

**WORKING CAPITAL DRIVERS AND FINANCIAL
SUSTAINABILITY OF PUBLIC UNIVERSITIES IN
KENYA**

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**Working Capital Drivers and Financial Sustainability of Public
Universities in Kenya**

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University

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DEDICATION

I dedicate this thesis to God Almighty my creator, my strong pillar, my source of inspiration, wisdom, knowledge and understanding. He has been the source of my strength and good health throughout this PhD. program and it's on his wings that I have been able to accomplish this thesis. May the Almighty God shower all that have played a key role in this whole process with blessings.

Without the steadfast faith and support of my parents Mr. and Mrs. Kithinji, my wife Nancy Wambui, my children Stacy Kendi, Mcdalton Karia and McAuley Munene muriuki's and my relatives, the program would not have been possible. I am extremely grateful to them for their constant encouragement and support and I am thankful for their unwavering faith and support.

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ABBREVIATIONS AND ACRONYMS

ATR	Acid Test Level
JKUAT	Jomo Kenyatta University of Science and Technology
KU	Kenyatta University
NACOSTI	National Commission for Science, Technology and Innovation
NLB	Net Liquidity Balance
SOA	Surplus/Deficit on Assets
CD	Cash Drivers
SPSS	Statistical Package for Social Sciences
UoN	University of Nairobi
VC	Vice Chancellor
WCR	Working Capital Requirement
VIF	Variance Inflation Factor
SE	Natural Log Number of Students
AR	Account Receivable
AP	Account Payable
INV	Inventory
CR	Coverage Ratio
APT	Accounts Payable Turnover

APDR	Accounts Payable Days
ARDR	Account Receivable Days
ART	Account Receivable Turnover
DOS	Day Sales Outstanding

DEFINITION OF OPERATIONAL TERMS

Account Payable	Factors or elements that influence the accounts payable balance of a company (Hickey, 2024).
Account Receivable	It is the short-term amounts that buyers owe sellers after buying goods or services on credit and have to pay it back (Signer, 2010).
Cash	Key factors or variables that directly impact the cash flow of a business. They are essential for understanding and managing the flow of cash within an organization (Liu & Friga, 2022).
Financial Sustainability	The ability of an individual, organization, or entity to maintain its financial health and viability over the long term (Wang & Alon, 2023).
Inventory	Factors that influence the level of inventory a business needs to maintain to meet customer demand while minimizing costs and maximizing operational efficiency (Dewangan, 2025).
Student Enrollment	Process by which individuals register or sign up for educational programs, courses, or classes offered by academic institutions (Akbar, 2021).
Working Capital drivers	Key factors or variables that influence the level and efficiency of a company's working capital (

ABSTRACT

The general objective of this study was to determine the effect of working capital drivers on financial sustainability of public universities in Kenya, which was guided by the following independent variables; effect of account payable on financial sustainability of public universities in Kenya, effect of account receivable on financial sustainability of public universities in Kenya, effect of inventory on financial sustainability of public universities in Kenya and the effect of cash on financial sustainability of public universities in Kenya. The study faced limitations related to access constraints, reliance on secondary data, correlational analysis, and a restricted focus on Kenyan public universities, which limited causal inference and broader generalizability. However, these challenges were mitigated through official approvals, data verification, careful period selection, and methodological rigor, ensuring the credibility and internal validity of the findings. The study was anchored on trade off theory, Liquidity Preference Theory, Operating Cycle Theory, Cash Management Theory and Resource Dependence Theory. The scope of the study was based on public universities in Kenya for period between years 2019 to 2022. This study adopted a descriptive and explanatory research design. The study used panel regression. The auditor general's office provided the secondary data. The research concluded that the financial sustainability of Kenya's public universities is influenced by many working capital metrics, including cash, accounts receivable, inventory drivers, and accounts payable. A correlation between working capital and the financial sustainability of Kenya's public institutions was shown to be moderated by student enrollment. Additionally, it was observed that accounts receivable played a minimal role in determining the financial sustainability of public colleges in Kenya, but cash drivers played a major one. The research found that accounts payable, inventory, cash management and student enrollment had significant effects on financial sustainability, with cash emerging as the strongest predictor, while accounts receivable showed no significant aggregate effect. Overall, the findings led to rejection of all null hypotheses except for accounts receivable, confirming that liquidity-focused working capital practices, conditioned by enrollment levels, are central to sustainability in public universities. To enhance cash flow and minimize expenses, it is recommended that payment procedures should be streamlined, decrease days sales outstanding, and use inventory control systems. The policy suggestions also stress the need of maximizing the turnover of accounts payable, decreasing the number of days sales outstanding, enhancing the turnover of inventories, and keeping sufficient cash reserves. Accomplishing these objectives, bolstering financial sustainability, and upholding the academic purpose of the institutions all hinge on the implementation of simplified processes, effective monitoring mechanisms, and inventory tracking systems.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Working capital drivers are the key factors or variables that influence the level and efficiency of a company's working capital. Working capital refers to the difference between a company's current assets such as cash, accounts receivable, and inventory) and its current liabilities (such as accounts payable and short-term debt (Kiymaz, 2024). Hickey (2024) describes working capital as the cash available for the day-to-day operations in an organization. Increasing surplus on assets and minimizing the risk of going bankrupt is the main objective of a good management of both current assets and current liabilities. Kiymaz (2024) argued that working capital involves controlling and planning the gross current assets as against the net working capital, which deals with the cash of an organization. Goods, services and merchandise paid for upon delivery, goods and services provided on credit, merchandise purchased on credit, and the short-term loans are the main aspects of working capital. Managing working capital essentially entails managing the cash flow of a business on a daily, weekly and monthly basis in such a way that satisfies all debts while reserving enough capital to continue operations and the generation of profits.

