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**EFFECT OF WORKING CAPITAL MANAGEMENT ON THE
PROFITABILITY OF MANUFACTURING COMPANIES IN
RWANDA.
CASE STUDY: BRALIRWA PLC
PERIOD OF 2019-2023**

By

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Degree in Accounting

Supervisor: NSENGIYUMVA Jacques

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DECLARATION

I hereby declare that this thesis titled **“EFFECT OF WORKING CAPITAL MANAGEMENT ON THE PROFITABILITY OF MANUFACTURING COMPANIES IN RWANDA, Case of BRALIRWA PLC”** is my original work, it has never been submitted before for any other degree award to any other University.

Signature

Date /...../ 2024

OSSOUALA IBA Xavier Victor

CERTIFICATION

This dissertation titled **“EFFECT OF WORKING CAPITAL MANAGEMENT ON THE PROFITABILITY OF MANUFACTURING COMPANIES IN RWANDA, Case of BRALIRWA PLC”** has been done by OSSOUALA IBA Xavier Victor under my supervision and submitted for examination with my approval.

Signature

Date /...../ 2024

NSENGIYUMVA Jacques

DEDICATION

With Genuine Love and Gratitude,

This work is dedicated,

To my beloved mother, **Yvette Chantal Ines PASSY**, my two lovely sisters **Lucianna NKODIA**,
Colombe OSSOUALA IBA and my father **Xavier Victor OSSOUALA**.

To my friend **TEMBE MOUSSIALY Sarha Priscille** and all my relatives.

To my entire family, and finally, to all my lecturers and colleagues at ULK.

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LIST OF ABBREVIATIONS AND ACRONYMS

CCC – Cash Conversion Cycle

EOQ – Economic Order Quantity

ID – Inventory Days

JIT – Just-in-Time

PD – Payable Days

PLC – Public Limited Company

RD – Receivable Days

ROA – Return on Assets

ROE – Return on Equity

SME – Small and Medium-sized Enterprises

SMEs – Small and Medium-sized Enterprises

WCM – Working Capital Management

ABSTRACT

This study addresses the effect of WCM on manufacturing firms' profitability, using BRALIRWA PLC as the case study for the period of 2019-2023. The paper, therefore, seeks to assess how effective WCM practices of inventory, receivables, payables, and CCC have been in influencing key profitability indicators such as ROA, ROE, and Profit Margin. It used a descriptive research design based on secondary data from BRALIRWA's financial reports. Other analytical methods involved in the analysis include correlation and regression analysis, which show the relationships among the WCM components in respect to their profitability. According to the results, though efficient WCM is critical to maintain liquidity and efficiency of operation, its components have no significant statistical impact on the profitability of BRALIRWA. The profitability measures were highly interrelated according to the correlation analysis, though the regression tests indicated that there are still other variables that can affect the profitability other than WCM. Key observations gave out a fluctuating trends in inventory, receivables, and payable management, indicating that BRALIRWA has a negative CCC hence indicating good cash flow management.

The research, therefore, concludes that, although WCM bears an impact on the financial health of the firm, there is scope for its optimization in respect of receivables collection, inventory turnover, and reduction of CCC to boost profitability. Recommendations for BRALIRWA are to work on credit policies, enhance inventory control, and adopt best practices for payable management to strengthen cash flows and operational efficiency. It is also recommended that further studies be carried out to investigate other variables which might have an influence on profitability in the Rwandan manufacturing sector.

Keywords: Working capital management (WCM), Profitability, Cash Conversion Cycle (CCC), Manufacturing Sector, Inventory Management, Accounts Receivables, Accounts Payables, BRALIRWA PLC, RWANDA

CHAPTER ONE: GENERAL INTRODUCTION

1.1 Background of the study

Working Capital Management (WCM) is a critical aspect of financial management that deals with managing a company's short-term assets and liabilities to ensure operational efficiency and financial stability. According to Ahmed et al., (2016) the term “working capital” refers to the money needed for the firms to continue their day-to-day operational activities such as cash requires for the purchase of raw material, payment of salaries, payment of rent or any other day to day expenditures. Working capital management is concerned to capabilities to control the current assets and current liabilities effectively and efficiently (Ali, 2011).

Working capital management is one of the most important issues and believed to have a profound impact on firm's profitability performance. Effective WCM enables a company to maintain sufficient cash flow to meet its short-term obligations while minimizing the cost of capital. In the manufacturing sector, where the production process involves significant investment in inventory and receivables, managing working capital efficiently is crucial to sustaining profitability. According to Pandey (2015), WCM plays a vital role in determining the financial health and profitability of manufacturing companies by optimizing the balance between liquidity and profitability. Mith (2021) highlights the importance of effective WCM in reducing the risk of insolvency, emphasizing that poor management can lead to liquidity crises and financial distress. He argues that firms with efficient WCM practices are better positioned to take advantage of market opportunities, leading to increased profitability. Pandey (2020) explains that WCM involves managing the cash conversion cycle (CCC), which is the time it takes for a firm to convert its investments in inventory and other resources into cash flows from sales. A shorter CCC generally indicates efficient WCM, which can positively impact profitability. However, Pandey also notes that overly aggressive WCM practices may lead to underinvestment in critical operational areas, potentially reducing long-term

profitability. Deloof (2018) examined Belgian firms and found that reducing the CCC through effective inventory management, receivables collection, and payables management can significantly enhance profitability. Deloof's findings suggest that firms need to strike a balance between maintaining liquidity and minimizing the cost of capital tied up in working capital.

According to Brigham and Daves (2002), working capital management involves both setting working capital policy and carrying out that policy in day-to-day operations. It also involves making appropriate investments in cash, marketable securities, receivables, and inventories as well as the level and mix of short-term financing (Emery, Finnerty and Stowe 2004). In essence working capital management seeks to maintain an optimum balance of each working capital component thereby ensuring that firms operate with sufficient fund (cash flows) that will service their long-term debt and satisfy both maturing short-term obligation and upcoming operational expenses. This, therefore, makes it more glaring that working capital management has a pivotal role to play in a company's drive to achieve great (high) profitability.

The importance of working capital management primarily stems from the fact that most companies invest large amounts of money into current assets and use considerable amounts of current liabilities as their source of financing (Deloof, 2003; Moyer, McGuigan, & Kretlow, 2006; Brealey, Myers, & Allen, 2011; Koralun Bereznička, 2014). In addition, due to the dynamic nature of doing business, decision making about the investment in and financing of current assets and their components is frequent, repetitive, lengthy, and also very time-consuming for company managers (Richards & Laughlin, 1980; Appuhami, 2008; Koralun-Bereznička, 2014). According to Harris (2005) Working capital management is a simple and straightforward concept of ensuring the ability of the firm to fund the difference between the short-term assets and short-term liabilities. Nevertheless, complete mean and approach preferred to cover all its company's activities related to vendors, customer and product, (Hall, 2002). Now a day working capital management has considered as the main central issues in the

firms and financial managers are trying to identify the basic drivers and level of working capital management (Lamberson, 1995).

1.2 Problem statement

Working capital management is the process of strategically managing inflows and outflows of cash generated within the business, and all activities carried out in the operations (Almazari, 2018). Capital is the very book value behind the profit-making of any organization. The productive management of working capital comprising cash, inventory, payables, and receivables are vital to business productivity. Proper WCM is crucial to the survival of a firm because excess capital reveals a symptom of incompetence while the absence of sufficient cash poses a threat to the continuity of business concern. Niyibizi (2018) submits that most business entities are usually faced with the issue of sustaining the appropriate level of inventory, receivable, or cash to put them in a position to meet near-term financial obligations and support future activities. Inadequate management of working capital can lead to liquidity issues, increased financing costs, and ultimately, reduced profitability. Most business organizations do not hold the right amount of stocks, debtors and cash. Due to this reason the firm is unable to meet its maturing short-term obligations and its upcoming operational needs. Lack of adequate working capital also means that a firm is unable to undertake expansion projects and increase its sales, therefore, limiting the growth and profitability of the business. As noted by Sharma and Kumar (2017), poor WCM practices can lead to an excessive buildup of inventory, delayed receivables, and strained supplier relationships, all of which negatively impact profitability.

This research seeks to investigate the extent to which WCM practices at BRALIRWA PLC affect its profitability, providing insights into areas where improvements can be made.

1.3 Objectives of the study

1.3.1 General Objective

The general objective of the study is to assess the effect of Working Capital Management on the profitability of BRALIRWA PLC.

1.3.2 Specific Objectives

The study has been designed based on the following specific objectives:

1. To assess the effectiveness of WCM in BRALIRWA PLC
2. To establish the contribution of WCM on profitability of BRALIRWA PLC

1.4 Research questions

1. How effective is working capital management (WCM) in BRALIRWA PLC?
2. What is the contribution of working capital management (WCM) to the profitability of BRALIRWA PLC?

1.5 Research Hypothesis

This study proposes the following hypotheses:

1. Working Capital Management is effective in BRALIRWA PLC.
2. Working Capital Management contributes significantly to the profitability of BRALIRWA PLC.

1.6 Scope of the study

This pertains to the delineation of the study, also known as delimitation. Similar to any scientific inquiry, this research is constrained by limitations in terms of time, domain, and space due to both temporal and financial constraints.

1.6.1 Time scope

The study encompasses a period of five years, spanning from 2019 to 2023.

1.6.2 Domain/Field scope

This research is concentrated within the realm of Financial Management.

1.6.3 Space scope

The study was conducted at the headquarters of BRALIRWA PLC, situated in the Kigali City, Kicukiro district.

1.7 Significance and Interest of the study

1.7.1 Significance of the study

Currently, there is a notable incidence of industrial failures attributed to the global economic downturn. For a nation such as RWANDA, this issue has become increasingly challenging. The fixation of exchange and interest rates inevitably raises the operational expenses for this manufacturing business entity thereby reducing their profitability. Therefore, every organization must plan its expenditures and ensure costs and still operate profitably in terms of having a return over and above the cost of operation. It is the determination of the contribution of budgeting and budgetary control on BRALIRWA PLC's profitability in this regard that comprises the significance of this study.

1.7.2 Personal interest

The research aided the researcher in acquiring broader insights into conducting scientific inquiries in general. Additionally, it facilitated the connection of classroom-acquired theories with real-world applications. Ultimately, the study aimed to comprehend the fundamental correlation between budgeting, budgetary control, and the profitability of manufacturing firms.

1.7.3 Social interest

The findings of this study will provide BRALIRWA PLC with actionable insights to optimize its WCM practices, potentially leading to improved profitability. The study will also serve as a reference for other manufacturing companies in Rwanda and beyond, offering practical strategies for enhancing financial performance through effective WCM.

1.7.4 Academic and Scientific Interest

From an academic perspective, this research serves as a means for the researchers to meet the academic prerequisites for obtaining a bachelor's degree. Furthermore, this study contributes significantly to the scientific community by offering comprehensive documentation that can be utilized as a reference by future researchers and students in their research endeavors.

1.8 Structure of the study

The study is structured into four chapters: the first chapter provides a general introduction to the study, while the second chapter focuses on the literature review sourced from various publications, research outputs, the internet, and books. In the third chapter, the research methodology and techniques employed by the researchers to collect and analyze data are presented. The fourth chapter presents the findings regarding the effectiveness of Working Capital Management, and its impact on the profitability of BRALIRWA PLC. Finally, a concise summary is provided, which includes a brief overview of the study, conclusions drawn, and suggestions for enhancing the performance of this manufacturing company.

CHAPTER TWO: LETERATURE REVIEW

2.1 Introduction

The chapter examines theories Working Capital Management, and how it relates to the profitability of manufacturing companies. It also looks at what previous research studies have

found about these topics. After that, it identifies areas where more research is needed and outlines a basic framework for understanding the relationships between these concepts.

2.2 Conceptual Review

The conceptual review aims to define and explore the key concepts that are central to the study, namely Working Capital Management and profitability.

