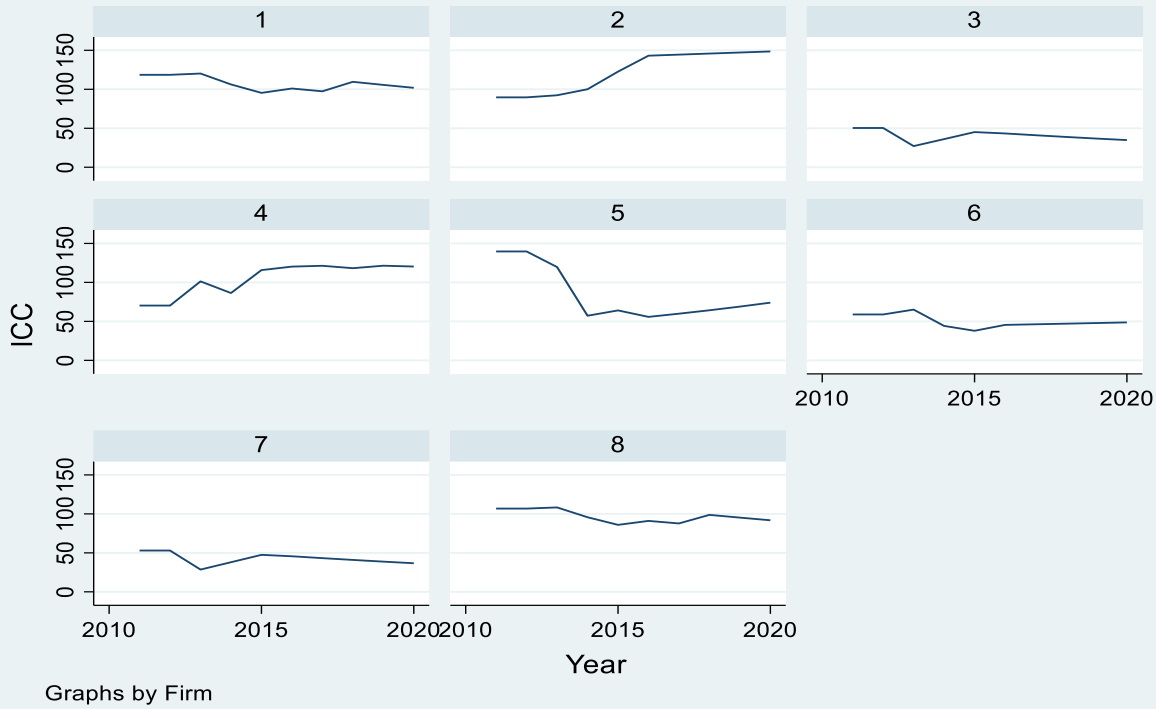


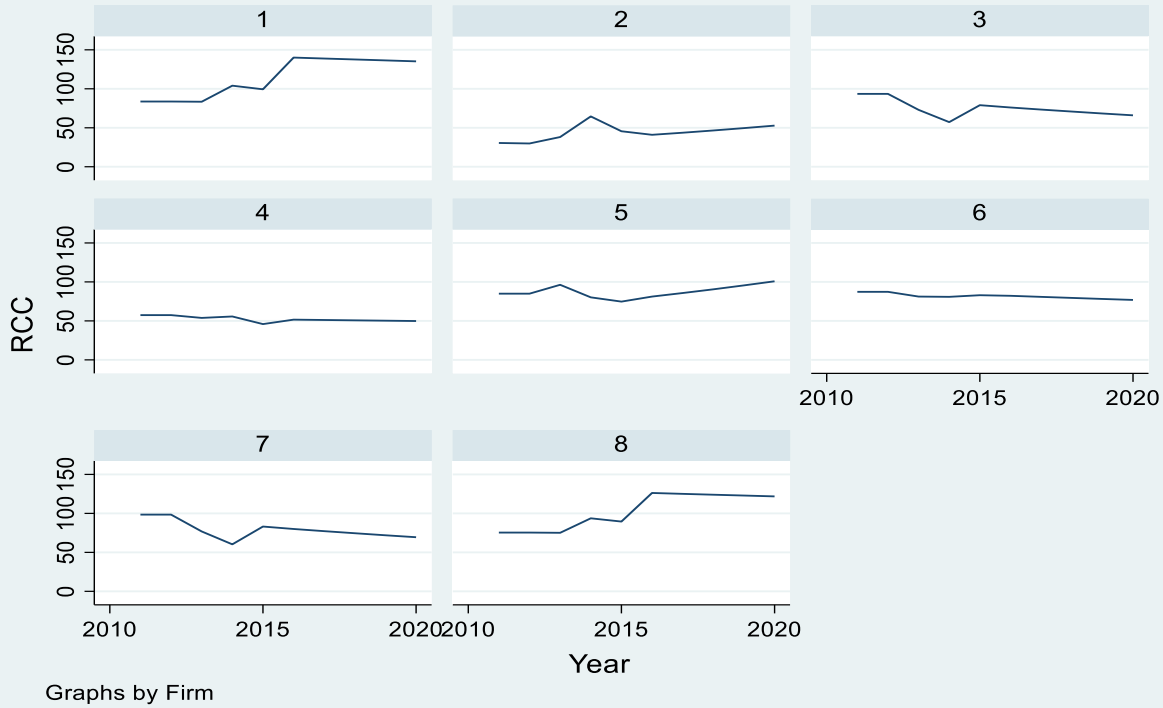
Figure 3 shows that there were significant changes over the ten year study period for the eight manufacturing companies listed in the NSE. Specifically, firms 2. 4 and 5 experienced the most changes year on year over the study period.