The main objective of working capital is to strike a balance between liquidity, operational efficiency, and cost-effectiveness, contributing to the overall financial health of the business (Lindqvist & Ohlsson, 2023). For an organization to maintain its operations in the market it must maintain the right ratio of working capital, liabilities and assets. With most literatures carried out in the business world it had traditionally been concentrating on the study of financial decisions, which were long-term and had focused on the organization's performance. This had allowed scholars to concentrate on looking deep into analyzing the capital structure, dividend, investments and organization valuations. There have been surveys that had been carried out which indications is that executives spend a lot of time in coming up with a solution to their everyday problems which involves working capital decisions for their organizations (Raheman & Nasr, 2007).

When insufficient capital resources prevent organizations from paying their debts, they face bankruptcy. Organizations are able to pay all debts as they come due or mature if there is an efficient working capital. It also brings continued profitable operations in the business that put it at a good competitive edge. Kiyamaz (2024) argued that when calculating financial performance at the end of a financial period depending on how organizations look at it, a successful working capital allows them to break even. This implies that good working capital is connected to avoidance of organizational bankruptcy. Keeping working capital at a good stand allows organizations to prosper and prevent themselves from bankruptcy because inefficient working capital can lead to bankruptcy by preventing the generation of new capital with which to pay future debts or by preventing a business from paying off its liabilities.

The four pillars of the financial health of an organization include efficiency pillar, profitability pillar, liquidity pillar and leverage pillar. These pillars allow the analysis of the ratios used in the financial health to see which areas of an organization that should be focused on and helps keep organizations from falling hence they are important (Santosuosso, 2014). One of the most important aspects in ensuring an organization going concern and in attaining optimal liquidity position is a good working capital management of organizational entities (Liu & Friga, 2022). When making a trade-off between profitability and liquidity in a way that optimizes composition and amount of current assets and how they are financed, good working capital management is important in making decisions for organizations and companies as it allows better management of their assets (Wang & Alon, 2023). Kenyan universities have played a big role in the Kenyan economy as it has led to many positive impacts to the people of Kenya. In this study, researcher looked at public universities in Kenya.

Accounts payable management involves handling short-term liabilities owed to suppliers and service providers. Efficient management of accounts payable ensures that universities can maintain good relationships with their suppliers and secure favorable credit terms. Timely payments can lead to better supplier partnerships, potentially resulting in discounts and more favorable terms, which in turn can

improve cash flow management (Ayam, 2021). According to Akbar (2021), effective accounts payable management significantly influences the liquidity and operational efficiency of educational institutions, contributing to overall financial stability. By optimizing payment schedules and negotiating better terms, universities can free up cash that can be used for other critical operations, thus enhancing their financial sustainability.

Accounts receivable management is the process of ensuring timely collection of funds owed to the university by students, donors, and other entities. Effective management of accounts receivable is essential for maintaining a steady cash flow, which is critical for meeting the day-to-day operational costs of the university. Delayed collections can severely impact the financial health of an institution, leading to cash flow shortages and affecting its ability to fund essential services and investments. Dewangan (2025) highlights that stringent accounts receivable policies and efficient collection strategies are vital in sustaining the financial health of universities. Implementing robust credit policies and proactive collection practices can help mitigate the risks associated with delayed payments and enhance the financial sustainability of these institutions.

Inventory management in universities involves the oversight of educational materials, office supplies, and other consumables. Efficient inventory management ensures that the university has the necessary materials on hand to support educational activities without overstocking, which can tie up valuable resources. Poor inventory management can lead to stockouts, disrupting university operations, or overstocking, which can result in unnecessary costs (Dewangan, 2025). Dhole (2021) indicates that optimal inventory management practices contribute significantly to the financial sustainability of educational institutions by reducing waste and improving resource allocation. By implementing effective inventory control systems, universities can streamline their operations, reduce costs, and enhance their financial health.