2.2.1 Working Capital (WC)

Working capital, also known as net working capital, is the difference between the current assets of a company and its current liabilities. It provides the estimate of the company's liquidity and its short-run financial status, enabling it to finance its operations and meet any financial stress or opportunities. Kayani et al. (2019) defines working capital as the resources that a business utilizes in financing its daily activities. They say, management of working capital is of prime importance regarding the liquidity of a firm for ensuring that it conducts its activities without hiccups and interruptions amid financial needs which fluctuate. According to Asare, Owusu-Manu, and Ayarkwa (2023), working capital in the construction industry was defined as the required financial resources to cover immediate expenses such as labor, materials, and overheads. Their study highlighted the fact that the industry is dependent on working capital due to the volatility of the financial condition of the project. According to Ahangama et al. (2018), working capital refers to the short-term assets and liabilities held by a firm and is very crucial in maintaining efficiency within the operation. They further explain that working capital is employed to present the ability of the business to meet all its short-term debts and obligations.

2.2.2 Working Capital Management (WCM)

WCM refers to the management of short-term assets and liabilities to ensure a company's operational efficiency and financial stability. It involves managing components like inventory, accounts receivable, and accounts payable. According to Brigham and Houston (2018),

effective WCM is crucial for maintaining liquidity while minimizing the cost of capital, which in turn supports profitability. Working capital management refers to management of short-term financial goals used in creating operating capital that increases firm revenue and number of shareholders (Makori & Jagongo, 2013). Further, working capital management requires management functions like short-term investments, granting credit, managing cash and debt recovery (Ochieng et al., 2020). Due to growing concerning competition and profits demand, using working capital management as source of short-term funding maximizes profits (Isik, 2017). It refers to the management of a company's short-term assets and liabilities to ensure sufficient liquidity for day-to-day operations. This involves optimizing components such as inventory, accounts receivable, and accounts payable to minimize costs and maximize returns. Lamberson (2016) argues that effective WCM is vital for maintaining operational efficiency and ensuring that a company can meet its short-term obligations without compromising profitability. Working Capital Management involves managing the balance between a firm's short-term assets and liabilities to ensure it can continue its operations and meet its obligations as they come due, without incurring unnecessary costs. Richards and Laughlin (2016) emphasize that effective WCM is crucial for maintaining operational efficiency, as it directly impacts a company's liquidity, solvency, and overall financial health. Eljelly (2015) further highlights that inadequate management of working capital can lead to significant liquidity problems, which may ultimately threaten a firm's survival.

2.2.3 Profitability

Profitability refers to an organization's capacity to generate profit from its operations. Agha (2014) defines profitability as a company's ability to generate earnings. Profit is calculated by subtracting expenses from the revenue earned during the process of generating that revenue. Therefore, profitability is assessed by comparing income to expenses. Income represents the revenue generated from the business's activities, and a higher profit indicates that the business

is earning more on the capital invested. In the context of a manufacturing firm, revenue is derived from the sale of the products it produces. Expenses, on the other hand, include the costs of the resources consumed during the manufacturing process, as well as other selling and administrative expenses. Profitability refers to a company's ability to generate earnings relative to its sales, assets, and capital. Sandhar (2018) described profitability as the capacity to derive benefits from all of a company's business activities, highlighting management's effectiveness in converting resources into profits. Profitability ratios are critical tools for evaluating a firm's financial performance, particularly its bottom line, and are important for both managers and owners (Malik, 2019). According to Kakuru (2015), these ratios measure a company's ability to generate profits. Profitability is often used as a benchmark for assessing the efficiency and effectiveness of working capital management by comparing profits to the working capital employed (Ross et al., 2018). Two key measures of profitability are Return on Assets (ROA) and Return on Equity (ROE). ROA indicates how effectively a company utilizes its assets to generate profits, while ROE reflects the returns investors can expect from their equity investments (Hansen & Mowen, 2015). As Ross and al. (2019) suggest, profitability is a key indicator of a company's financial health and its capacity to generate shareholder value. Moyer, McGuigan, and Kretlow (2019) argue that profitability is not only a reflection of a firm's operational efficiency but also its capacity to utilize assets effectively to generate revenue. In the context of WCM, profitability is influenced by how efficiently a firm manages its short-term resources to minimize costs and maximize revenues. The major goal of business is earning profit and maintaining minimal reserves of current assets (Akenga, 2017). Specifically, Braimah (2021) stated that profits show usefulness of corporate managers in effectively using available assets for maximizing returns.

2.2.4 Manufacturing Companies

Manufacturing industries such as BRALIRWA PLC, encompass those sectors engaged in the production and processing of goods, either by creating new products or adding value to existing ones using labor, machines, tools, and various processes. The final products can either be sold as finished product or be used as an intermediate product for further processing of other products, Lawrence and Chad (2012). Production efficiency measures the effectiveness of the production process in terms of output and resource utilization. Key constructs related to manufacturing companies include production efficiency, cost of goods sold (COGS), and inventory management. COGS represents the direct costs attributable to the production of goods sold, and inventory management oversees the control of stock items.

2.3 Theoretical Review

The theoretical review is organized according to the themes of the study, reflecting the objectives, hypotheses, methods, and research questions.

2.3.1 Agency Theory

According to Jensen and Meckling (2018), agency theory explores the conflicts that arise between a firm's managers (agents) and its shareholders (principals). In the context of WCM, managers might prefer to maintain higher levels of working capital to reduce operational risks, while shareholders might favor lower working capital levels to maximize returns. This divergence can lead to suboptimal WCM practices if not managed properly. Filbeck and Krueger (2017) suggest that effective governance structures can align the interests of managers and shareholders, leading to better WCM decisions and improved profitability.

2.3.2 Conservative Theory of Working Capital Management

This theory advances a plan to which a company keeps its current assets in a high position with respect to its level of current liabilities. This action that the company is taking is sacrificing

profitability for liquidity and safety. The more liquid the assets are, that is, all the items related to cash, inventories, and receivables, the more certain it will be that the firm will be prepared to meet any unexpected obligations arising or downfall in the market.

Van Horne, (2001) justifies the defensive strategy by relating it with the concept of risk management. He says companies that pursue this strategy want to retain a large slack of working capital so as never to suffer from a liquidity shortage. This is at the cost of profitability as these excessively employed funds in the working capital could have otherwise been used for more gainful investments.

Eljelly (2004), in studying the off-setting between the two variables of profitability and liquidity, offers the following rationale-even as conservative approach shelters the firms from any kind of liquidity crisis, it may lead to inefficiency in resource utilization. Companies maintaining superfluous cash and inventories may face poor yields due to the fact that such assets are income generating or value accretion assets when compared to the long-term investments.

Better liquidity and safety in that the company is generally able to meet any short-term obligation arising; Economically lesser risk due to the fact that the working capital is long-term financed. This avoids the company's dependence on short-term loans; but too much capital tied in low-yielding assets obviously cuts down on profitability less aggressive pursuit of availing opportunities arising out of investments, in turn, creates an opportunity cost.

2.3.3 Aggressive Theory of Working Capital Management

Opposite of the conservative approach, the aggressive theory says that firms must minimize their holdings of current assets to release the capital for investments with higher return. The explanation behind this is that when cash, inventory and receivables are reduced, the working capital - the firm will have to attain high profitability even though it enhances its risk of

liquidity. Aggressive strategy is a strategy that favors the minimum amount of current assets. It is done by reducing levels of inventories, shortening collection period for receivables and decreases in cash balances. According to Gitman (1994), though the approach is rewarding as profitability increases because of this approach, it also threatens the ability of the firm to have adequate liquidity to liquidate short-term liabilities.

Afza & Nazir 2009, in the context of their empirical research on working capital strategies, note that firms which assume aggressive policies do end up getting better returns reflective of better capital utilization. The flip side, however, is an enhanced risk of financial distress if the firm is dependent too much on short-term financing or market conditions change dramatically. Higher profitability because excess capital is freed for better utilization in more gainful avenues, such as reinvestment in fixed assets or market expansion. Cheaper finance since less funds are engulfed with working capital. Higher risk of liquidity crunch that may paralyze operations or even render the company to financial distress. Dependence on short-term finance, which can be costly or even difficult to acquire in periods of financial crisis.

2.3.4 The Theory of Cash Conversion Cycle (CCC)

The theory of CCC was highlighted by Richards and Laughlin 1980 and considered as a main theory that focuses on the WCM components; it has started with converting raw materials to finished goods. The theory covered also the processes of cash cycle of purchasing and selling and all decisions related to inventories, receivables and payables Korode, 2017; Oladimeji & Aladejebi, 2020; Sensini & Vazquez, 2021). Additionally, CCC theory underlines the issue of cash cycle in examining the efficiency of WCM ("i.e. a short cash conversion cycle") with the purpose of maximizing profitability and liquidity of the company and then increasing the firm's value. Conversely, inefficient WCM ("i.e. a long cash conversion cycle") can reduce the company's liquidity and minimize the value of the firm. Besides, companies can maximize

profitability with a shorter cash conversion cycle since the firms can potentially develop their business by collecting more cash to improve profits. Moreover, dynamic working capital management reduces costs of borrowing, decreases the external financing risks, and improves the company's financial position.

2.3.5 Trade-offs Theory

The Trade-Offs Theory suggests that companies determine the optimal cash reserves by weighing the marginal costs and benefits of holding cash. Excessive investment in current assets can lead to a reduced return on assets (ROA), as such investments may not generate adequate returns (Raheman & Nasr, 2017). While profit maximization is a key objective for any business, maintaining sufficient liquidity is equally important. However, focusing too heavily on profit at the expense of cash flow can create significant challenges for a company. Thus, a balance must be struck between these two goals. Charitou et al. (2010) argue that working capital management involves a trade-off between liquidity and profitability, which is critical for managing a company's risk, value, and profitability. Higher working capital enhances liquidity and reduces the risk of insolvency, but may also limit profitability. Conversely, lower working capital increases risk by reducing liquidity but may improve profitability. This theory is relevant to the present study, as it helps explain why listed companies need to maintain an optimal level of liquidity that aligns with profitability targets.

2.4 Working Capital Management Components

The key components of working capital that need to be efficiently managed include the collection period for accounts receivable, the payment period for accounts payable, inventory management, cash and cash equivalents, and the overall operating cycle of the firm.

2.4.1 Accounts Receivables Management

Accounts receivable are assets that represent money owed to the firm from customers who have purchased goods or services on credit. The accounts receivable period is the average time it takes for these customers to pay their bills. When customers delay payments or fail to pay, it can create significant challenges for the business. Therefore, it's crucial for the financial or accounts receivable manager to establish a solid policy that balances the benefits of offering credit with the associated risks and costs. The firm should carefully evaluate the potential advantages and expenses of different credit policies before deciding on the best approach. The Credit Management Theory (Smith, 2017) highlights the importance of managing credit policies and collection processes to ensure timely cash flow and reduce the risk of bad debts, thereby supporting profitability. Businesses often use trade credit as a marketing tool to boost or maintain sales levels. Accounts receivable, in turn, become a key means of driving sales, but it is essential for management to handle them effectively to ensure sufficient liquidity for operations (Kakaeto et al., 2016). Efficient management of receivables, which can be measured through a shorter collection period, minimal bad debts, and a well-structured credit policy, often enhances a company's ability to attract new customers and improve financial performance. Therefore, a robust credit policy is necessary to maximize value (Ahmed et al., 2017; Kakaeto et al., 2016).

However, increasing accounts receivable comes with higher carrying costs associated with extending credit. These costs include cash discounts, credit maintenance, and collection expenses (Ahmed et al., 2017). Effective analysis of accounts receivable is crucial for management to optimize its handling (Kakaeto et al., 2016). A key metric in managing accounts receivable is the average collection period, which measures the time it takes for a company to collect payments owed to it. Kakaeto et al. (2016) emphasized that the collection period reflects the average duration required to gather receivables.