4.3.3 Receivables conversion cycle

Figure 4 displays the developed and presented panel data line plots for receivables conversion cycle for the eight manufacturing companies for 10 years. The receivables conversion cycle was one of the independent variables in the study.

FIGURE 4

Panel Data Line Plots for Receivables Conversion Cycle



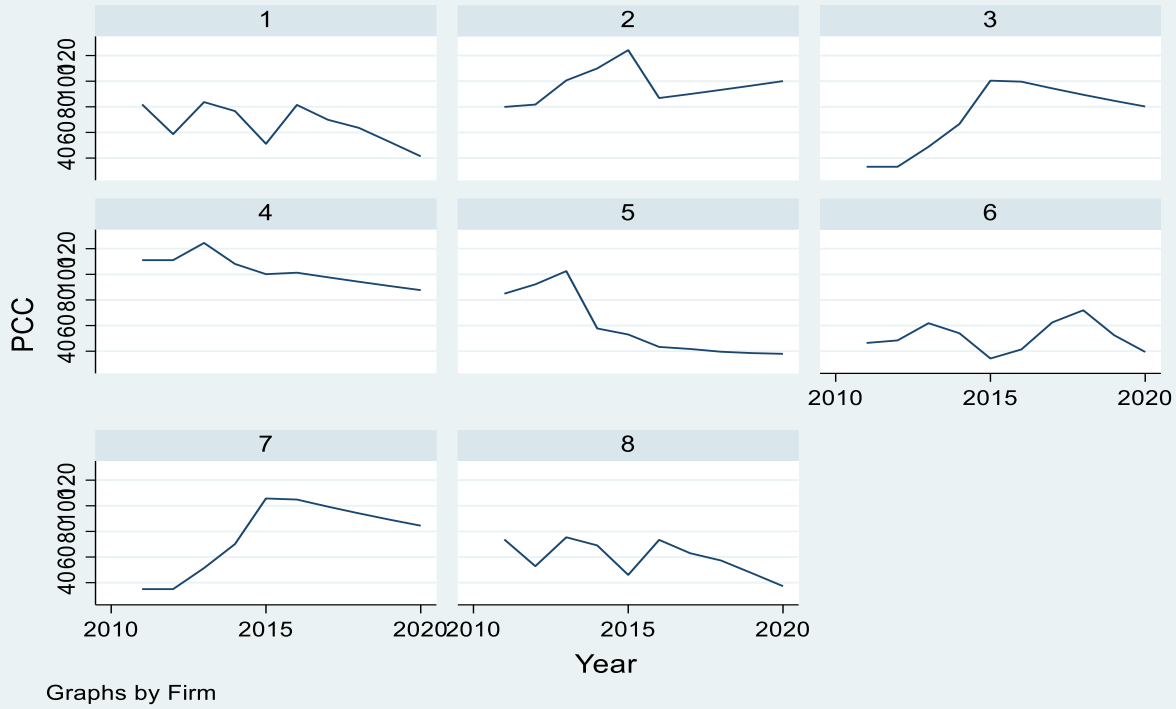
Manufacturing companies 4, 5, and 6 experienced minor variations year on year in their receivables conversion cycle, according to the research findings displayed in Figure 4. During the study period, however, manufacturing companies 1, 2, 3, 7 and 8 experienced substantial variations to how they managed their receivables conversion cycle.

4.3.4 Payables conversion cycle

Figure 5 displays the findings of the study on payables conversion cycle. These findings show the payables conversion cycle trends for the eight manufacturing companies listed in the NSE that were included in the study.