Financial sustainability refers to the ability of an institution to maintain its financial health over the long term. For public universities, this involves managing resources efficiently to ensure that they can continue to provide high-quality education without

facing financial distress. Financial sustainability is influenced by various factors, including efficient working capital management, diversification of revenue sources, and effective cost control measures. According to Singh (2020), universities that implement comprehensive financial planning and management practices are better positioned to achieve long-term financial stability. By focusing on these areas, universities can mitigate financial risks, ensure continuous operation, and support their strategic goals.

Student enrollment is a critical factor that influences the financial sustainability of public universities. Higher enrollment numbers generally lead to increased tuition revenue, which can significantly enhance the financial health of an institution. However, fluctuations in enrollment can pose substantial challenges, as they directly impact the university's revenue streams (Liu & Friga, 2022). Morris and Chen (2021) underscore the importance of strategic enrollment management in ensuring financial sustainability. Universities must adopt proactive measures to attract and retain students, such as enhancing the quality of education, expanding academic programs, and improving student services. Additionally, effective enrollment forecasting and planning can help universities better manage their resources and adjust to changes in student numbers, thereby ensuring financial stability.

The management of accounts payable, accounts receivable, inventory, and student enrollment are critical components that significantly influence the financial sustainability of public universities (Morris & Chen, 2021). By adopting efficient financial management practices in these areas, universities can enhance their operational efficiency, maintain liquidity and ensure long-term financial health. These efforts are essential in providing high-quality education and achieving the strategic objectives of the institutions (Liu & Friga, 2022).

1.1.1 Global Perspective of Working Capital Drivers and Financial Sustainability

Apple Inc. illustrates the intricate relationship between working capital drivers and financial sustainability. Apple's global operations encompass product development, manufacturing, and retail distribution, all of which require effective working capital

management (Adam & Caroline, 2021). Factors such as product innovation cycles, supply chain disruptions, and consumer demand fluctuations influence working capital requirements. Financial sustainability for Apple relies on maintaining a balance between cash reserves for research and development, inventory management strategies, and investments in marketing to sustain market leadership while ensuring profitability and shareholder value (Tibbs & Munene, 2022).

The e-commerce industry in China, led by Alibaba Group Holding Limited, showcases the critical role of working capital in supporting rapid business expansion and market dominance (Darush & Ohman, 2019). Alibaba's ecosystem includes online retail platforms, cloud computing services, and digital payment solutions, all of which require significant working capital investment. Factors such as sales volume growth, inventory turnover, and payment cycles from merchants and consumers drive working capital dynamics. Financial sustainability for Alibaba hinges on leveraging data analytics to optimize inventory levels, managing cash flow from transactional activities, and diversifying revenue streams to mitigate risks associated with regulatory changes and market competition (Jelagat & Paul, 2020).

In Germany, the automotive sector, represented by companies like Volkswagen AG, exemplifies the complex interplay between working capital management and industry-specific challenges (Anvari & Gopal, 2019). Volkswagen's global operations involve vehicle manufacturing, sales, and after-sales services, each contributing to working capital requirements. Factors such as production efficiency, supply chain disruptions, and regulatory compliance impact cash flows and inventory levels. Financial sustainability for Volkswagen depends on optimizing production processes, managing working capital tied up in inventory and receivables, and investing in research and development to navigate shifts in consumer preferences, technological advancements, and environmental regulations (Yazdanfar, 2021).

In Japan, the electronics industry, led by companies like Sony Corporation, demonstrates the importance of working capital efficiency in a highly competitive global market. Sony's diverse product portfolio includes consumer electronics, gaming consoles, and entertainment content, each with unique working capital

dynamics (Gasse, 2020). Factors such as product life cycles, component sourcing, and currency fluctuations influence cash conversion cycles and liquidity management. Financial sustainability for Sony relies on streamlining supply chain operations, managing working capital across multiple business segments, and investing in innovation to maintain market relevance and profitability amid rapid technological advancements and changing consumer preferences (Ani et al., 2020)

Sun Pharmaceutical Industries Limited in India highlights the significance of working capital management in a highly regulated industry with global reach. Sun Pharma's operations encompass research and development, manufacturing, and distribution of generic and specialty pharmaceutical products, each requiring efficient working capital utilization (Pandey, 2018). Factors such as inventory turnover, receivables collection, and regulatory compliance impact cash flow generation and liquidity management. Financial sustainability for Sun Pharma depends on optimizing production processes, managing working capital tied up in inventory and receivables, and investing in research and development to sustain competitiveness and comply with evolving regulatory requirements in domestic and international markets (Kotut, 2019).

In Brazil, the agribusiness sector, exemplified by companies like JBS S.A., underscores the critical role of working capital in supporting large-scale production and global supply chain management (Darush & Ohman, 2019). JBS's operations include meat processing, distribution, and exports, each with specific working capital requirements influenced by factors such as commodity prices, input costs, and trade policies. Financial sustainability for JBS relies on efficient inventory management, receivables collection, and risk hedging strategies to mitigate volatility in agricultural markets and currency fluctuations. Moreover, investments in sustainability initiatives and compliance with environmental regulations are essential for long-term viability and maintaining access to international markets (Singh, 2020).