2.4.2 Accounts Payables Management

Accounts payable arise when a business makes purchases but defers payment to a future date (Hsieh et al., 2018). They represent suppliers whose invoices for goods or services have been processed but not yet paid (Enqvist et al., 2019). Accounts payable consist of both trade credit and accrued expenses, which together provide ongoing financing for business operations (Enqvist et al., 2019). According to Jayarathne (2019), companies can boost profits by delaying payment of creditor invoices, using the freed liquidity to invest in short-term assets. Hsieh et al. (2018) and Gonçalves et al. (2018) suggest that effective accounts payable management requires monitoring the Account Payable Period (APP), which measures the time between receiving inventory and paying for it. Gonçalves et al. (2018) note that the APP is calculated by multiplying accounts payable by the number of days in a year, then dividing by annual credit purchases. To optimize the management of accounts payable, companies should focus on the timing of their payments. Ideally, they should extend the payment period as long as possible, allowing them to benefit from supplier financing until the payment is due. This strategy is particularly important for manufacturing companies, which need time to convert raw materials into finished products and generate cash from sales. The accounts payable period can be calculated by dividing the total accounts payable by net purchases and then multiplying the result by 365 days.

Accounts payable is the amount of money promised by a recipient of goods to a supplier where a credit transaction is involved (Kinunda, 2008). Managing accounts payables is crucial for effective working capital management. Maintaining strong relationships with suppliers is key to ensuring a steady flow of inventory. Firms should avoid delays in settling their bills, as such delays can lead to missed cash discounts and diminished trust from suppliers. Timely payments help preserve favorable terms and strengthen supplier relationships, contributing to smoother operations and better financial health.

The Trade Credit Theory (Ng, Smith, and Smith, 2018) suggests that managing trade credit terms effectively can optimize cash flow, allowing a company to utilize its working capital more efficiently, which in turn supports profitability.

Hsieh et al. (2018) and Gonçalves et al. (2018) also highlighted that extending the payment period increases the utilization of capital tied up by suppliers. Previous research by Gonçalves et al. (2018), Malik and Bukhari (2018), and Hsieh et al. (2018) found a strong positive relationship between the average payable period and profitability, particularly in manufacturing firms, as measured by Return on Assets (ROA) and Return on Equity (ROE). However, Enqvist et al. (2019) found a negative correlation between the average payable period and profitability in other firms.

2.4.3 Inventory Management

Inventories are essential components of a firm's working capital, comprising stock, raw materials, work-in-progress, and finished goods (Akoto et al., 2018; Musau, 2019). The goal of inventory management is to ensure the availability of necessary materials to support operations at the lowest possible cost (Akoto et al., 2018). Therefore, effective inventory management requires balancing the costs of ordering, holding, and potential shortages (Musau, 2019). Inventory control involves managing activities to ensure the right inventory is available at the right time and in the correct quantities (Adhikari, 2020). The Inventory Conversion Period (ICP) is a key metric for evaluating inventory management efficiency (Musau, 2019). Subramanyam and Wild (2019) describe the ICP as the time taken to acquire and sell inventories.

Kolias et al. (2019), in agreement with Cannon (2018), found an inverse relationship between the ICP and gross margin, meaning that shorter ICPs often result in higher gross margins. Additionally, there is a negative correlation between gross margin and the inventory conversion

period, or turnover ratio. In contrast, Arabahmadi and Arabahmadi (2017) identified a positive relationship between inventory management and working capital, as well as a positive correlation between raw material purchases and working capital. Eneje et al. (2018) further discovered that effective inventory management, measured by ICP, significantly impacts the profitability of Nigerian brewing companies. Inventory Turnover in Days is calculated by dividing the inventory by the cost of sales and then multiplying the result by 365 days. The Economic Order Quantity (EOQ) model, as discussed by Harris (2016), provides a framework for minimizing the total cost of inventory, which includes ordering and holding costs. The Just-In-Time (JIT) inventory system, proposed by Taiichi Ohno (2015), emphasizes reducing inventory levels to improve profitability by lowering storage costs and reducing waste.

The EOQ model is based on several assumptions: the demand for the product remains constant throughout the year, orders are delivered in full when inventory depletes, and each order incurs a fixed cost regardless of quantity. Additionally, it assumes a fixed holding cost per unit, a fixed lead time, a constant purchase price with no discounts, instantaneous replenishment, and that only one product is considered.

2.4.4 Cash Conversion Cycle (CCC)

As defined by Deloof (2018), is a metric that expresses the time (in days) it takes for a company to convert its investments in inventory and other resources into cash flows from sales. The cash conversion cycle (CCC) represents the period between paying cash for raw materials and collecting payments as accounts receivable (Mandalaputri et al., 2021; Makoni and Mabandla, 2019). Musau (2019) and Mutai et al. (2019) define the CCC as the number of days it takes a business to sell inventory and receive cash from its customers. CCC analysis involves three components: inventory, accounts receivable, and current liabilities (Chemis, 2018; Akoto et al., 2018). Research by Akoto et al. (2018), Wilkinson (2018), and Musau (2019) has shown

that the CCC is a crucial determinant in working capital management (WCM) decisions. The CCC measures the time lag between spending on raw materials during procurement and collecting cash from sales of finished goods, making it a comprehensive measure of WCM (Brealey et al., 2019; Wilkinson, 2018). A longer CCC encourages businesses to increase their investments in working capital (Akoto et al., 2018). Conversely, shorter CCCs can improve profitability by driving higher sales (Brealey et al., 2019; Moran, 2019). Malik and Bukhari (2018) found a positive correlation between CCC and return on equity (ROE) in Pakistan's engineering sector, indicating that better WCM can boost profitability. Similarly, Bilehsavar et al. (2021) discovered that CCC is statistically linked to a company's profitability, with CCC duration showing a negative relationship with return on assets (ROA) and sales revenue. The CCC is a critical measure in WCM because it reflects the efficiency of a firm's operations and its ability to manage its short-term assets and liabilities. A shorter CCC indicates that the company can quickly convert its inventory into cash, which can be reinvested into the business or used to reduce debt, thereby improving profitability. Deloof (2018) expands on the CCC theory, which posits that reducing the time between outlaying cash for raw materials and receiving cash from sales can improve a firm's profitability. The CCC is influenced by how well a company manages its inventory, receivables, and payables. Firms with shorter CCCs can generate cash more quickly, reducing the need for costly external financing and allowing for reinvestment in profitable ventures. Garcia-Teruel and Martinez-Solano (2017) found that companies with efficient CCC management tend to have higher profitability, particularly in industries with high working capital requirements.

It was observed that the longer the cash conversion cycle, the more investment is needed in working capital. The length of the cash conversion cycle is influenced by how long it takes to convert inventory into sales, the trade receivables collection period; and the trade payables deferral period. [19]. The length of the cash conversion cycle (CCC) is given by:

CCC = Inventory days + Trade receivables days – Trade payables days

2.5 Measurement of Profitability in Manufacturing Companies

The main indicators of profitability include the profit margin, return on total assets (ROA), and return on common stockholders' equity (ROE). These metrics are calculated as follows:

2.5.1 Profit Margin

The net profit margin expresses the return on every unit of sale after deducting the cost of sale and expenses. The net profit margin ratio is measured by the ratio of profit after tax to sales, it can be illustrated as below.

$$\text{Profit Margin} = \frac{\text{Net Income}}{\text{Revenue}} * 100$$

When evaluating profit margins, it is essential to consider the industry context.

2.5.2 Return on Assets

ROA is a measure of a company's profitability, equal to a fiscal year's earnings, equal to a fiscal year's earnings divided by its total assets, expressed as a percentage. This indicates how efficiently a company is using its assets to generate profit.

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}} * 100$$

2.5.3 Return on Equity

The Return on Equity (ROE) ratio is one of the most critical financial metrics for investors, as it measures the return generated on the money they have invested in the company. This ratio is a key factor that potential investors consider when deciding whether to invest. It is calculated using the formula:

$$\text{ROE} = \frac{\text{Net Income}}{\text{Common Stockholder's Equity}} * 100$$

The net income is derived from the income statement, while stockholder's equity is found on the balance sheet. Generally, a higher ROE percentage is seen as a positive sign, indicating that

the company is effectively utilizing its investors' funds, although there are some exceptions (Longman, 2017).

2.6 Relationship between Working Capital Management and Profitability

Working capital refers to the money that a company uses to finance its daily operations. Proper management of working capital is critical to financial health and operational success. Working capital management (WCM) aims to maximize operational efficiency by maintaining a delicate balance among growth, profitability, and liquidity. WCM is a continuous responsibility focusing on a firm's day-to-day operations involving short-term assets and liabilities. By efficiently managing a firm's cash, accounts receivable, inventories, and accounts payable, managers can help maintain smooth operations and improve a company's earnings and profitability. The relationship between WCM and profitability is central to this study. Efficient WCM practices can enhance profitability by optimizing the balance between liquidity and investment in working capital. Deloof (2017) notes that companies with efficient WCM can reduce financing costs and avoid the risk of insolvency, thereby improving profitability.

2.7 Review of Related Literature

This section reviews empirical studies related to WCM and its impact on profitability in manufacturing companies.

Tauringana and Afrifa (2018) studied small and medium-sized enterprises (SMEs) in the UK, finding that the relative importance of WCM and its components to profitability varies depending on the firm's size and industry. They argued that SMEs, in particular, need to adopt flexible WCM practices that can adapt to changing market conditions. Their study also pointed out that SMEs often face constraints in accessing external financing, making effective WCM even more critical for their profitability. In Nigeria, Olagunju et al. (2020) investigated the

influence of WCM on ROA in the Nigerian listed hotels within a period extending from 2000 to 2018. Their results reported that WCM is considerably influences the profitability of the hotels and is the optimal level that should be saved by the company management. Of inventory and avoid loss of credit sales. However, using a sample of manufacturing Pakistani firms, Ahmed (2018) illustrated the insignificant relationship between profitability and CCC.

James Ndirangu Kung'u (2015) this research was to determine the effects of working capital management on profitability of manufacturing firms in Kenya. The study had five objectives, that is, to determine whether credit policy influences profitability of manufacturing firms in Kenya, establish the degree to which accounts payable practices influence profitability of manufacturing firms in Kenya, examine how inventory control practices influence profitability of manufacturing firms in Kenya, establish whether liquidity management practices influence profitability of manufacturing firms in Kenya and investigate whether working capital levels influence profitability of manufacturing firms in Kenya.

Nyamweno and Olweny (2014), using panel data, found that receivable days (RD) and the cash conversion cycle (CCC) had no significant impact on gross operating profit. In contrast, payable days (PD) and inventory days (ID) significantly influenced firm performance. Similarly, Al Omari et al. (2017) investigated the relationship between WCM and profitability in the Jordanian industrial sector. Their findings revealed that profitability, measured by gross profit, net profit, and operating profit, was significantly impacted by WCM.

Kasahun (2020) empirically investigated the impact of working capital management (WCM) on profitability in manufacturing firms. The study found that proper payment discipline (PD) can enhance profitability, improve payment policies, and boost sales. Similarly, Tingbani (2015), using data from 225 UK firms spanning 2001 to 2011, explored the relationship between WCM components—receivables days (RD), payment discipline (PD), and inventory days (ID)—and profitability, measured by return on assets (ROA). The results indicated

significant relationships between profitability and both RD and PD, but an insignificant relationship with ID.

In another study, Tauringana & Afrifa (2013) analyzed 133 UK small and medium enterprises (SMEs) and their profitability in relation to WCM components, specifically average days payable (ADP), average days inventory (ADI), and average days receivable (ADR). They found that ADP and ADR had a significantly negative impact on profitability, while all components showed a negative but insignificant effect on ROA. Similarly, Yazdanfar & Öhman (2014) observed a negative impact of WCM on profitability in Swedish companies.

Falope & Ajilore (2009) investigated 50 Nigerian companies and discovered a significant negative relationship between the cash conversion cycle (CCC), average payment period, and profitability. Jahfer (2015) also noted that shorter CCCs negatively affect profitability. Arnaldi et al. (2021) concluded that WCM has a linear correlation with profitability.