FIGURE 5

Panel Data Line Plots for Payables Conversion Cycle



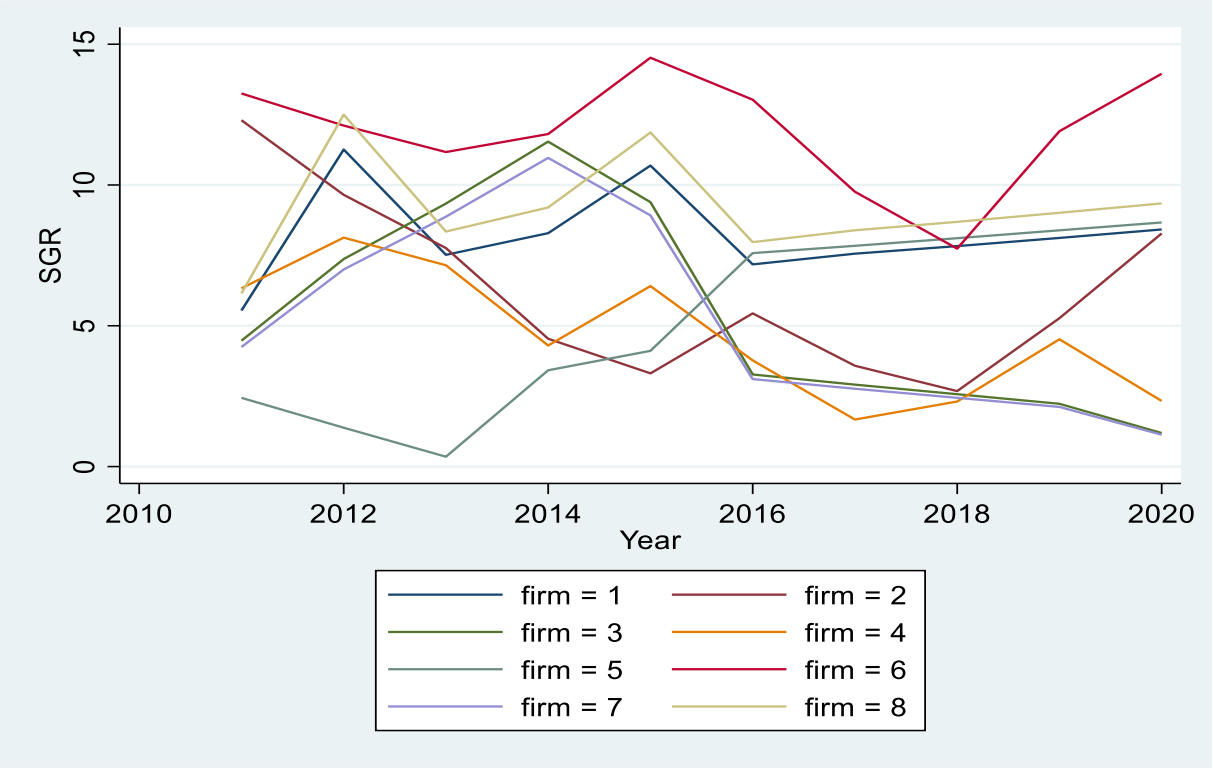
All the manufacturing companies listed in the NSE had considerable variations in their payables conversion cycle over the study period, according to the research findings shown in Figure 5. During the ten-year research period, companies 1, 4, 5 and 8 had a decreasing trend while companies 3 and 7 show an rising trend. Besides, company 6 shows a constant trend with year on years variations.

4.3.5 Growth of manufacturing companies listed in the NSE

Growth of manufacturing companies was the study's dependent variable. For all of the manufacturing companies included in the research, this was calculated using sustainable growth rate (SGR). In Figure 6, the overlain plots for the companies' SGR are provided. These patterns allow for a comparison of the companies' changes in SGR throughout the study period.

FIGURE 6

Overlain Plots for Sustainable Growth Rate



According to the findings displayed in Figure 6, all of the companies suffered sustainable growth rate shocks throughout the ten-year research period. Besides, most of the manufacturing companies had a constant trend to the sustainable growth rates.

4.4 Diagnostic Tests

Several diagnostic tests were carried out to identify the best model to use and to ensure that the linear regression assumptions were not broken. The Breusch Pagan Lagrange Multiplier test, Hausman specification test, test of multicollinearity, test of serial correlation, heteroscedasticity tests, and test of normality of errors were among the tests carried out. According to Gujarati (2011), regression diagnostics should be performed before fitting data into a linear regression model in order to evaluate regression model assumptions and determine if the model has problems that might impact the model's reliability, accuracy and efficiency.

Some tests are run prior to model fitting while others are conducted on the residuals after the model has been fitted.

4.4.1 Test of multicollinearity

The multicollinearity test was performed first before model fitting. This determines if there are any strongly linearly linked independent variables (Wooldridge, 2015). Multicollinearity occurs when the predictor variables are highly linked to one another. This is an issue since the regression model is unable to connect variance in the outcome variable to the relevant predictor variable, leading to erroneous results and conclusions (Angrist & Pischke, 2014). The variance inflation factor was used to assess multicollinearity in this research (VIF). Multicollinearity is indicated by VIF values more than 10, whereas VIF values less than 10 show no multicollinearity. Table 3 summarizes the findings.

TABLE 5

Multicollinearity Test

Variable	VIF	1/VIF
PCC	1.69	0.590281
ICC	1.52	0.655915
RCC	1.43	0.696959
CCC	1.39	0.717209
Mean VIF	1.51	

The average VIF was 1.51, according to the research findings in Table 5. Payables conversion cycle (PCC) had the greatest VIF of 1.69 among the study's independent variables, while cash collection cycle (CCC) had the lowest (1.39). The result led to the conclusion that there was no multicollinearity since none of the independent variables had a VIF greater than 10.

4.4.2 Test of serial correlation

The premise of no serial correlation is that the residual associated with one observation are unrelated to the errors connected with any other observation. The errors for observations over successive years are more likely to be closely related than for observations separated in time when data is gathered for many years for the same entity This is known as autocorrelation (Gujarati, 2011). The conclusion is that autocorrelation or serial correlation inflates the model's r squared while deflating the coefficients' standard errors. The Wooldridge test was employed to evaluate serial correlation in this research (Chandra & Sharma, 2013). The Breusch–Godfrey test was used to evaluate serial correlation in this research. In this test, the null hypothesis is that there is no serial correlation. As a consequence, if the p-value is less than 5%, the null hypothesis must be rejected, and the alternative hypothesis of serially linked errors must be adopted. The test's findings are listed in Table 6.