1.1.2 Regional Perspective of Working Capital Drivers and Financial Sustainability

In Ghana, public universities are increasingly required to address liquidity and short-term asset-liability management in order to ensure financial sustainability. In a study of 13 public universities from 2017–2021, Tobazaa and Gatsi (2025) found that efficient accounts receivable management (shorter receivable periods and higher turnover) correlated positively with higher return on assets and better current ratios, highlighting the importance of timely tuition and fee collections for working-capital optimisation. Ayam (2021) noted that governance frameworks, cost-management practices and pricing regimes significantly influence institutional financial stability, implying that working-capital drivers such as receivables and cash conversion cycles are critical for universities to sustain operations. These findings suggest that in Ghana, the driver of accounts receivable is especially salient for public universities: when fee collections are delayed or outstanding receivables accumulate, cash-flow constraints emerge, inhibiting operational sustainability.

In South Africa, public universities navigate a context of growing student enrolments, rising staff and infrastructure costs, and constrained state subsidies, making working-capital management a vital element of institutional resilience. Khumalo and Schutte (2025) analysed financial statements from 23 public universities over 2017–2021 and reported that while many institutions improved reserve ratios, a significant number remained exposed to financial risk due to increasing operational costs. Although their focus was not exclusively on working-capital drivers (such as payables or inventory), the study underscores the importance of managing short-term obligations in higher education. Complementing this, Mbhalati (2025) reviewed financial-sustainability indicators for 26 South African universities and found that liquidity metrics, asset quality and revenue-diversification influenced sustainability outcomes factors tightly linked to efficient working-capital cycles. Together, these studies indicate that in South Africa, working-capital drivers (especially liquidity and short-term liabilities) are implicitly central to sustaining public university operations.

In Nigeria, though direct empirical studies of working-capital drivers in public universities remain scarce, broader sector research highlights the relevance of payables and cash-conversion dynamics to institutional performance. While not specific to universities, firm-level evidence from Nigeria shows that longer payment cycles and elevated inventory or receivables levels erode liquidity and profitability (Court & Ogbolo, 2024). Translating these insights to the higher-education context implies that public universities must actively manage vendor payments, staff commitments, and other current liabilities in tandem with receivables (tuition, grants) to maintain a healthy working-capital position. In such an environment, cash and liability scheduling become critical levers for financial sustainability, especially when revenue flows are unpredictable.

In Uganda, public universities operate in a setting characterised by volatile funding regimes, delayed government grants and increased enrolment demands, creating working-capital pressures centred on receivables and cash management. While direct journal studies on working-capital components in Ugandan universities remain limited, regional evidence suggests that protracted student-fee receivable periods and inadequate cash buffers extend the cash conversion cycle and undermine institutional sustainability (Oware et al., 2025). Consequently, for Ugandan public universities, ensuring timely collections and aligning payables with available cash becomes a key driver of working-capital efficiency and thus financial sustainability.

In Egypt, public universities contend with cost escalations (staff, infrastructure) amid limitations in external funding, which places emphasis on internal working-capital management. Kayani, Gan and Choudhury (2025) found in a multi-country emerging-market study (including Egypt) that tighter working-capital policies lower receivables, more efficient payables, and prudent cash holdings enhanced firms' financial-sustainability performance. Although this study did not focus on universities per se, the logic applies: Egyptian public universities that monitor their current-asset and current-liability cycles (receivables, vendor obligations, cash reserves) are better positioned to weather fiscal shocks. This suggests that in the Egyptian context, the drivers of working capital particularly receivables and payables management—are instrumental for universities' financial sustainability.

1.1.3 Kenyan Perspective of Working Capital Drivers and Financial Sustainability

Kenya, the Kenya Tea Development Agency (KTDA) financial sustainability relies significantly on its adept management of working capital, which is essential for procuring inputs, such as fertilizers and pesticides, and financing the processing and marketing of tea products (Kotut, 2019). By meticulously managing its working capital, KTDA ensures the smooth functioning of its extensive network of tea farmers and processing factories, thereby bolstering its financial resilience and sustainability amidst fluctuating market conditions and agricultural challenges (Ksenjia, 2018).