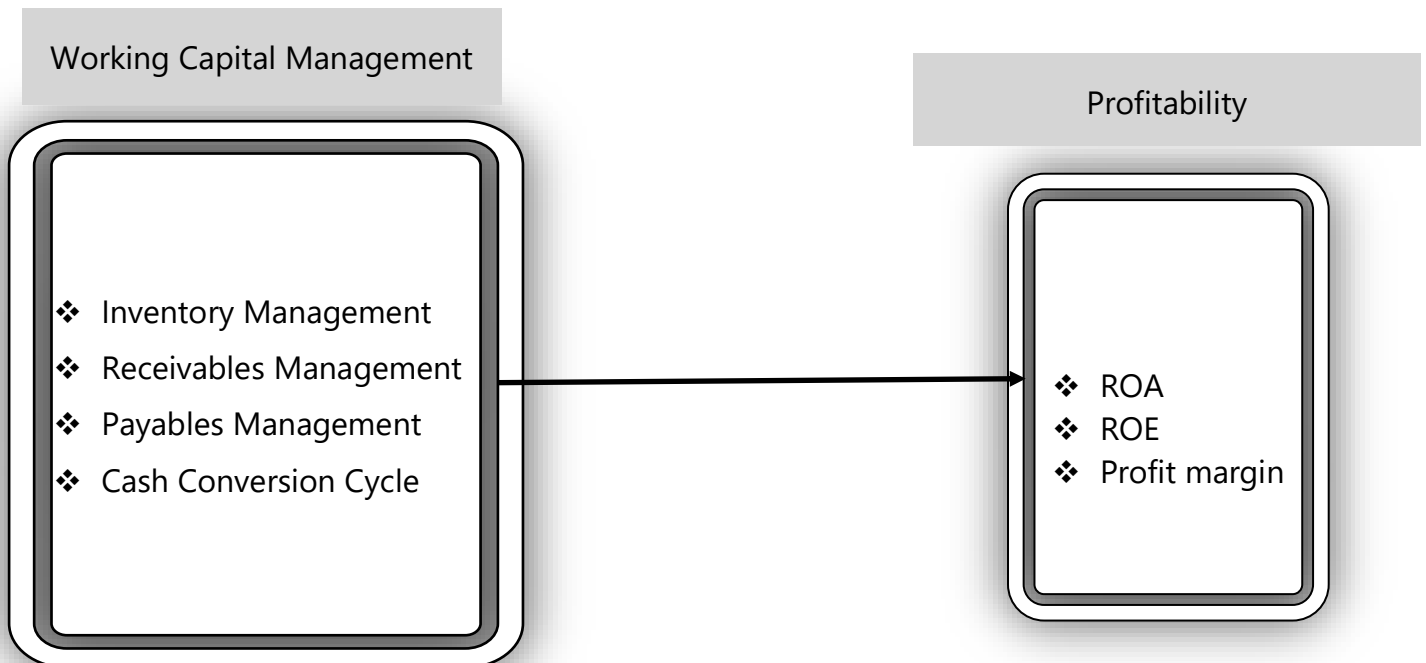
2.8 Research Gap

While many studies have explored Working Capital Management (WCM) and profitability in various contexts, there is limited research on its impact in the Rwandan manufacturing sector, particularly concerning BRALIRWA PLC. Furthermore, existing studies often focus on individual components of WCM rather than a comprehensive analysis of all aspects, creating a gap that this research aims to fill.

2.9 Conceptual Framework

This framework combines these elements to assess how Working Capital Management (WCM) as a whole influence the profitability of BRALIRWA PLC. Below is a diagram illustrating the conceptual framework:

Figure 1. Conceptual framework

Independent Variable**Dependent Variable**

Source: Researcher (2024)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the methodology used to explore the impact of Working Capital Management on profitability. It details the research design, defines the study population, and explains the sampling methods. The chapter also covers the data collection techniques, validity and reliability assessments, data processing procedures, and methods for data analysis. Additionally, it addresses any limitations encountered and ethical considerations. This well-thought-out design ensures a thorough examination of the research problem.

3.2 Research Design

This research utilizes a descriptive research design with a quantitative approach to assess the impact of WCM on profitability in manufacturing firms. It draws on secondary data from BRALIRWA PLC's financial statements, annual reports, and other reliable sources. The

analysis focuses on key variables like inventory turnover, accounts receivable, accounts payable, and profitability metrics such as Return on asset (ROA). The descriptive design is ideal for observing data patterns and relationships without manipulating variables, providing a detailed understanding of WCM's influence on profitability.

3.3 Source of Data

3.3.1 Secondary Data

The study relies on secondary sources, including BRALIRWA PLC's audited financial statements, reports from regulatory bodies like the Rwanda Stock Exchange. Data was retrieved from online databases, corporate websites, and government repositories. The choice of secondary data ensures the availability of reliable, verified information without the need for fieldwork or direct data gathering. Tools like Microsoft Excel and SPSS were used to organize, clean, and analyze the data.

3.4 Data Collection Techniques and Tools

3.4.1 Documentary Research

Documentary research involves the collection of data from the existing documents such as official records, personal diaries, letters, and reports containing data pertinent to the research study. The documents are analyzed in a systematic way to obtain meaningful insights from them. Data from documents, according to Cresswell and Poth (2018), are information contained within existing material such as journals, annual reports, or government documents that provide insight into the phenomenon under study.

3.5 Validity and Reliability Test

This section covers the validity of the research, which ensures that the instruments used accurately measure what they are intended to. It also addresses the reliability, which refers to the consistency of the results produced by these instruments over time.

3.5.1 Validity of Instruments

Since the study is based on secondary data, content validity is ensured by selecting comprehensive financial reports that cover all relevant WCM metrics. These reports are validated through external audits, guaranteeing their accuracy.

3.5.2 Reliability of the Instruments

Reliability is addressed by selecting data over a five-year period, allowing for a consistent analysis of trends and avoiding potential anomalies. Consistency in the financial reporting standards used by BRALIRWA PLC ensures that the data is reliable for longitudinal study.

Table 1. reliability statistic

Cronbach's Alpha	N of Items
.843	7

A Cronbach's Alpha of 0.843 indicates that the items on this scale or test are internally consistent; hence, they can be reliable and consistent in their measurement for the underlying concept. These 7 items are sufficient to produce a good level of measurement for the reliability of, as indicated by the high Cronbach's Alpha score.

3.6 Data Processing

Data processing involved cleaning and organizing the information for analysis. This included editing to eliminate any inconsistencies or errors in the reports. SPSS and Excel were used to synchronize the data and conduct initial descriptive statistical analyses.

3.7 Method of Data Analysis

3.7.1 Statistical Method

The analysis combines both descriptive and inferential statistics. Descriptive measures like means, medians, and standard deviations are used to summarize the data, while inferential methods, including correlation and regression analysis, explore the relationship between WCM practices—such as inventory turnover, accounts receivable, and payable—and profitability metrics like ROA and ROE.

3.7.2 Analytical Method

These methods help in systematically analyzing the data to reveal trends, patterns, and the relationships between WCM practices and profitability. More precisely, this focuses on how specific aspects of WCM—for example, inventory turnover, account receivable, and payable—affect financial performance indicators such as ROA, ROE and profit margin.

3.7.3 Comparative Method

Comparative analysis helps in benchmarking BRALIRWA PLC's WCM practices against industry standards or competitors. It provides insights into how effectively the company manages its working capital compared to peers. It allows BRALIRWA PLC to evaluate its performance relative to its past performance, industry averages, and competitors.

3.7.4 Measurement of Variables

Table 2. Variables' measurement

Variables	Acronyms	Measurement
<i>Dependent Variable</i>		
<i>Return on assets</i>	ROA	Net income to total assets
Return on equity	ROE	Net income to equity shareholders
Profit margin	PM	Net income to total operating income
Gross profit	GP	Sales-cost of goods sold
<i>Independent</i>		
Receivable days	RD	(Account receivables/annual sales) * 365
Inventory days	ID	(Inventory/ cost of sales) *365
Payable days	PD	(Accounts payable/ purchases) *365
Cash conversion cycle	CC	Receivable days + Inventory days - Payable days

The following statistical model was used to assess relationships between the variables, where hypotheses were tested, and conclusions drawn based on the results of the analysis.

$$Y_t = a + \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \epsilon_{it}$$

Y = Profitability (ROA, ROE, Profit margin)

β_0 = Y –intercept $\beta_1, \beta_2, \beta_3, \beta_4$ = regressions coefficients.

X₁ = Inventory Days (ID)

X₂ = Receivables Days (RD)

X₃ = Cash Conversion Cycle (CCC)

X₄ = Payables Days (PD)

ϵ_i = error term

3.8 Limitations

Given that the study relies on secondary data, there are some limitations, such as the inability to control for external factors like market competition or economic shifts that could impact

WCM and profitability. Another challenge is the accuracy and timeliness of BRALIRWA PLC's financial data, as financial reports may not reflect every aspect of WCM. Additionally, the study is limited to a five-year period, which may restrict how applicable the findings are to other time frames or industries.

3.9 Ethical Considerations

Since this study relies on secondary data, concerns such as confidentiality, consent, and participant safety are not directly relevant. Nevertheless, ethical considerations are maintained by properly citing all data sources, using the data exclusively for academic purposes, and conducting the analysis with honesty and accuracy, avoiding any misrepresentation of the findings. The use of audited and publicly available data further ensures the research is transparent and credible.

CHAPTER FOUR: PRESENTATION OF FINDINGS

4.1 Introduction

This chapter presents the findings of the research, analyzing the data in relation to the research questions and hypotheses posed in Chapter One. The results of statistical tests are discussed, and the relationship between Working Capital Management (WCM) and the profitability of BRALIRWA PLC is examined. The findings are based on secondary data obtained from financial reports of BRALIRWA PLC and analyzed using statistical methods. Tables, graphs, and figures are used to illustrate the results, and these are compared with existing literature.

4.2 Assessment of Working Capital Management

Assessing working capital management is essential for understanding a company's financial stability and operational efficiency.

4.2.1 Inventory Management

This table goes ahead to classify the inventories into raw materials, work in progress, finished goods, goods for resale, non-returnable packaging, spare parts, and other inventories. Values are in thousands.

Table 3. Assessment of inventory management “000”

Period	2019	2020	2021	2022	2023
Raw materials	7,726,931	9,668,915	7,572,789	15,881,551	18,629,598
Work in progress	1,456,760	1,035,309	1,639,196	1,355,914	321,737
Finished goods	715,737	462,479	913,465	513,960	321,737
Goods for resale	86,681	-3,380	-5,135	313,727	497,480
Non-returnable packaging	2,595,047	2,429,755	2,150,894	5,676,909	5,212,739
Spare parts	5,898,110	5,753,984	6,341,817	6,723,387	7,716,848
Other inventories	1,056,790	1,018,977	1,335,989	3,256,841	2,392,651
	19,536,056	20,366,039	19,949,015	33,722,289	35,092,790

Source: BRALIRWA PLC, Annual reports, 2019-2023.

The value of raw materials increased steadily from 2019 to 2023, except for a dip in 2021. In 2019, raw materials stood at 7.7 billion, and by 2023, this had more than doubled to 18.6 billion. This consistent growth (except in 2021) suggests that Bralirwa has been increasing its production capacity or facing higher input costs. The sharp rise in 2022 (15.88 billion) and 2023 could also indicate expansion in operations or production volume.

WIP fluctuated over the years, with a peak in 2021 (1.63 billion) followed by a significant decline in 2023 (0.32 billion). This decrease may indicate better operational efficiency, quicker turnaround from WIP to finished goods, or reduced production levels towards 2023. Bralirwa may have optimized its production processes to minimize work in progress or faced lower demand.

The value of finished goods inventory fluctuated throughout the period. It increased sharply in 2021 (913k) but fell in 2022 and 2023, eventually reaching 322k in 2023. A declining finished goods inventory could suggest better demand forecasting and sales performance or challenges in production output, resulting in lower stock. The significant drop in 2023 indicates that either demand was well aligned with production, leading to fewer goods in storage, or the company faced supply chain issues.

There were notable fluctuations in goods for resale, with negative values in 2020 and 2021, but a recovery in 2022 and 2023, reaching 497k in 2023. Negative values suggest write-offs or losses in resale activities in 2020 and 2021. However, the recovery in 2022 and 2023 implies Bralirwa improved its resale operations or cleared out obsolete goods, perhaps through better inventory turnover or more effective stock clearance strategies.