TABLE 6

Test Results for Serial Correlation

Breusch-Godfrey Test for autocorrelation in panel data
H0: No first order autocorrelation
F (1, 7) = 3.38
Prob > F = 0.1064

The F value was 3.38, and it was not significant at the 5% level of significance (p = 1.1064), according to the findings summarized in Table 6. These findings suggest that we may accept the null hypothesis, which states that there is no first order autocorrelation, with 95% confidence. This meant that the r squared estimations and standard errors were dependable, accurate and efficient.

4.4.3 Test of heteroscedasticity

One of the most important criteria for linear regression is that the residuals have homogeneity of variance (homoscedasticity). Heteroscedasticity is present if the variance of the residuals is not constant. White's test was used to determine heteroscedasticity in this research (Linton, 2017). In this test, the null hypothesis is that the residual variance is homogenous. As a consequence, if the p-value is extremely low, the null hypothesis must be rejected and the alternative hypothesis of nonhomogeneous variance must be adopted. The null hypothesis was tested using a 0.05 p value and would be accepted if the p value was greater than 0.05. If there was heteroscedasticity, robust errors would be utilized. The test's findings are listed in Table 7.

TABLE 7

White's Test for Heteroscedasticity

```
White's test for Ho: homoskedasticity
         against Ha: unrestricted heteroskedasticity

         chi2(14)     =     18.94
         Prob > chi2  =    0.1674
```

The chi square value of the test was not significant at the 5% level of significance (Chi square = 18.94, p = 0.1674), according to the findings summarized in Table 5. These findings show that there was no evidence to reject the null hypothesis with a 95% confidence interval. These results imply that there was no heteroscedasticity and that homoscedasticity was inferred as a result.

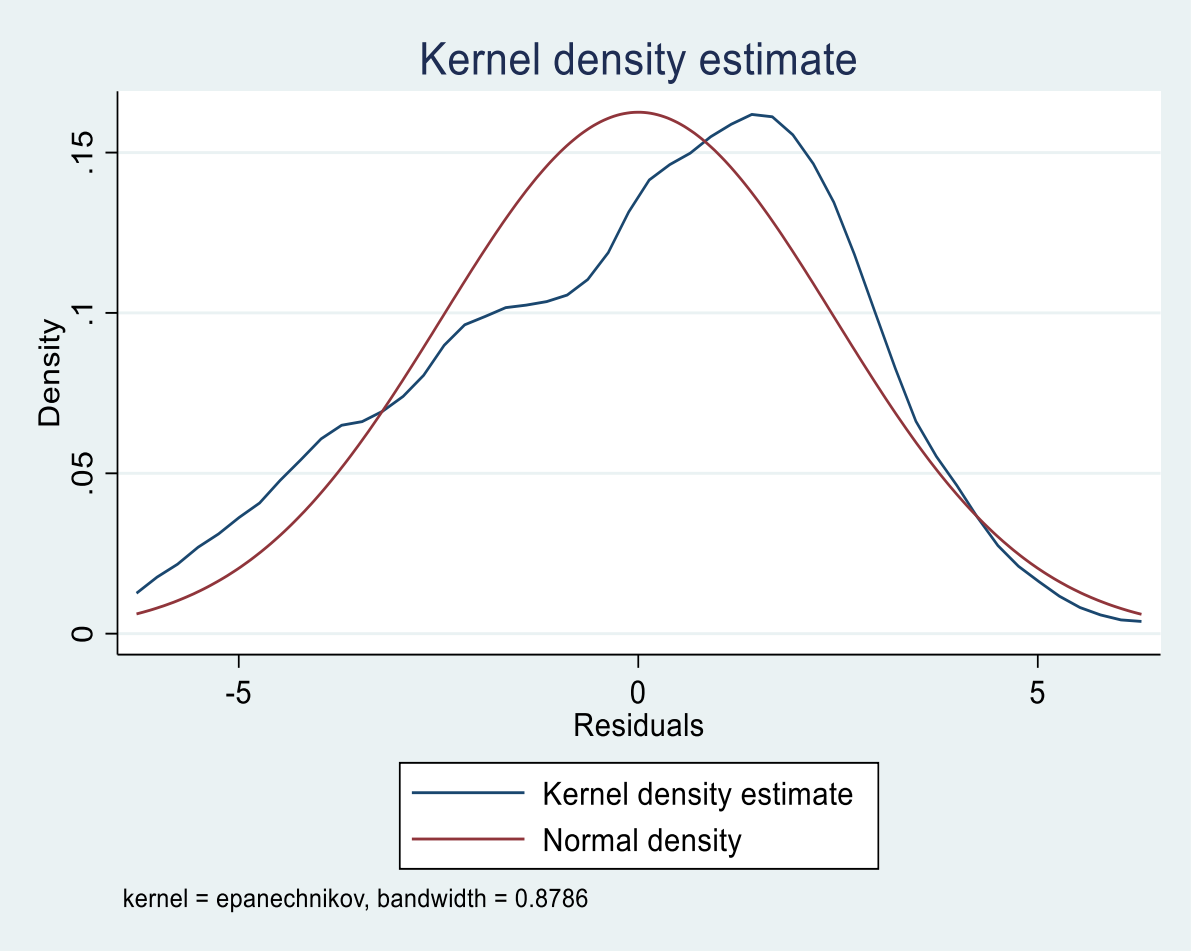
4.4.4 Test of normality of residuals

The assumption of normality of residuals guarantees that the p-values for t-tests and F-tests are accurate, which is required for effective hypothesis testing. Normality, on the other

hand, is not needed to get unbiased regression coefficient estimations. Linear regression, on the other hand, requires that the residuals be distributed evenly and independently (Linton, 2019). The predict command was used to produce the residuals in this research after running the proper regression analysis model, and then kdensity was used to validate the residuals' normality. Figure 8 displays the findings of the research.