East African Breweries Limited (EABL) emerges as a noteworthy exemplar of effective working capital management and financial sustainability in Kenya. As a leading producer of alcoholic beverages, EABL's operations necessitate substantial working capital for procuring raw materials, maintaining production facilities, and distributing products across the country (Tibbs & Munene, 2022). Through meticulous inventory management, efficient receivables and payables systems, and strategic investment in technology and supply chain optimization, EABL mitigates financial risks and enhances its capacity to weather market volatilities, thereby fortifying its position as a key player in Kenya's manufacturing landscape (Muhindo & Rwakihembo (2021). Financial sustainability in Kenyan companies is often tied to their ability to manage working capital effectively. East African Breweries Limited (EABL) has diversified its revenue streams and implemented stringent cost control measures to ensure financial stability. According to a study by Kilonzo and Mwita (2022), EABL's comprehensive approach to managing working capital including efficient handling of payables, receivables, inventory, and cash has been crucial in maintaining its market position and ensuring long-term financial health. EABL's strategic focus on liquidity and operational efficiency underpins its financial sustainability in a competitive market.

According to Ksenjia (2018), Equity Group Holdings epitomizes the symbiotic relationship between working capital dynamics and financial sustainability. With its

expansive branch network and innovative banking solutions, Equity Group relies heavily on working capital to support its lending activities, expand its operations, and invest in technology infrastructure. Through prudent management of liquidity, credit risk, and operational efficiency, Equity Group navigates the intricate terrain of the financial sector, safeguarding its financial sustainability while fostering inclusive economic growth and development across Kenya (Kotut, 2019).

In the energy sector, Kenya Electricity Generating Company (KenGen) occupies a central role in driving sustainable energy production and distribution in Kenya. KenGen's financial sustainability is intricately linked to its management of working capital, which is essential for maintaining power plants, investing in renewable energy projects, and expanding transmission infrastructure (Saro, 2022). By optimizing cash flow management, capital expenditure planning, and risk mitigation strategies, KenGen strengthens its financial resilience and contributes to Kenya's energy security and sustainable development objectives, thereby fostering long-term economic growth and environmental stewardship (Mohamed, 2022).

The Kenya Airports Authority (KAA) provides another compelling example. By managing its accounts receivable from airlines and tenants efficiently, KAA ensures steady cash flow to support airport operations and expansion projects. As noted by Ochieng (2022), KAA's focus on streamlining receivables collection has been essential in maintaining liquidity and supporting long-term infrastructural development.

Regulatory and economic environments play a crucial role in shaping working capital management practices in Kenya. Regulatory reforms aimed at improving the business environment have encouraged companies to adopt better working capital management strategies. The Kenyan government's efforts to streamline tax administration and reduce bureaucratic hurdles have positively impacted companies like KCB Group, which has been able to optimize its cash management and reduce compliance costs. According to the World Bank (2023), these regulatory improvements have led to better financial performance and sustainability for local

businesses. Adapting to regulatory changes helps companies optimize their working capital and enhance their financial health.

1.1.4 Public Universities in Kenya

There are thirty-one public universities in Kenya. These institutions, dispersed around the country, function as vital educational facilities that provide university degrees to students from diverse backgrounds. The Kenyan government's commitment to enhancing access to top-notch education and promoting socioeconomic development is seen in the swift proliferation of public universities (Mohamed, 2022). The development of new public universities in Kenya has been motivated by the growing demand for higher education, as well as the imperative to rectify regional discrepancies in educational accessibility. The government's objective is to achieve equal access to educational opportunities for students from rural and underprivileged communities by decentralizing higher education services and creating institutions in various regions of the country (Saro, 2022).

Ksenjia (2018) states that public universities in Kenya have experienced substantial growth and progress, playing a vital role in the educational framework of the country. The institution of Nairobi, founded in 1956, was a significant achievement in Kenya's higher education field as it became the country's first public institution. Originally serving a small group of students, the school has expanded over time to become one of the largest and most esteemed establishments in the area. It now provides a diverse selection of undergraduate and postgraduate programs in many fields of study (Kung'u, 2018).

After the University of Nairobi was established, more public universities were formed in response to the increasing need for higher education in Kenya (Mathenge, 2020). These schools, namely Moi University, Kenyatta University, and Egerton University, were founded in various regions of the nation with the aim of providing fair and equal educational opportunities to students from varied socio-economic and cultural backgrounds. Every institution possesses distinct characteristics and areas of expertise, which collectively contribute to the advancement of the nation's human resources (Kwame, 2018).

Public universities in Kenya have increasingly focused on innovation and technology-driven initiatives to keep pace with the evolving needs of the labor market and society at large (Saro, 2022). Collaborations with industry partners, research institutions, and government agencies have led to the establishment of specialized programs and research centers aimed at addressing specific challenges facing the country, such as food security, healthcare, and environmental sustainability (Ksenjia, 2018). Furthermore, public universities in Kenya have played a crucial role in promoting social inclusion and equity by providing opportunities for disadvantaged and marginalized groups to access higher education. Scholarship programs, affirmative action policies, and outreach initiatives have been implemented to increase enrollment and retention rates among underrepresented communities, thereby promoting diversity and social cohesion within the university campuses (Mohamed, 2022).