Inventory for non-returnable packaging grew significantly, particularly in 2022 (5.68 billion), with a slight reduction in 2023 (5.21 billion). The significant rise in packaging inventory may

be linked to increased production or higher packaging costs, while the drop in 2023 could indicate a shift towards more efficient use or sourcing of packaging materials.

The spare parts inventory showed a steady increase from 2019 (5.89 billion) to 2023 (7.72 billion). This steady growth likely reflects investments in maintenance and operational resilience. Bralirwa seems to be stockpiling spare parts to avoid disruptions, which may be crucial for continuous production, especially in the face of supply chain uncertainties.

Other inventories increased sharply in 2022 (3.25 billion) but fell back in 2023 (2.39 billion). The spike in 2022 could indicate an expansion into new inventory categories or a temporary stock buildup, which was subsequently reduced in 2023, possibly through sales or better inventory management. The provision for spare parts fluctuated, reaching a peak in 2022 (-1.19 billion) but decreasing significantly in 2023 (-0.45 billion).

Higher provisions in 2022 may have been due to concerns about the usability of spare parts, potentially indicating a need for write-offs or depreciation of old stock. The reduction in 2023 suggests fewer concerns about spare parts obsolescence, perhaps due to better management or improved spare parts utilization.

4.2.2 Receivable Management

Table 4 below presents a summary of trade receivables management for the five continuous years from 2019 to 2023, along with total trade receivables, impairment losses recognized, and net trade receivables that provide full insight into the efficiency of trade receivables management.

Table 4. Assessment of receivable management''000''

Period	2019	2020	2021	2022	2023
Trade receivables	3,756,407	10,578,888	6,262,190	13,945,056	26,219,674
Less: Impairment losses	- 1,254,086	-1,415,719	- 1,533,529	-1,253,699	-1,118,412
Trade receivables – net	2,502,321	9,163,169	4,728,661	12,691,357	25,101,262
Other receivables and prepayments- net	4,027,817	1,097,948	889,449	1,666,902	667,565
	6,530,138	10,261,117	5,618,110	14,358,259	25,768,827

Source: BRALIRWA PLC, Annual reports, 2019-2023.

Trade receivables grew substantially over the years, from 3.76 billion in 2019 to a massive 26.22 billion in 2023. The sharp increase in trade receivables, particularly between 2021 and 2023, suggests that Bralirwa extended more credit to its customers or experienced slower collections. In 2022, trade receivables jumped from 13.95 billion to 26.22 billion in 2023, showing a potential challenge in managing customer payments efficiently. The high trade receivables in 2023 indicate a larger portion of Bralirwa's revenue tied up in outstanding customer payments, which could impact the company's cash flow.

Impairment losses, which account for uncollectible receivables, were fairly stable between 2019 and 2021, but they decreased slightly in 2022 and 2023. Impairment losses fell from 1.53 billion in 2021 to 1.12 billion in 2023. The reduction in impairment losses in recent years could indicate improved credit risk management or better collection efforts, despite the increase in trade receivables. Bralirwa appears to be experiencing fewer bad debts or is taking more effective measures to reduce the likelihood of non-payment by customers.

Net trade receivables increased dramatically over the period, from 2.50 billion in 2019 to 25.10 billion in 2023. The most significant increase occurred between 2021 (4.73 billion) and 2023, when net trade receivables more than doubled each year. Other receivables and prepayments

decreased over the period, from 4.03 billion in 2019 to 0.67 billion in 2023. The largest drop occurred between 2021 (0.89 billion) and 2023.

4.2.3 Payable Management

The table below provides an overview of the company's payable management over the period from 2019 to 2023, highlighting key categories such as trade payables, deposits on returnable containers, other payables and accrued expenses, and lease liabilities. The figures are expressed in thousands (000). The data reflects the company's financial commitments and provides an understanding of its payment obligations and liquidity management.

The following analysis will explore how these figures have impacted the company's financial stability and operational efficiency over the years.

Table 5. Assessment of payable management “000”

Period	2019	2020	2021	2022	2023
Trade payables	3,691,544	4,977,516	4,728,056	20,822,590	18,999,100
Deposit on returnable containers	14,064,932	14,084,968	14,748,065	19,136,313	25,219,746
Other payables and accrued expenses	11,482,337	9,904,535	10,681,559	12,732,960	18,211,953
Lease liability (Current)	94,713	53,734	-	-	-
	29,333,526	29,020,753	30,157,680	52,691,863	62,430,799

Source: BRALIRWA PLC, Annual reports, 2019-2023.

Trade payables increased substantially over the period. In 2019, trade payables were 3.69 billion, and by 2023 they had risen to 18.99 billion, with the highest spike seen between 2021 (4.73 billion) and 2022 (20.82 billion). The significant rise in trade payables, particularly in 2022, indicates that Bralirwa has either increased its procurement of goods and services on credit or is extending the time it takes to pay its suppliers. This could be a strategic decision to optimize cash flow by taking advantage of longer payment terms. However, the decrease in

trade payables in 2023 (from 20.82 billion to 19 billion) may suggest that Bralirwa began paying down some of its liabilities or was able to negotiate more favorable terms with suppliers. This trend needs to be monitored closely as excessive reliance on trade credit can strain supplier relationships.

The deposits on returnable containers steadily increased over the period, from 14.06 billion in 2019 to 25.22 billion in 2023. This steady growth suggests an increase in customer deposits for returnable containers, possibly due to higher sales or more reliance on returnable packaging. It could also reflect better management of the returnable container system, leading to more containers circulating in the market. While these deposits represent a liability on the balance sheet, they are effectively a low-cost financing option for Bralirwa, as the company holds this cash until containers are returned. The increase from 2022 (19.14 billion) to 2023 (25.22 billion) reflects strong growth in this area, potentially supporting the company's working capital.

Other payables and accrued expenses fluctuated slightly before increasing significantly in 2023. They decreased from 11.48 billion in 2019 to 9.90 billion in 2020 but then increased to 18.21 billion in 2023. The jump in 2023 suggests that Bralirwa accrued more expenses and other liabilities, possibly due to operational growth, higher expenses, or deferred payments related to services, taxes, or other obligations. The sharp rise from 12.73 billion in 2022 to 18.21 billion in 2023 indicates a substantial increase in expenses that have not yet been paid. While this may be a result of growth, it also signals a growing short-term liability that will need to be settled.

The current lease liability decreased significantly, with the last data point in 2020 showing a liability of 53.7m, after which the category disappears from the data. The reduction and eventual absence of current lease liabilities after 2020 could indicate that Bralirwa has shifted

away from lease financing or that it has fully paid off or renegotiated its leases. This is a positive sign in terms of reducing short-term obligations, but if the company still leases assets, it might be using alternative financing methods that do not create current lease liabilities.

4.2.4 Cash Convention Cycle

$CCC = \text{Inventory Days (ID)} + \text{Receivable Days (RD)} - \text{Payable Days (PD)}$

A negative CCC implies that cash is received from customers before it has to be paid to suppliers, which is usually indicative of good working capital management.

*Table 6. Inventory Days (Inventory/ cost of sales) *365*

Period	Inventory	Cost of sales	ID
2019	18,476,947	65,814,158	102
2020	19,962,794	64,323,916	113
2021	19,474,631	72,454,395	98
2022	32,526,497	85,957,083	138
2023	35,783,529	99,661,778	131

In 2019, The company held its inventory for approximately 102 days before selling it. This indicates a moderate turnover rate, suggesting that inventory is moving at a reasonable pace.

The inventory value increased slightly in 2020, but the cost of sales decreased, leading to an increase in ID. Inventory is now held for 113 days, indicating a slower turnover compared to 2019. This suggests that the company may be facing slower demand or challenges in selling inventory as quickly as the previous year.

Inventory value decreased slightly, and the cost of sales increased significantly in 2021. This led to an improvement in inventory management, with the ID dropping to 98 days, suggesting a faster turnover and better efficiency in selling goods.

Accompanied by the increased Cost of Sales in 2022, the stock has significantly increased from \$19.5M to \$32.5M. At the same time, however, the ID increased to 138 days, showing a much

slower stock turnover. This may be due to overstocking, slower demand, or some problems in production.

The inventory increased again in 2023, and the cost of sales also rose. While the ID decreased slightly to 131 days compared to 2022, inventory is still being held for a much longer period than in the earlier years (2019–2021). This suggests that despite improvements, the company is still facing challenges in managing its inventory efficiently.

*Table 7. Receivable Days (Account receivables/annual sales) * 365*

Period	Receivables	Annual sales	RD
2019	6,530,138	100,691,220	24
2020	10,261,117	100,520,707	37
2021	5,618,110	123,596,476	17
2022	14,358,259	157,656,425	33
2023	25,768,827	183,681,849	51

It took the company an average of 23.67 days to collect from its customers in 2019, showing relatively fast collection of receivables and thus a good indicator with regard to cash flow management.

Receivables increased significantly while annual sales remained almost identical. Hence, the RD increased to 37.26 days, which signifies that for the year 2020, there was a lagging behind of money receipt compared to the year 2019. Such results could be indicative of slackened credit policies or delays on the part of customers and would impact cash flow adversely.

Receivables went down quite a lot, while annual sales went up quite a bit. This finally drove down RD to 16.59 days, which sharply improved. This means that compared with 2020, the company could collect its receivables much faster in 2021, reflecting stronger cash flow and credit management.

These all reflect an increase in the receivables and annual sales, while RD went up to 33.24 days, indicating clearly that the collections are collected at a slower rate in 2022 compared to 2021. Again, the collection period remains longer than that of 2019, but improved from that of 2020. This may indicate some challenges in sustaining the collection efficiency realized in 2021.

In 2023, receivables rose dramatically, while sales were still showing growth. However, RD increased to 51.21 days-the highest collection period level for these five years. A high collection of this order of magnitude suggests considerable delay in collecting customer payments, which may demonstrate looser credit controls, longer payment terms, or customers with reliability problems in paying. Such a very long collection period might make cash flow pressures on the company higher.

*Table 8. Payable days (Accounts payable/ purchases) *365*

Period	Payables	Cost of sales	PD
2019	29,333,526	65,814,158	163
2020	29,020,753	64,323,916	165
2021	30,157,681	72,454,395	152
2022	52,691,863	85,957,083	224
2023	62,430,799	99,661,778	229

BRALIRWA's PD increased from 163 days in 2019 to 229 days in 2023. This indicates that the company is taking longer to pay its suppliers over time. The most significant increase occurred between 2021 and 2022, where PD jumped from 152 to 224 days. This lengthening of the payment period suggests that BRALIRWA may be strategically delaying payments to

suppliers. This can be a way to manage cash flow by holding onto cash for longer before disbursing payments, which could free up working capital for other uses.

Table 9. CCC assessment (Receivable days + Inventory days - Payable days)

RD	ID	PD	CCC
24	102	163	(37)
37	113	165	(14)
17	98	152	(37)
33	138	224	(52)
51	131	229	(46)

Bralirwa's CCC is negative, which evidences that this firm receives cash from sales long before it has to pay its suppliers. The situation eventually provides the company with a very favorable cash flow position whereby operations can be funded without necessarily having to tap into its reserves or seek financing.

4.3 Evaluation of Profitability

In this section, the influence of working capital management on the financial decision-making process is emphasized with regard to BRALIRWA PLC. In doing so, key profitability ratios such as commercial, financial, and economic profitability are analyzed. Working capital management has a close interconnection with profitability since proper financial decisions in this area result in general financial health and profitability for the company. This will be achieved by the use of ratios, which permits meaningful relationships between two financial metrics that could help in establishing and interpreting some key aspects of BRALIRWA's performance about working capital management. These will reveal how well the company manages its short-term assets and liabilities, and their overall impact on profitability.

4.3.1 Ratio Analysis of BRALIRWA PLC

The profitability ratios are grouped into three categories, namely: Net profit margin ratio, ROE, ROA.