FIGURE 7

Test of Normality of Residuals



The kernel density estimate curve was not significantly different from the normal density curve according to the findings (Figure 8). However, the kernel density function shows a slight negative skewness with no significant deviation in terms of peakedness. The null hypothesis that the residuals were normally distributed was therefore, not be rejected based on

these findings. As a result of these results, the panel model's residuals were assumed to be distributed normally.

4.4.5 Hausman test

A Hausman test was performed to evaluate which model is the best between fixed and random effects. The preferred model is random effects, while the alternative model is fixed effects, according to the null hypothesis of the test (Gujarati, 2011). The Hausman test finds endogenous regressors in a regression model whose values are determined by other variables in the system. The purpose of the test is to check whether there is a link between the unique residuals and the regressors in the model. The null hypothesis asserts that there is no link between the two. The fixed effects model is fitted if the p value of the test is less than 5%; otherwise, the random effects model is used. Table 8 summarizes the findings.

TABLE 8

Hausman Test Results

	Coefficients			
	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
CCC	-.0496391	-.0797503	.0301112	.0138239
ICC	-.0445567	-.0351495	-.0094072	.011321
RCC	-.0238543	-.0235836	-.0002707	.0139892
PCC	-.0502779	-.0611923	.0109144	.0059702

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

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 19.10
Prob>chi2 = 0.0008

Table 8 summarizes the findings, which show that the null hypothesis (chi square = 19.10, p = 0.0012) was rejected. The results suggest that the fixed effects model was suitable

for the research. Because the unique residuals and time-invariant features were associated with the independent variables, the fixed effects model was used to control their impacts. As a result, the model fitted only capture the impact of the independent variables.

4.5 Fixed Effects Panel Model Results

The research findings from the fixed effects model that was fitted are presented in this section. Cash conversion cycle (CCC), receivables conversion cycle (RCC), inventory conversion cycle (ICC), and payables conversion cycle (PCC) were the model's independent variables. The growth of manufacturing companies listed on the NSE, as evaluated by sustainable growth rate (SGR) and PE ratio (PER) was the study's dependent variable. The fixed effects model's findings on sustainable growth rate are summarized in Table 9.

The fixed effects model on sustainable growth rate was a good fit and also was statistically significant ($F = 12.88$, $p < 0.05$), according to the research findings (Table 9). This means the model was statistically significant, and at least one of the independent variables had was significant in influencing sustainable growth rate of NSE-listed manufacturing companies. Furthermore, the model explained 43.11% of the variance in sustainable growth rate of manufacturing companies listed in the NSE over the study period of ten years (r squared within = 0.4311) and 68.53% of variation across the eight manufacturing companies listed on the NSE (r squared between = 0.6853). Furthermore, the overall r squared shows that using ordinary least squares regression model would have explained 53.52 percent of the variance in growth of manufacturing companies listed on the NSE (r squared overall = 0.5352).

Table 9 shows that the independent variables had a weak positive relationship with the unique residuals and the time invariant effects (corr u i xb = 0.2360). As a result, the assumption of a connection between the study's independent variables and unique entity factors was satisfied. The fixed effects model implies that the independent variables are linked with the

unique residuals or features of the manufacturing companies listed on the NSE, and therefore the model adjusts for these factors such that the model only shows the net impact of the predictor variables. As a result, the fixed effects model accommodated these time invariant unique errors.

TABLE 9

Fixed Effects Model for Sustainable Growth Rate

```
Fixed-effects (within) regression               Number of obs      =        80
Group variable: Firm                            Number of groups   =         8

R-sq:                                           Obs per group:
     within  = 0.4311                                         min =        10
     between = 0.6853                                         avg =      10.0
     overall = 0.5332                                         max =        10

                                                F(4,68)            =     12.88
corr(u_i, Xb)  = 0.2360                         Prob > F           =    0.0000

------------------------------------------------------------------------------
         SGR |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         CCC |  -.0496391   .0172493    -2.88   0.005    -.0840596   -.0152187
         ICC |  -.0445567    .014416    -3.09   0.003    -.0733235     -.01579
         RCC |  -.0238543   .0182385    -1.31   0.195    -.0602487      .01254
         PCC |  -.0502779   .0144817    -3.47   0.001    -.0791758     -.02138
       _cons |   19.56553   2.139282     9.15   0.000     15.29666     23.8344
-------------+----------------------------------------------------------------
     sigma_u |   1.533276
     sigma_e |  2.1389143
         rho |  .33944165   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0: F(7, 68) = 2.17                     Prob > F = 0.0479
```

Inventory conversion cycle (ICC) had a statistically significant and negative influence on the growth of manufacturing companies listed at the NSE (β= -0.0446, p = 0.003), according to results (Table 9). This means that increasing inventory conversion cycle by one day will reduce sustainable growth rate of manufacturing companies listed in the NSE by 0.0446%, and vice versa. The study was able to answer the first research question, which was: What effect

does inventory conversion cycle has on the growth of manufacturing companies listed at the NSE? The study findings determined that inventory conversion cycle had a statistically significant and negative influence on the growth of manufacturing companies listed at the NSE, according to the research.