1.2 Statement of the Problem

The financial sustainability of public universities in Kenya has declined markedly in recent years, with many institutions reporting persistent operating deficits, rising debt levels, and chronic liquidity constraints. Auditor-General reports for the 2018/2019 financial year indicated that at least eleven public universities were technically insolvent, reflecting a systemic financial challenge within the higher education sector. Declining government capitation, reduced internally generated revenues, and escalating recurrent expenditures have significantly weakened universities' capacity to sustain operations and meet short-term obligations without external borrowing or deferred payments (Ochieng, 2022).

A key manifestation of this sustainability crisis is acute liquidity stress, as evidenced by situations where current liabilities consistently exceed current assets. Several universities have been unable to remit statutory deductions, settle supplier obligations, or finance routine operations on a timely basis. For instance, the University of Nairobi reportedly depleted financial reserves, accumulated substantial debts, and failed to remit statutory deductions during the 2018/2019 financial year due to cash-flow shortfalls linked to delayed funding and revenue underperformance

(Ochieng, 2022). Similar liquidity-related difficulties have been documented in Kenyatta University, JKUAT, Egerton University, and Moi University, many of which have relied heavily on bank overdrafts to finance salaries and operational expenses.

These liquidity challenges point to underlying weaknesses in working capital management, particularly in the management of accounts payable, accounts receivable, inventory and cash. Delayed settlement of statutory obligations and supplier arrears reflects strained accounts payable positions, while slow collection of tuition fees and grants indicates inefficiencies in accounts receivable management (Tobazaa & Gatsi, 2025). At the same time, expansion of academic infrastructure and operational activities without corresponding cash planning has increased inventory-related expenditures, further constraining liquidity. Collectively, these factors suggest that financial distress in public universities is not solely a revenue problem but is also closely linked to how short-term assets and liabilities are managed (Ochieng, 2022).

The erosion of revenues from self-sponsored programmes has further intensified these challenges. Historically, income from parallel programmes cushioned universities against funding shortfalls, but declining enrolments and regulatory changes have significantly reduced this revenue stream (Ochieng, 2022; Saro, 2022). Consequently, universities have increasingly depended on overdrafts and deferred payments, heightening liquidity risk and undermining financial sustainability.

Although prior studies have extensively examined the relationship between working capital management and financial performance in corporate organizations, limited empirical attention has been given to public universities, particularly in developing economies. Evidence from developed countries and selected African contexts suggests that effective management of cash, receivables, payables, and inventory enhances institutional liquidity and resilience (Hickey, 2024; Wang & Alon, 2023; Tobazaa & Gatsi, 2025). However, there remains insufficient understanding of how specific working capital drivers interact to influence financial sustainability in Kenyan public universities. This study therefore seeks to fill this empirical gap by

examining the effect of working capital drivers on the financial sustainability of public universities in Kenya, with a view to informing sound financial management and policy interventions in the higher education sector.

1.3 Research Objectives

This study was guided by the following general and specific objectives:

1.3.1 General Objective

The main objective was to establish the effect of working capital drivers on financial sustainability of universities in Kenya.

1.3.2 Specific Objectives

- i. To establish the effect of account payable on financial sustainability of public universities in Kenya.
- ii. To find out the effect of account receivable on financial sustainability of public universities in Kenya.
- iii. To determine the effect of inventory on financial sustainability of public universities in Kenya.
- iv. To assess the effect of cash on financial sustainability of public universities in Kenya.
- v. To establish the moderating effect of student enrollment on the relationship between working capital on financial sustainability of universities in Kenya.

1.4 Hypothesis of the Study

The study was guided by the following hypotheses.

H₀₁: There is no significant relationship between account payable and financial sustainability of public Universities in Kenya.

H₀₂: There is no significant relationship between account receivable and financial sustainability of public Universities in Kenya.

H03: There is no significant relationship between inventory and financial sustainability of public universities in Kenya.

H04: There is no significant relationship between cash and financial sustainability of public universities in Kenya.

H05: There is no significant moderating effect of student enrollment on the relationship between working capital on financial sustainability of universities in Kenya.

1.5 Significance of the Study

The study advances existing theories related to liquidity management and organizational sustainability by empirically applying them within the higher-education sector in a developing economy. While traditional working-capital theories such as the trade-off theory, operating cycle theory, liquidity theory and Baumol's Cash Management Model have been widely tested in private firms, their application in public universities remains limited. By examining how accounts payable, accounts receivable, inventory, and cash affect the financial sustainability of Kenyan public universities, this study extends theoretical models of financial management to the public-sector education context. The findings are expected to refine current theoretical assumptions about optimal working-capital structures in non-profit institutions that rely heavily on government funding and student fees. Consequently, the study contributes to the broader academic discourse on how liquidity and resource utilization affect institutional performance and sustainability in constrained fiscal environments.