4.3.1.1 Net Profit Margin Ratio

The table provides a summary of BRALIRWA's net profit margin over a five-year period, showing both the net profit (in Rwf thousands) and total operating income, along with the calculated net profit margin percentage.

Table 10. Net profit margin ratio (in Rwf 000)

Period	2019	2020	2021	2022	2023
Net profit (1)	1,191,821	9,005,204	17,524,715	22,544,991	29,518,364
Total operating income	2,878,987	12,993,979	25,624,295	35,789,647	42,658,611
Net profit margin*100	41%	69%	68%	62%	69%

Source: BRALIRWA PLC, Annual report, 2019-2023

The net profit margin percentage fluctuates between 41% and 69%, with the highest margins observed in 2020 and 2023 (both at 69%). The strong growth in net profit from 2019 to 2023, particularly the jump in profit margins in 2020, suggests that BRALIRWA has been able to capitalize on its operational scale and maintain profitability despite challenges such as fluctuating economic conditions or rising costs. The steady growth in total operating income over the years indicates that the company has been able to expand its revenue base significantly, which combined with relatively stable high profit margins, shows robust financial health.

A net profit margin of 69% in 2020 and 2023 reflects high efficiency, meaning that for every Rwf 1 of revenue, BRALIRWA was able to retain Rwf 0.69 as profit. This is a sign of effective

cost management and pricing strategy, where the company has successfully minimized costs relative to its revenue generation.

4.3.1.2 Return on Equity Ratio (ROE)

The table provides data on BRALIRWA PLC's **Return on Equity (ROE)** from 2019 to 2023.

ROE is a key profitability metric that shows how effectively a company is generating profit from its shareholders' equity.

Table 11. Return on Equity (in Rwf 000)

Period	2019	2020	2021	2022	2023
Net profit	1,191,821	9,005,204	17,524,715	22,544,991	29,518,364
Shareholder' equity	2,878,987.00	42,587,536	51,112,263	56,140,707	63,123,102
Return on equity (ROE)	3%	21%	34%	40%	47%

Source: BRALIRWA PLC, Annual report, 2019-2023

The sharp increase in ROE from 3% in 2019 to 47% in 2023 shows that BRALIRWA has drastically improved its efficiency in using shareholders' equity to generate profits. This suggests better operational management, improved working capital efficiency, and effective cost control during this period. Shareholders' equity, which represents the net worth of the company and the capital invested by shareholders, has also grown significantly, from Rwf 2.88 billion in 2019 to Rwf 63.12 billion in 2023. This indicates that BRALIRWA has been able to accumulate more capital, likely through retained earnings and capital injections, which strengthens its financial base.

4.3.1.3 Return on Asset Ratio (ROA)

The table below presents the five-year trend of ROA for BRALIRWA PLC, relating the company's net profit to its total assets. The ROA is considered an important profitability ratio by several people, as it indicates how well an organization has utilized its resources in generating profit.

Table 12. Trend on Return on assets (in Rwf 000)

Period	2019	2020	2021	2022	2023
Net profit	1,191,821	9,005,204	17,524,715	22,544,991	29,518,364
Total assets	121,741,195	127,270,756	116,407,878	155,989,056	191,930,852
Return on assets (ROA)	0.9%	7%	15%	14.4%	15.3%

Source: BRALIRWA PLC, Annual report 2020-2023

The increasing Return on Assets (ROA) from 0.9% in 2019 to 15.3% in 2023 reflects BRALIRWA's remarkable improvement in asset utilization and profitability. The company's growing asset base, combined with its ability to generate higher returns from these assets, demonstrates strong financial management and operational efficiency. Despite a slight dip in 2022, BRALIRWA has shown resilience and the capacity to turn investments into profits, positioning the company for continued growth and success.

4.4 Relationship between Working Capital Management and Profitability

The main target of this study is to examine the relationship between WCM and profitability, the results are presented below.

4.4.1 Destructive Statistics

Overview of some key financial and operational metrics for BRALIRWA PLC for a period of five years are summarized in Table 13 below. The table shows the mean, which is the average value, the standard deviation that tells about the dispersion/variability about the mean, and the number of observations, N, which is 5, since data for five years is considered. This table presents data on Inventory Days, Receivable Days, Payable Days, Cash Conversion Cycle, Return on Assets, Return on Equity, and Profit Margin.

Table 13. statistics

	Mean	Std. Deviation	N
ID	116.620	17.4961	5
RD	32.400	13.2610	5
PD	186.320	36.7251	5
CCC	-37.320	14.5749	5
ROA	10.5884%	6.37413%	5
ROE	29.1593%	17.19511%	5
Profit Margin	62.2562%	11.94887%	5

With a negative CCC, firms seem to be very effective in managing working capital, as it would imply that cash inflows come faster than cash outflows. The profit margin also shows that they have high profitability. The firms are reasonably efficient, as reflected by the ROA of 10.59%, whereas the shareholders seem to gain terrific returns evidenced by the high ROE of 29.16%. The fact that ROE and profit margin differ suggests that, even though these companies are overall profitable, the level of profitability differs across the sample.

4.4.2 Correlations

The table below shows the Pearson correlation coefficients between the variables of ID, RD, PD, CCC as independent variables and ROA, ROE, Profit Margin as dependent variables.

Table 14. Correlations

		ID	RD	PD	CCC	ROA	ROE	Profit Margin
ID	Pearson Correlation	1						
RD	Pearson Correlation	.742	1					
PD	Pearson Correlation	.956*	.754	1				
CCC	Pearson Correlation	-.536	-.101	-.688	1			
ROA	Pearson Correlation	.786	.663	.830	.713	1		
ROE	Pearson Correlation	.753	.686	.797	.631	.969**	1	
Profit Margin	Pearson Correlation	.827	.795	.656	.505	.785	.781	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

ID is strongly positively correlated with ROA, 0.786; ROE, 0.753; and Profit Margin, 0.827, thereby showing that whatever ID is a proxy for may be positively linearly related to company performance measures such as profitability and returns. RD is highly correlated to Profit Margin, at 0.795, ROA at 0.663, and ROE at 0.686; hence, firms that spend on R&D tend to exhibit high returns and profit margins. PD is highly correlated with ROA, at 0.830, and ROE, at 0.797. These are the highest correlations among the variables studied and hence can be said to contribute mainly to profitability and returns. Overall, the correlations highlight BRALIRWA's focus on balancing receivables, payables, and inventory to optimize liquidity while maintaining profitability and shareholder value.

4.4.3 Multiple Regressions

Multiple regression analysis, like regression analysis evaluates the relationship between the multiple variables. R square means how much percentage is explained by the benchmark index.

R square can vary from 0% to 100%. An R square of 100% means that the entire index is explained by the variable.

4.4.3.1 Return on Asset Model

The following table presents important statistics from a regression analysis. More than likely, the dependent variable is a measure of profitability, ROA, or some other measure of financial performance. The independent variables or predictors of CCC are ID, or Inventory Days, PD, or Payable Days, and RD, or Receivable Days.

Table 15. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.603 ^a	.682	.703	5.17002%

a. Predictors: (Constant), CCC, ID, PD, RD

The model also accounted for 68.2% of variance in the dependent variable, using CCC, ID, PD, and RD as predictors, with an R^2 of 0.682. Adjusted for the number of predictors, this model still explained 70.3% of the variability, Adjusted $R^2 = 0.703$, hence it is well fitted and does not suffer from overfitting. The coefficient of correlation of $R = 0.603$ shows that there is a good relationship between the independent variables and the dependent variables. The 5.17% standard error of estimate would explain that the model prediction is on average fairly close to the actual data points with a moderate level of prediction error.

Therefore, this model seems to be adequate in explaining the dependency between the independent variables CCC, ID, RD, and the dependent variable in light of the relatively high proportions of explained variance and a moderate degree of prediction accuracy.

This regression table analyzes the influence of the four independent variables-ID, PD, RD, CCC-on the dependent variable-ROA-.

Table 16. Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.563	0.02		3.56	0.003
	ID	-0.241	0.028	0.799	1.641	0.003
	RD	-0.25	0.039	-0.029	-0.188	0.144
	CCC	-0.262	0.084	0.571	2.407	0.004
	PD	0.387	0.268	0.442	-3.023	0.237

The unstandardized coefficients of the dependent variable reflect the amount by which it is expected to change for a one-unit increase in each predictor. Thus, ID and CCC had negative influences of -0.241 and -0.262, respectively, while PD was having a positive effect of 0.387 and RD was working out as a very small negative effect of -0.25. The standardized coefficients show that the variables with the strongest relative impacts on the dependent variable are ID and CCC, 0.799 and 0.571, respectively; while the ones which have weaker effects are PD and RD. By significance values (Sig.), ID with a p-value of 0.003 and CCC with a p-value of 0.004 are statistically significant predictors of the dependent variable, while the variables PD and RD are not, their p-values being 0.237 and 0.144, respectively. That implies that ID and CCC are the ones making significant and measurable effects on the outcome, while the effects of PD and RD are not statistically robust in this model.

The regression equation is structured as follows.

$$Y = \text{ROA} = 0.563 - 0.241 X_1 - 0.250 X_2 - 0.262 X_3 + 0.387 X_4 + 0.0517002$$

This regression model predicts ROA, based on the four independent variables: ID, RD, CCC, and PD. The constant of 0.563 represents the baseline ROA in case all the independent variables are zero. It also shows from the model that positive changes in ID, RD, and CCC

negatively affect ROA, as evidenced by the coefficients -0.241, -0.250, and -0.262, respectively. That simply means an increase in these variables leads to a decrease in ROA. In contrast, PD has a positive influence on ROA with a coefficient of 0.387, indicating that as PD increases, so does the ROA. The implications are that from among all the factors that were selected and influence ROA, PD has the most positive impact, while for the negative impact, it is CCC. The model below shows how these factors combined influence a firm's profitability through ROA.

4.4.3.2 Return on Equity Model

This table summarizes key results of a regression model in which the dependent variable is likely profitability-ROE, or another financial performance metric-and whose independent variables/ predictors are CCC, ID, PD and RD.

Table 17. Model Summary

Model	R	R Square	Adjusted Square	Std. Error of the Estimate
1	.722 ^a	.522	.814	5.78812%

a. Predictors: (Constant), CCC, ID,PD, RD

These variables explain the variation of the dependent variable-likely profitability for CCC, ID, and RD-by building the model. The values of $R = 0.722$ show strong positive correlation between predictors and the dependent variable, and this normally implies that the factors tend to move along with profitability. $R^2 = 0.522$ implies that 52.2% of the variation in the dependent variable is explained by the independent variables. Evidence of a relatively reasonable model fit would, therefore, suggest that other factors outside the boundaries of the model determine profitability beyond these variables. R^2 Adjusted = 0.814 suggests that the model explains 81.4% of the variance of profitability after adjusting for the number of predictors. Therefore,

profitability is strongly and reliably explained by the model. An obtained Standard Error of 5.78812% means the predictions were fairly close to the actual values, hence a reasonable prediction error.

The model shows a strong fit and suggests that CCC, ID, PD and RD play a significant role in explaining the variability in the dependent variable (profitability or ROE).

This regression table analyzes the impacts of four independent variables-ID, RD, PD, CCC-on the dependent variable.

Table 18. Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.689	0.03		3.72	0.004
1 ID	0.278	1.062	0.794	1.735	0.002
RD	-0.43	1.644	-0.031	-0.209	0.037
CCC	-0.056	0.126	-0.541	2.1	0.001
PD	0.247	0.229	0.543	-3.154	0.134

The intercept constant of 0.689 is interpreted to be the base ROE that a firm will attain when all the variables are at zero. Among the presented variables in the model, the ID has the most influential coefficient of 0.278 and is highly significant with a p-value of 0.002. CCC has a negative influence on ROE: its coefficient is -0.056 and also statistically significant-its p-value is 0.001. RD shows a negative effect that is bringing down ROE with a coefficient of -0.43 but shows its effect to be less effective as the p-value is 0.037. While PD is 0.247, which sounds positive for ROE, it is insignificant as its p-value is 0.134. The overall picture is that ID and

CCC are the strongest predictors, while PD and RD show weaker effects within the model. The regression equation is structured as follows.

$$Y = \text{ROE} = 0.689 + 0.278 X_1 - 0.43 X_2 - 0.056 X_3 + 0.247 X_4 + 0.057881$$

This regression model predicts Return on Equity (ROE)*, using four independent variables: ID (X1), RD (X2), CCC (X3), and PD (X4). The constant of 0.689 represents the value of ROE for the baseline, when all variables are at zero. The model thus infers that ID (X1) and PD (X4) have positive effects on ROE with 0.278 and 0.247, respectively, implying that the higher the values of these variables, the higher the ROE. In contrast, the coefficients of RD (X2) and CCC (X3) are negative, at -0.43 and -0.056, respectively, showing that increases in these variables decrease ROE. Of all the determinants, ID exerts the most positive effect, while **RD** is the most negative on ROE. This model could therefore be utilized in the prediction of the level of ROE, given the changes in the four independent variables.