The research findings (Table 9) found that the payable conversion cycle (PCC) had a statistically significant and negative influence on the growth (measured through sustainable growth rate) of manufacturing companies listed on the NSE (β= -0.0503, p = 0.001). According to these results, a 0.0503% reduction in growth of manufacturing companies would come from a day increase in payables conversion cycle, and vice versa. Furthermore, these findings allowed the study to answer the second research question: does payable conversion cycle have any effects on the growth of manufacturing companies listed at the NSE? The findings determined that payables conversion cycle have a significant negative influence on the growth of manufacturing companies listed at the NSE.

The receivables conversion cycle (RCC) had no statistically significant influence on the growth (measured through sustainable growth rate) of manufacturing companies listed on the NSE (β= -0.0239, p = 0.195), according to results summarized in Table 9. According to these results, a unit increase in receivables conversion cycle would not have any significant effect on growth of manufacturing companies listed in the NSE, and vice versa. Furthermore, the study's findings allowed it to answer the third research question: What effect does receivable conversion cycle have on the growth of manufacturing companies listed at the NSE? Receivables conversion cycle has no significant influence on growth of manufacturing companies listed on the NSE, according to the research.

The fixed effects model's findings (Table 9) show that the cash conversion cycle (CCC) had a negative and statistically significant influence on the growth of manufacturing companies listed on the NSE (β= -0.0496, p = 0.005). This means that extending or reducing the cash

conversion cycle is likely to have a significant negative influence on the growth (indicated by the sustainable growth rate) of the manufacturing companies listed on the NSE. Specifically, the findings imply that a one day increase in the cash conversion cycle would lead to a reduction of 0.0496% in the growth of manufacturing companies listed at the NSE, and vice versa. The study was able to address the fourth research question, which was: What are the effects of cash conversion cycle on the growth of manufacturing companies listed at the NSE? According to the study findings, cash conversion cycle had a statistically significant negative influence on the growth of manufacturing companies listed at the NSE.

4.6 Discussion of Findings

The findings determined that inventory conversion cycle had a statistically significant and negative influence on the growth of manufacturing companies listed at the NSE, when growth is measured using sustainable growth rate (β= -0.0446, p = 0.003). The implication of the findings was that at increasing inventory conversion cycle by one day will reduce sustainable growth rate of manufacturing companies listed in the NSE by 0.0446%, and vice versa. These findings support the liquidity preference theory by Keynes (1936) that cash is required in the business to perform various functions and hence shorter cash conversion cycles are preferable. The theory indicates that cash is held for transactional, speculative, and precautionary reasons, and therefore, in order to profit from future rising interest rates and favorable exchange rate fluctuations in the case of firms, an investor must hold highly liquid assets. Therefore, the organization would be focussed to turn its inventory into cash using the shortest cycle possible.

The study findings of the negative influence of inventory conversion cycle on growth of manufacturing companies concurs with the findings previous studies. The findings agree with the findings by Muturi (2015) that inventory conversion had a negative effect on firm

performance and competitiveness. The findings from this study also agrees with the findings by Tsagem and Ishak (2018) that inventory conversion cycle had a negative effect on profitability. Moreover, the findings support the findings by Samiloglu and Demirgunes (2008) that there is a negative relationship between profitability and inventory sales days.

However, the study findings of the negative influence of inventory conversion cycle on growth of manufacturing companies contradicts findings from previous studies. For example the findings contradict the results from a study by Makori and Jagongo (2013) which determined that inventory period had a positive effect on profitability. Similarly, the findings from this study contradicts with the findings by Sivashanmugam and Krishnakumar (2016) which established that inventory days had no effect on company profitability.

The study findings determined that payable conversion cycle had a statistically significant and negative influence on the growth (measured through sustainable growth rate) of manufacturing companies listed on the NSE (β = -0.0503, p = 0.001). According to these results, a 0.0503% reduction in growth of manufacturing companies would emanate from a day increase in payables conversion cycle, and vice versa. These findings contradict the propositions of the Fisher's separation theorem that firms seek to lengthen the payables cycle to make use of the resources for profitability and growth according to Ali, Hussin, and Ghani (2019).

The findings that payables conversion period have a negative influence on growth of manufacturing companies contradict the findings by Muturi (2015) that accounts payable had a positive effect on profitability. However, the findings of the negative effect of payables conversion cycle on growth of manufacturing companies agree with the findings by Sugathadasa (2018) that payables conversion cycle has a negative relationship with organizational performance. The findings of the current study also agree with the findings by Waema and Nasieku (2016) that payables conversion cycle is negatively associated with

financial performance of manufacturing companies. Moreover, the findings from this study also concurs with the findings by Mbithi, Muiruri, and Kingi, (2015) that net operating profit and the various measures of working capital management components which include accounts payable.

The receivables conversion cycle had no statistically significant influence on the growth (measured through sustainable growth rate) of manufacturing companies listed on the NSE (β= -0.0239, $p = 0.195$), according to the study results. These study findings imply that a change in receivables conversion cycle would not have any significant effect on growth of manufacturing companies listed in the NSE, and vice versa. These findings contradict the liquidity preference theory by Keynes (1936) that cash is required in the business to perform various functions and hence shorter cash conversion cycles are preferable. The theory indicates that cash is held for transactional, speculative, and precautionary reasons, and therefore, in order to profit from future rising interest rates and favourable exchange rate fluctuations in the case of firms, an investor must hold highly liquid assets. The findings from the study contradict this since receivables conversion cycle did not significantly influence growth of manufacturing companies.