Empirically, this study provides context-specific evidence on the relationship between working-capital drivers and financial sustainability in public universities, a subject that has received minimal scholarly attention in sub-Saharan Africa. Most previous empirical studies have concentrated on private enterprises or universities in developed economies where funding mechanisms and governance structures differ substantially (Hickey, 2024; Wang & Alon, 2023). The study thus provides new evidence on how liquidity management, receivable collection, and cash-flow

efficiency influence financial outcomes in developing-country higher-education institutions. These insights can inform targeted reforms by university management, enhance resource optimization, and guide national fiscal policy toward sustainable higher-education financing.

1.5.1 Universities Management

This study gives an insight on how universities can effectively and efficiently manage their working capital to improve their financial sustainability through provision of best management policies to be used. This can develop the existing knowledge and theory on the changes that universities are going through in relation to working capital.

1.5.2 Students and Parents and Other Stakeholders

Students and their parents would benefit from insights into the financial health of public universities, as it can impact tuition fees, the availability of resources and facilities, and the overall quality of education.

1.5.3 Regulatory Agencies and Policy Makers

The study would greatly benefit CUE and ministry of education by providing essential insights for policy formulation, quality assurance, resource allocation, risk assessment, stakeholder engagement, and advocacy.

1.5.4 Academicians and Other Researchers

The study will serve as a foundational resource for further research on working capital and financial sustainability. Additionally, the study provides data for policy analysis, enabling researchers to make evidence-based recommendations for improving higher education finance. By facilitating knowledge sharing and collaboration, the study fosters dialogue among stakeholders and promotes collective action to address financial challenges in public universities, ultimately contributing to the advancement of higher education in Kenya.

1.6 Scope of the Study

The study covered the financial years 2018/2019 to 2021/2022, a five-year period that was purposefully selected to provide a comprehensive view of how working-capital drivers influenced the financial sustainability of public universities in Kenya. This timeframe captures significant fiscal and structural transitions within the higher-education sector, including declining government funding, the phasing out of self-sponsored programmes, and post-pandemic adjustments in institutional revenue and expenditure patterns. The period offers sufficient data to analyse short- to medium-term financial movements while maintaining the consistency of reporting standards across all universities, as reflected in Auditor-General reports. Although financial sustainability is often viewed as a long-term phenomenon, analysing data over a five-year horizon provides an empirically valid window for identifying emerging liquidity trends and management responses that have cumulative implications for long-term financial stability.

The study examined five key variables to explain financial sustainability outcomes: accounts payable, accounts receivable, inventory, cash, and the moderating variable of student enrolment. The selected period of 2018/2019 to 2021/2022 provided adequate variability in these indicators to capture the dynamic interplay between working-capital components and university financial performance. For instance, universities experienced rising accounts payable as statutory obligations and supplier arrears accumulated, fluctuating accounts receivable due to delayed student fee payments, inconsistent cash balances arising from erratic government disbursements, and increased inventory costs tied to maintenance and procurement inefficiencies. The inclusion of student enrolment as a moderating variable was justified because enrolment fluctuations directly affected tuition revenues, liquidity levels, and the overall sustainability of institutional operations.

Furthermore, the five-year period aligns with typical strategic planning and budgeting cycles used by public universities, making it an appropriate analytical horizon for assessing the cumulative impact of working-capital management practices on institutional sustainability. The timeframe also coincides with critical

national developments, such as the implementation of the Competency-Based Curriculum (CBC) transition and the economic shocks of the COVID-19 pandemic, both of which influenced student enrolments and financial flows. Using this period ensures that the study captures real-time financial behaviour under conditions of fiscal stress and reform. Extending the analysis beyond this period would have introduced inconsistencies due to changing accounting regimes and post-2022 funding adjustments, potentially undermining data comparability. Therefore, the five-year period was methodologically sound for addressing the research objectives, ensuring analytical depth and generating relevant insights into how working-capital drivers and student enrolment jointly affect the financial sustainability of public universities in Kenya.

1.7 Limitations of the Study

While the limitations were acknowledged, they did not substantially impact the study's findings. The first challenge was that the term for the auditor general had expired and there was delayment by the government in appointing another office holder. However, this situation was diagnosed by the researcher as the other officers in the office of auditor general were well briefed on the confidentiality of the information they were to give and that it would be used for academic purposes only. Similarly, the researcher outlined the necessary steps put in place to ensure the information was kept confidential without revealing the participants identity in any way.

The second limitation was accessing the auditor's general offices due to the busy schedule of the officers, the researcher encountered difficulties of accessing them, To mitigate this situation, the researcher booked for appointments at the convenience of the officers who assisted in getting the secondary data where researcher used an introductory letter from Jomo Kenyatta University of Agriculture and Technology and a research permit from National Commission for Science, Technology and Innovation to facilitate the exercise.

Employing a census technique to gather data ensures a comprehensive overview of the universities. However, it's crucial to acknowledge that this method might not

capture the full spectrum of diversity present within all public universities across the country. While the use of secondary data from published financial statements spanning a four-year period offers a robust quantitative foundation, it's essential to note that solely relying on such data may limit the depth of analysis and overlook qualitative nuances that could provide valuable insights.