4.4.3.3 Profit Margin Model

The result of regression analysis where the dependent variable probably is some profitability variable—for example, Profit margin—and independent variables or predictors are CCC, or Cash Conversion Cycle, RD, PD, and ID, has been shown in the following table.

Table 19. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.670 ^a	.721	.696	4.08919%

a. Predictors: (Constant), CCC, RD, PD, ID

The model uses CCC, RD, PD and ID as regressors for explaining the variation in the dependent variable. R= 0.670 reflects that there is a positive moderate correlation between the independent

variables and the dependent variable, which would mean that changes in CCC, RD, and ID are associated with changes in profitability. $R^2 = 0.721$ implies that 72.1% of the variation in the variable is explained by CCC, RD, and ID. This infers that the model explains a large part of the variability in the dependent variable. It has an Adjusted $R^2 = 0.696$, further confirming that the strength of the model is such that even adjusted for the number of predictors, the model still explains 69.6% of the variation, hence robust. This claim is also supported by the standard error of 4.09%, in that the model makes its predictions within a very small margin of error, further indicating a good fit.

Overall, this model postulates that CCC, RD, PD and ID are significant factors that influence profitability, with a moderate to strong positive relationship.

Table 20. Coefficient^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.712	0.025		3.15	0.002
	ID	0.296	0.015	0.634	1.238	0.001
	RD	-0.204	0.022	-0.138	-0.107	0.006
	CCC	0.286	1.006	0.448	2.284	0.002
	PD	0.355	0.303	0.372	-2.992	0.234

It can be noticed from the standardized coefficients that CCC is slightly bigger than ID and RD, but even this effect is small and not statistically significant. This regression analysis was done to establish the relationship that existed between the dependent variable and the independent variables: ID, RD, CCC, and PD. From the unstandardized coefficients, the

influences of ID and CCC on the dependent variable are positive, while the influence of RD is observed to be negative. Standardized coefficients revealed that ID has the strongest positive influence, followed by CCC, while the influence of RD was weaker and negative. The p-values show from the significance values that ID, RD, and CCC are statistically significant predictors because their p-values are less than 0.05. At the same time, PD is not a statistically significant predictor because its p-value is 0.234, which is greater than the generally accepted threshold level of 0.05, hence it doesn't explain the dependent variable.

The regression equation is structured as follows.

$$\mathbf{Y = Profit\ margin = 0.712 + 0.296 X1 - 0.204 X2 + 0.286 X3 + 0.355 X4 + 0.0408919}$$

This regression model prediction is based on four variables: X1, X2, X3, and X4. From this equation, in cases when all the variables are zero, at that instance, the profit margin usually happens to be the baseline of 0.712. X1 and X3 tend to have a positive effect on profit margin; hence, increases in these variables are related to increased profit margins with coefficients of 0.296 and 0.286, respectively. In turn, X2 has a negative coefficient of -0.204, indicating that as this variable increases, it negatively affects the profit margin. Similarly, with a coefficient of 0.355, X4 positively affects the profit margin. The generally small standard error, 0.0408919, indicates relatively low unexplained variability in this model. Conclusively, this model performs really well and explains how the profit margin varies with these four variables.

GENERAL CONCLUSION AND RECOMMENDATIONS

This section presents a summary of the findings analyzed in Chapter Four, utilizing the appropriate statistical tools. It also outlines the study's limitations and proposes areas for future research. Additionally, the chapter provides policy recommendations and draws conclusions based on the findings.

Summary of findings

The findings focus on working capital management and its association with the profitability of BRALIRWA PLC. The study will also be assessing inventory management, receivable management, payable management, and cash conversion cycle from 2019-2023.

Inventory management: BRALIRWA's inventory management was highly variable. Raw materials have steadily increased from 7.7 billion Rwf in 2019 to 18.6 billion Rwf in 2023, indicating the increase in either the production capacity or the cost of inputs. Fluctuations around work-in-progress and finished goods inventories, however, point to poor production efficiency. The other inventory categories, such as spare parts, also grew steadily, reflecting the company's focus on maintenance and operational resilience.

Receivable Management: Receivables have increased sharply from 3.76 billion Rwf in 2019 to a striking 26.22 billion Rwf in 2023, with this extreme surge signaling potential issues in the management of customers' credits and delayed collections of payments. Impairment losses remained flat, indicating that BRALIRWA has kept credit risk under control, as reflected by the increasing trend in receivables. This means that an increasing share of the group's revenues is blocked in outstanding debtors, thereby exposing cash flow to risk.

Payable Management: BRALIRWA extended the length of the payment period: this is reflected by the change in trade payable from 3.69 billion Rwf in 2019 to 18.99 billion Rwf in 2023, while payable days increased from 163 in 2019 to 229 in 2023. The increase in deposits

for returnable containers also indicates that low-cost customer financing is on the rise, from 14.06 billion Rwf to 25.22 billion Rwf. However, other payables show steady growth, which reflects increasing short-term liability that could become stretched in terms of liquidity if the situation is not adequately managed.

Cash Conversion Cycle: The company remained negative for the five-year period, meaning cash inflows from customers came in before supplier payments were due. The CCC improved from -14 days in 2020 to -46 days in 2023. This would indicate a very strong efficiency in working capital and therefore the ability of BRALIRWA to finance operations without dipping into reserves or using external financing.

Profitability Analysis: The profitability indicators included net profit margin, ROA, and ROE-strictly positive trending. Net profit margins have always been above 60%, peaking to 69% in 2020 and repeating the same in 2023, indicating efficient cost management and an effective scaling of operations. ROE increased from 3% in 2019 to 47% in 2023, showing the increase in profitability relative to the equity of shareholders. Correspondingly, ROA increased from 0.9% to 15.3%, reflecting a better use of assets.

WCM-profitability relationship: There were strong positive relations between ID, RD, PD, and profitability measures of ROA, ROE, and profit margin. Based on the regression analysis, ID and CCC came out as significant predictors of profitability. Inventory days were positively correlated with ROA 0.786, ROE 0.753, and profit margin 0.827, therefore showing that efficiency in inventory levels ensures higher levels of profitability. On the other hand, profitability is negatively influenced by longer receivable days, which means that collections delay impinge negatively on financial performance.

Conclusion

The findings support that BRALIRWA PLC has put in place effective working capital management practices that have contributed a lot to its profitability. A strategic extension of payment terms with the view of optimizing cash flow has seen it through maintaining a negative CCC, hence positively influencing liquidity. Optimal payables management is extended to the firm to ensure that its time for settling debts is lengthened, hence freeing cash for use in other areas of operation. From the standpoint of profitability, BRALIRWA has put up a resilient performance in maintaining a high-profit margin continuously improving return on assets and equity. This means the company used resources efficiently to generate profits, reflecting good operational management and focus on long-term growth.

On the other hand, the increase in trade receivables, especially in 2023, brought a certain degree of risk to cash flow stability. If left unchecked, this may affect the company's capability to meet its short-term liabilities and thus affect liquidity. Besides, the ups and downs in inventory turnover show that there is a need for improvement in demand forecasting and production planning to avoid overstocking or underproduction.

Recommendations

1. Improved Inventory Efficiency:

At BRALIRWA, while much effort has been made to improve the inventory position of work-in-progress and finished goods, much more still needs to be done. Investment can be made in technology that supports inventory management software and demand forecasting to identify the correct stock position. This would also help not only in the reduction of carrying cost but also in the smoothness of production cycles and quick inventory turns.

2. Improved Receivable Management:

This is a cause for concern and may reflect negatively on cash flows. BRALIRWA needs to re-evaluate the credit policies and impose stricter credit terms with its customers. Automation of its systems for invoicing and collection of payments may also reduce customer payment delays. Secondly, monitoring accounts outstanding regularly as well as pro-actively collecting those accounts will reduce the risks of bad debts from customers.

3. Monitor and Optimize Payables Strategy:

Though the extension of payment terms is helpful in improving cash flow, BRALIRWA should not overextend this method so that it does not stress the relationship with suppliers. It is supposed to perform its activities to realize an optimum cash flow position without being too aggressive on supplier terms. This will help negotiate better payment terms from critical suppliers, thereby sustaining the liquidity position of the company.

4. Continue Focusing on Profitability Enhancement:

The key strength is the profitability of BRALIRWA. This positive trend should be maintained by the company through cost-effective management and exploring more growth opportunities in domestic and international markets. Increases in revenues can be achieved by expansion of the product line, enhancements in operation efficiencies, and effective marketing strategies with the aim of attaining high-profit margins.

Recommendations for further Research

1. Impact of Macroeconomic Conditions:

Future research could focus on how working capital management and profitability of BRALIRWA are affected by various exogenous macroeconomic factors: inflation, currency

fluctuations, and interest rate fluctuation. One could receive insight into how the variables impact the financial performance of the company and would understand the manner in which BRALIRWA would be in an advantageous position to survive from economic volatility.

2. Comparative Study with Industry Peers:

A comparative review of BRALIRWA's practice of working capital management against other companies operating within the beverage and manufacturing sectors would be informative in terms of best practices and avenues for improvement. This will help benchmark BRALIRWA's performance against that of its competitors and outline certain efficiency gains.

3. In-depth Analysis of Customer Payment Patterns:

Since there is an increasing trend in the trade receivables, further research would be done on studying the different paying habits of the customers and also the reason for delay in the collection. This may allow the identification of certain customer segments whose credit risk is greater, therefore allowing BRALIRWA to develop differentiated credit policy and collection policy for such segments.

Addressing these areas would position the company for sustained financial growth and operational success.

REFERENCES

1. **Afza, T., & Nazir, M. S. (2017).** *Is Working Capital Management a Value-creating Strategy?* International Research Journal of Finance and Economics, 52(4), 140-152.
2. **Bagh, T., Nazir, M. I., Khan, M. A., & Khan, M. F. (2016).** *The Impact of Working Capital Management on Firms' Profitability: A Case of Pakistan's Cement Industry.* International Journal of Business and Social Science, 7(2), 121-127.
3. **Deloof, M. (2018).** *Does Working Capital Management Affect Profitability of Belgian Firms?* Journal of Business Finance & Accounting, 30(3-4), 573-587.
4. **Gill, A., Biger, N., & Mathur, N. (2016).** *The Relationship between Working Capital Management and Profitability: Evidence from the United States.* Business and Economics Journal, 10(1), 1-9.
5. **Lazaridis, I., & Tryfonidis, D. (2018).** *The Relationship between Working Capital Management and Profitability of Listed Companies in the Athens Stock Exchange.* Journal of Financial Management and Analysis, 19(1), 26-35.
6. **Mogaka, O., & Jagongo, A. (2018).** *Working Capital Management and Firm Profitability: Empirical Evidence from Manufacturing and Construction Firms Listed on Nairobi Securities Exchange, Kenya.* International Journal of Accounting and Taxation, 6(1), 79-90.
7. **Nwankwo, O., & Osho, G. S. (2019).** *Impact of Working Capital Management on the Profitability of Selected Quoted Firms in Nigeria.* Journal of Economics and Sustainable Development, 10(5), 73-83.
8. **Pandey, I. M. (2020).** *Financial Management.* 11th Edition. Vikas Publishing House Pvt Ltd.
9. **Raheman, A., & Nasr, M. (2017).** *Working Capital Management and Profitability – Case of Pakistani Firms.* International Review of Business Research Papers, 3(1), 279-300.
10. **Sharma, A. K., & Kumar, S. (2018).** *Effect of Working Capital Management on Firm Profitability: Empirical Evidence from India.* Global Business Review, 12(1), 159-173.
11. **Smith, K. V. (2021).** *Management of Working Capital.* Journal of Financial Research, 21(2), 231-239.
12. **Tauringana, V., & Afrifa, G. A. (2018).** *The Relative Importance of Working Capital Management and Its Components to SMEs' Profitability.* Journal of Small Business and Enterprise Development, 20(3), 453-469.
13. **Uyar, A. (2020).** *The Relationship of Cash Conversion Cycle with Firm Size and Profitability: An Empirical Investigation in Turkey.* International Research Journal of Finance and Economics, 11(2), 186-193.