The study findings that receivable conversion cycle had no significant influence on growth of manufacturing companies disagrees with studies such as Mathuva, (2010), that more profitable companies take the shortest time to collect cash from credit customers. The findings from the current study also contradict the findings by Tsagem (2017) who found that profitability of a manufacturing firm can be improved by shortening the accounts receivable period. Besides, the study findings disagree with the findings by Masinde and Ochieng (2017) who determined the receivables conversion period had a significant negative effect on financial performance of the NSE-listed energy and oil companies. The findings, further, contradict the findings by Hassan, Mberia & Muturi (2017) who established that receivable's turnover period

have a negative and significant influence on ROA. Additionally, the findings disagree with the findings by Al-Mohareb (2019) which determined that smaller collection periods and an effective lending policy have a positive impact on companies' profitability.

Study findings further determined that cash conversion cycle had a negative and statistically significant influence on the growth of manufacturing companies listed on the NSE (β= -0.0496, p = 0.005). This means that extending or reducing the cash conversion cycle is likely to have a significant negative influence on the growth (indicated by the sustainable growth rate) of the manufacturing companies listed on the NSE. Specifically, the findings imply that a one day increase in the cash conversion cycle would lead to a reduction of 0.0496% in the growth of manufacturing companies listed at the NSE, and vice versa. These findings support the liquidity preference theory by Keynes (1936) that cash is required in the business to perform various functions and hence shorter cash conversion cycles are preferable. The theory indicates that cash is held for transactional, speculative, and precautionary reasons, and therefore, in order to profit from future rising interest rates and favorable exchange rate fluctuations in the case of firms, an investor must hold highly liquid assets.

The study findings of the negative influence of cash conversion cycle on growth of manufacturing companies listed in the NSE support the cash conversion theory by Gitman, Bacon, and Joehnk (1984) describes how the firm's cash cycle influences the cash available for operations and investment, and therefore the firm's operations, financial performance, and growth. The cash conversion theory explains the relationship between a company's cash flow, its activities, its financial performance, and its working capital components. This theory describes that the shorter the cash conversion cycle, the better it is for the performance, competitiveness and growth of the firm.

The findings from this study regarding the significant negative influence of cash conversion cycle on growth of manufacturing firms concur with previous findings. For example

the findings McInnes (2014) determined that cash conversion cycle had a negative effect on financial performance of manufacturing companies. Besides, the study by Lazaridis and Tryfonidis (2006) determined that CCC had a negative association with firm performance, which is supported by the findings form this study. However, the findings contradict findings from other studies such as Panigrahi (2013), Jahan (2020), Ali, Hussin, and Ghani (2019), and Lyroudi and Lazaridis (2000) which all established that CCC had either a significant positive effect on no effect on performance, growth and competiveness of firms.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the research results, as well as the study's conclusions and suggestions. These are based on the study's objectives, which were to determine the impact of cash conversion cycle, on growth of manufacturing firms listed on the NSE, investigate the impact of receivables conversion cycle on growth of manufacturing firms listed on the NSE, assess the impact of inventory conversion cycle on growth of manufacturing firms listed on the NSE, and evaluate the impact of payables conversion cycle on growth of manufacturing firms listed on the NSE. The author also outlined the study's limitations and made recommendations for further research on working capital management.

5.2 Summary

The findings determined that inventory conversion cycle had a statistically significant and negative influence on the growth of manufacturing companies listed at the NSE, when growth is measured using sustainable growth rate (β= -0.0446, p = 0.003). The implication of the findings was that increasing inventory conversion cycle by one day will reduce sustainable growth rate of manufacturing companies listed in the NSE by 0.0446%, and vice versa. The findings indicate that that changing the inventory conversion cycle would have a significant influence on the growth of manufacturing companies listed in the NSE .

The study findings determined that payable conversion cycle had a statistically significant and negative influence on the growth (measured through sustainable growth rate) of manufacturing companies listed on the NSE (β= -0.0503, p = 0.001). According to these results, a 0.0503% reduction in growth of manufacturing companies would emanate from a day increase in payables conversion cycle, and vice versa. According to these results, there would

be a significant change in growth of manufacturing companies, from a change in payables conversion cycle.

The receivables conversion cycle had no statistically significant influence on the growth (measured through sustainable growth rate) of manufacturing companies listed on the NSE (β= -0.0239, p = 0.195), according to the study results. These study findings imply that a change in receivables conversion cycle would not have any significant effect on growth of manufacturing companies listed in the NSE, and vice versa. According to these results, a change in receivables conversion cycle is not expected to have any significant effect on PE ratio of manufacturing companies listed in the NSE.

Study findings further determined that cash conversion cycle had a negative and statistically significant influence on the growth of manufacturing companies listed on the NSE (β= -0.0496, p = 0.005). This means that extending the cash conversion cycle is likely to have a significant negative influence on the growth (indicated by the sustainable growth rate) of the manufacturing companies listed on the NSE. Specifically, the findings imply that a one day increase in the cash conversion cycle would lead to a reduction of 0.0496% in the growth of manufacturing companies listed at the NSE, and vice versa.

5.3 Conclusions

Considering the findings from the study, the study makes the following conclusions. First, the study concludes that inventory conversion cycle is vital for the growth of manufacturing companies listed at the NSE, in terms of the sustainable growth rate. The study further concludes that reducing the inventory conversion cycle of manufacturing companies in Kenya would enhance growth of the manufacturing companies through the sustainable growth rate.

Regarding payables conversion cycle, the study concludes that it is instrumental in influencing growth, measured through sustainable growth rate, of manufacturing companies listed on the NSE. Besides, the study concludes that reducing the payable conversion cycle is contributory towards growth, measured through SGR, of manufacturing companies listed on the NSE.

The study concludes that receivables conversion cycle is not critical for growth, measured through sustainable growth rate, of manufacturing companies listed on the NSE. Besides, the study concludes that reducing or extending the receivables conversion cycle is also not vital for growth, measured through SGR, of manufacturing companies listed on the NSE.

The study, further, concludes that cash conversion cycle is vital for the growth (indicated by the sustainable growth rate) of the manufacturing companies listed on the NSE. Besides, the study concludes that shortening the cash conversion cycle is instrumental for the growth (measured using SGR) of manufacturing companies listed on the NSE.

5.4 Recommendations

The study makes the following recommendations based on the study's findings. In terms of inventory conversion cycle, the study suggests that management should keep a close eye on key inventory management performance metrics such as inventory conversion cycle to ensure that it does not rise above critical levels. Modern and automated inventory management practices, such as ABC analysis and just-in-time, should also be implemented by management. These should all be geared toward reducing inventory conversion cycle. Furthermore, management should keep track of inventory conversion cycle to gain a better understanding of the amount of obsolete securities held by the company, as well as market demand for the company's products, and thus inform on the appropriate steps to be taken to address the issue.

In addition, the manufacturing firms can try a variety of strategies to improve inventory conversion cycle, such as experimenting with pricing, liquidating obsolete securities, redistributing inventory to other warehouses to reduce obsolescence risk and improving customer demand forecasting.

Regarding payables conversion cycle, the research recommends that manufacturing companies improve their payables management by ensuring that suppliers are paid on time in order to maintain excellent relationships. By taking advantage of early payment incentives, automating the process, simplifying the payables management function and establishing a supplier or vendor portal, these companies may improve payables conversion cycle. The study further recommends that, instead of having fragmented accounts payables procedures, the company should combine them, even if it has many divisions or products, to save costs, speed up payments and improve efficiency.

Regarding receivables conversion cycle, the study recommends to management of manufacturing companies to implement effective credit management practices in order to optimize their relationships with their debtors and maximize their receivables conversion cycle. Furthermore, management in the manufacturing companies should have efficient credit assessment procedures in place to guarantee that individuals who are given credit are able to pay the entire amount on time. Besides, management in manufacturing companies should have an efficient invoice dispute management system in place to reduce receivables conversion cycle and speed up receivables collection. This is intended to resolve any disputes quickly and allow the customer to pay the invoiced amount. Furthermore, the study recommends to manufacturing companies to automate their accounts receivable processes, which will make receipting, invoicing and billing easier and faster, thereby reducing receivables conversion cycle. The study also recommends to regulators such as the NSE and CMA to monitor receivables conversion cycles and other key working capital performance indicators of

manufacturing companies on a regular basis so that they can intervene quickly when indicators like receivables conversion cycle increase significantly.

Finally, in terms of cash conversion cycle, the study recommends to management of manufacturing companies to concentrate on all other components of the cash collection cycle. Since cash collection cycle is instrumental for growth of manufacturing companies, management should concentrate on adopting and implementing effective internal controls that address specific aspects of cash collection cycle such as average length of account receivables, write-offs for uncollected receivables, liquidity, credit line management, collection processes, and rates of return. Furthermore, management must ensure that cash collection measures are appropriate for the various aspects or elements of working capital management.

5.5 Limitations of the Study

The influence of working capital management on the growth of manufacturing companies listed on the NSE was investigated in this research. The research examined how inventory conversion cycle, receivables conversion cycle, cash conversion cycle and payables conversion cycle influence the growth of manufacturing companies listed on the NSE. Working capital management is critical for manufacturing companies, but it is equally critical for businesses in other industries. The study results may not be generalizable to companies in other sectors, such as construction, commercial services and agriculture, since the research was performed on manufacturing firms.

The research focused on manufacturing companies listed on the NSE. The mentioned manufacturing companies are big, and since company size influences the adoption of working capital management techniques, the results may not apply to small and medium manufacturers. These limitations should be considered when applying the results to small and medium-sized enterprises and other businesses outside of the manufacturing sector.

5.6 Recommendations for Further Research

Further research on the effect of working capital management on growth of companies outside the manufacturing sector is recommended by this study. Retailers in Kenya who have had working capital issues as a result of their inability to pay their bills on time should be among the companies considered in any further study. Most previous research has concentrated on receivables, inventory, and cash collection cycles, with little attention paid to payables conversion cycle. Future research should focus on this aspect of working capital, since it has emerged as a key element in the performance and long-term viability of businesses across industries.

This study focused on manufacturing companies listed on the NSE. A research of small and medium manufacturers should be performed since the results may not be generalizable to other smaller manufacturing companies. Small and medium manufacturers account for the majority of manufacturing companies, and their performance and long-term viability are essential for achieving the Big 4 Agenda and Vision 2030.

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