14. **Wambua, J. M., & Musiega, M. G. (2017).** *Effects of Working Capital Management on Profitability of Manufacturing Firms in Kenya: A Case Study of Mumias Sugar Company Limited.* European Journal of Business and Management, 4(3), 233-245.
15. **Zariyawati, M. A., Annuar, M. N., Taufiq, H., & Abdul Rahim, A. S. (2017).** *Working Capital Management and Corporate Performance: Case of Malaysia.* Journal of Modern Accounting and Auditing, 5(11), 47-54.

APPENDICES

BRASSERIES ET LIMONADERIES DU RWANDA (BRALIRWA) PLC
STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME
FOR THE YEAR ENDED 31st DECEMBER 2023

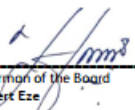
Year ended 31st December 31 st December	Notes	2023 Rwf '000	2022 Rwf '000
Revenue	6.1	183,681,849	157,656,425
Cost of sales		(99,661,778)	(85,957,083)
Gross profit		84,020,071	71,699,342
Other income	6.2	1,137,525	580,453
Selling and distribution costs		(17,245,311)	(15,976,838)
Administrative expenses		(13,581,216)	(14,411,715)
Impairment charge for related party loan		-	-
Impairment charge for Trade receivables		167,286	279,830
Total expenses		(30,659,241)	(30,108,723)
Results from operating activities		54,498,355	42,171,072
Foreign Exchange gains/(losses)	11.1	(7,003,211)	(2,357,630)
Finance costs	11.1	(4,836,533)	(4,023,795)
Net finance cost		(11,839,744)	(6,381,425)
Profit before income tax		42,658,611	35,789,647
Income tax expense	12.1	(13,140,247)	(13,244,656)
Profit after tax		29,518,364	22,544,991
Other Comprehensive Income		-	-
Total comprehensive income for the year		29,518,364	22,544,991
Attributable to:			
Equity holders of the parent		22,138,773	16,908,743
Equity attributable to other shareholders		7,379,591	5,636,248
		29,518,364	22,544,991
Basic earnings per share – Rwf	6.7	28.70	21.92

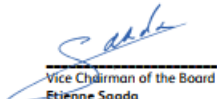
The notes set out on pages 46 to 88 are an integral part of these financial statements.

BRASSERIES ET LIMONADERIES DU RWANDA (BRALIRWA) PLC
STATEMENT OF FINANCIAL POSITION
FOR THE YEAR ENDED 31st DECEMBER 2023

Year ended 31st December	Notes	2023	2022
		Rwf '000	Rwf '000
Assets			
Non-current assets			
Property, plant and equipment	6.6	120,562,007	102,646,554
Intangible assets	8.2	919,796	965,665
Investments	8.4	9,224	9,224
Receivable from related parties - principal	13.2	587,706	587,706
Total non-current assets		122,078,733	104,209,149
Current assets			
Inventories	7.1	35,783,529	32,526,497
Receivable from related parties	13.2	3,025,898	3,009,020
Trade and other receivables	7.2	25,768,827	14,358,259
Tax recoverable	12.1	1,394,669	-
Bank and cash balances	11.2	3,879,196	1,886,131
Total current assets		69,852,119	51,779,907
Total assets		191,930,852	155,989,056
Equity & Liabilities			
Equity			
Share capital	11.4	5,142,850	5,142,850
Share premium	11.4	84,857	84,857
Other reserves	11.4	2,071,990	2,071,990
Retained earnings	11.4	55,823,405	48,841,010
Total equity		63,123,102	56,140,707
Liabilities			
Non-current liabilities			
Loans and borrowings LT	11.3	16,450,012	18,055,569
Lease liability non current portion	11.3	308,537	186,982
Deferred tax liability	12.2	7,671,922	4,178,594
Total non-current liabilities		24,430,471	22,421,144
Current liabilities			
Loans and borrowings ST	11.3	-	-
Bank Overdraft	11.2	25,764,809	13,299,419
Lease liability current Portion ⁴	11.3	282,215	194,162
Payable to related parties	13.2	15,899,456	6,201,795
Trade and other payables	7.3	62,430,799	52,691,863
Tax payable	12.1	-	5,039,965
Total current liabilities		104,377,279	77,427,205
Total liabilities		128,807,750	99,848,349
Total equity and liabilities		191,930,852	155,989,056

The Board of Directors approved the financial statements set out on pages 42 to 45 on 22nd March 2024, and were signed on its behalf by:


Chairman of the Board
Hubert Eze


Vice Chairman of the Board
Etienne Saada

BRASSERIES ET LIMONADERIES DU RWANDA (BRALIRWA) PLC
STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME
FOR THE YEAR ENDED 31 DECEMBER 2021

	Notes	2021 Rwf '000	2020 Rwf '000
Revenue	6.1.1	123,596,476	100,520,707
Cost of sales		(72,454,395)	(64,323,916)
Gross Profit		51,142,081	36,196,791
Other income	6.2	785,017	461,284
Selling and distribution costs	6.1.3	(10,646,726)	(3,178,720)
Administrative Expenses	6.1.4	(9,949,050)	(10,136,997)
Impairment charge for related party loan 1	10.1	-	(3,516,397)
Impairment charge for Trade receivables 2	7.2	(117,810)	
Total expenses		(20,713,586)	(16,832,094)
Results from Operating Activities		31,213,512	19,825,981
Foreign Exchange gains/(losses) ³	11.1b	(1,150,652)	(1,333,828)
Finance costs	11.1a	(4,438,565)	(5,498,174)
Profit before income tax		25,624,295	12,993,979
Income tax expense	12.1	(8,099,580)	(3,988,775)
Profit after tax		17,524,715	9,005,204
Other Comprehensive Income		-	-
Total comprehensive Income for the year		17,524,715	9,005,204
Basic and diluted earnings per share	6.7	17.03	8.75

BRASSERIES ET LIMONADERIES DU RWANDA (BRALIRWA) PLC
STATEMENT OF FINANCIAL POSITION AS AT 31 December 2021

Year ended 31 December	Notes	2021 Rwf '000	2020 Rwf '000
ASSETS			
Non-current assets			
Property, plant and equipment & Right of Use assets	6.6&8.3	84,980,931	87,554,336
Intangible assets	8.2	1,535,817	1,696,529
Equity Investments	8.4	9,224	9,224
Receivable from related parties- principal	13.2	592,160	-
Total non-current assets		87,118,132	89,260,089
Current assets			
Inventories	7.1	19,474,631	19,962,794
Receivable from related parties	13.2	1,314,757	1,934,132
Trade and other receivables	7.2	5,618,110	10,261,117
Tax recoverable	12.1	1,018,636	895,783
Bank and cash balances	11.2	1,863,612	4,956,841
Total current assets		29,289,746	38,010,667
Total assets		116,407,878	127,270,756
Equity & Liabilities			
Equity			
Share capital	11.4	5,142,850	5,142,850
Share premium	11.4	84,857	84,857
Other reserves	11.4	2,071,990	2,071,990
Retained earnings		43,812,566	35,287,839
Total equity		51,112,263	42,587,536
Liabilities			
Non-current liabilities			
Loans and borrowings LT	11.3.1	8,273,943	11,343,015
Lease liability non current portion ^a	11.3.2	186,983	268,529
Deferred tax liability	12.2	5,095,126	4,194,803
Total non-current liabilities		13,556,053	15,806,347
Current liabilities			
Loans and borrowings ST	11.3.1	3,186,290	6,138,140
Bank overdraft ^a	11.2	11,601,697	29,837,015
Lease liability current portion ^a	11.3	55,397	53,734
Payable to related parties	13.2	6,738,497	3,880,965
Trade and other payables	7.3	30,157,681	28,967,019
Total current liabilities		51,739,562	68,876,873
Total liabilities		65,295,615	84,683,220
Total equity and liabilities		116,407,878	127,270,756

The Board of Directors approved the financial statements set out on pages 57 to 60 on 24 March 2022 and were signed on its behalf by:

Chairman of the Board
Pascal Sabirié

Vice Chairman of the Board
Etienne Saada

BRASSERIES ET LIMONADERIES DU RWANDA (BRALIRWA) Plc
STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME FOR THE YEAR
ENDED 31 DECEMBER 2020

Year ended 31 December	Notes	2020 Rwf '000	2019 Rwf '000
Revenue	6.1	100,520,707	100,691,220
Cost of sales		(64,323,916)	(65,014,150)
Gross profit		36,196,791	34,877,062
Other income	6.2	461,204	460,926
Selling and distribution costs		(3,170,720)	(7,056,330)
Administrative expenses		(10,003,760)	(12,420,145)
Other operating expenses		(3,569,606)	(4,394,763)
Total expenses		(16,832,094)	(24,679,238)
Results from operating activities	6.1.2	19,825,981	10,666,750
Finance costs		(6,032,002)	(7,707,763)
Net finance cost	11.1	(6,832,002)	(7,787,763)
Profit before income tax		12,993,979	2,878,987
Income tax expense	12.1	(3,900,775)	(1,607,166)
Profit after tax		9,005,204	1,191,821
Other Comprehensive Income		-	-
Total comprehensive income for the year		9,005,204	1,191,821
Basic earnings per share – Rwf	6.7	8.75	1.16


BRASSERIES ET LIMONADERIES DU RWANDA (BRALIRWA) Plc
STATEMENT OF FINANCIAL POSITION AS AT 31 DECEMBER 2020

Year ended 31 December	Notes	2020 Rwf '000	2019 Rwf '000
Assets			
Non-current assets			
Property, plant and equipment	6.6	87,554,336	85,913,732
Intangible assets	8.2	1,696,529	1,672,476
Investments	8.4	9,224	1,165,720
Receivable from related parties - principal	13.2	-	-
Total non-current assets		89,260,089	88,751,928
Current assets			
Inventories	7.1	19,962,794	18,476,947
Receivable from related parties	13.2	1,934,132	3,266,241
Trade and other receivables	7.2	10,261,117	6,530,138
Tax recoverable	12.1	895,703	451,909
Bank and cash balances	11.2	4,956,841	4,264,032
Total current assets		38,010,667	32,989,267
Total assets		127,270,756	121,741,195
Equity & Liabilities			
Equity			
Share capital	11.4	5,142,850	5,142,850
Share premium	11.4	84,857	84,857
Other reserves	11.4	2,071,990	2,071,990
Retained earnings	11.4	35,287,839	27,311,205
Total equity		42,587,536	34,610,902
Liabilities			
Non-current liabilities			
Loans and borrowings LT	11.3	11,611,544	17,412,763
Deferred tax liability	12.2	4,194,803	5,004,870
Total non-current liabilities		15,806,347	23,217,641
Current liabilities			
Loans and borrowings ST	11.3	35,975,155	28,149,479
Payable to related parties	13.2	3,300,965	6,429,647
Trade and other payables	7.3	29,020,753	29,333,526
Total current liabilities		68,876,873	63,912,652
Total liabilities		84,683,220	87,130,293
Total equity and liabilities		127,270,756	121,741,195

The Board of Directors approved the financial statements set out on pages 55 to 110 on 20 May 2021 and were signed on its behalf by:



Chairman of the Board



Vice Chairman of the Board