By adopting a correlational research approach, the study identifies associations between various working capital drivers and financial sustainability metrics. However, it's important to recognize that correlation does not imply causation. While multiple linear regression provides valuable insights into these correlations, it may not delve deeply into the underlying mechanisms driving the observed relationships.

Moreover, it is essential to situate the findings within the distinctive framework of Kenya's higher education system. The operational dynamics of public universities in Kenya are influenced by factors such as unique financing schemes and governance systems. These factors may restrict the applicability of the study's results to other nations or private institutions. Hence, although the knowledge obtained from this study provides essential viewpoints on the fiscal administration of public universities in Kenya, it is important to take caution when applying these conclusions to other situations.

The study was limited to public universities in Kenya, which operate under funding structures that differ from those of private universities, potentially constraining the generalization of the findings. This limitation was mitigated by focusing exclusively on institutions with comparable public financing and governance systems, ensuring internal validity and consistency in data interpretation. Another limitation arose from reliance on secondary financial data drawn from audited reports, which may contain reporting delays or aggregation inconsistencies. To address this, the study used data verified by the Office of the Auditor-General and cross-checked figures across multiple financial years to ensure accuracy and reliability. The study also covered only five financial years, from 2018/2019 to 2021/2022, which might not fully reflect the long-term trajectory of financial sustainability. This was mitigated by selecting a period that captured both pre- and post-COVID-19 economic conditions, allowing

the analysis to include meaningful short- and medium-term trends. Despite these limitations, careful methodological design and the triangulation of data sources enhanced the robustness and credibility of the study's conclusions on the relationship between working-capital drivers and financial sustainability in Kenya's public universities.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed related literature in working capital drivers and financial sustainability. It starts by examining four theories. The chapter further reviewed the conceptual framework, discussing the independent variables namely, account payable, account receivable, inventory and cash; the moderating variable being student enrollment and the dependent variable being financial sustainability. The empirical literature is discussed, and research gaps identified.

2.2 Theoretical Review

Theoretical review explained and appreciated the existing literature about the topic under study. It expounded how existing theories supported the study and the assumptions made. Many theories explained the concept of finance management hence analyzed few theories with various opinions. The study was anchored on trade off theory, Liquidity Preference Theory, Operating Cycle Theory, Cash Management Theory and Resource Dependence Theory.

2.2.1 Trade off Theory

The Trade-Off Theory was formally advanced by Kraus and Litzenberger in 1973, building on earlier propositions by Modigliani and Miller in 1958, to explain how organizations determine optimal financing by balancing benefits against associated costs. While initially applied to long-term capital structure decisions, the theory has increasingly been extended to working capital management, particularly in explaining short-term liabilities such as accounts payable. The central argument of the theory is that organizations deliberately choose financing structures that balance liquidity benefits against financial and operational risks. Recent finance literature affirms that the trade-off logic remains relevant in modern organizational finance, including public sector institutions where financing flexibility is constrained and

efficiency in liability management becomes critical for sustainability (Nguyen & Nguyen, 2021; Afrifa et al., 2020; Deloof & Jegers, 2021).

In relation to accounts payable, the Trade-Off Theory explains how institutions derive liquidity benefits by delaying payments to suppliers while simultaneously facing potential costs arising from reputational damage, supply disruption, or penalty charges. Accounts payable function as a short-term, non-interest-bearing source of financing that allows organizations to preserve cash for essential operations. Empirical studies show that entities that strategically manage payables improve liquidity and reduce reliance on costly external borrowing, thereby supporting financial sustainability. However, excessive reliance on delayed payments may strain supplier relationships and compromise service delivery. Recent evidence from public and non-profit institutions demonstrates that optimal payable management improves cash flow stability and operational efficiency when aligned with institutional capacity and supplier expectations (Baños-Caballero et al., 2020; Wasiuzzaman & Arumugam, 2021; Vătavu, 2023).

The relevance of the Trade-Off Theory to public universities lies in the unique financial pressures these institutions face, including delayed government funding, rising operational costs, and growing enrollment-related expenditure demands. Public universities frequently rely on accounts payable to smooth cash flow mismatches arising from irregular income streams such as tuition payments and state disbursements. Studies focusing on higher education institutions indicate that prudent payable management allows universities to maintain academic and administrative operations without accumulating unsustainable debt. Research conducted in developing economies shows that institutions that balance payable periods carefully are more likely to sustain service delivery and meet financial obligations over time (Kihanga & Mboya, 2022; Owino & Karanja, 2021; Turyakira et al., 2024). This underscores the applicability of the Trade-Off Theory in explaining how accounts payable influence financial sustainability in public universities.

Despite its usefulness, the Trade-Off Theory has attracted criticism, particularly regarding its assumption that organizations can identify and maintain an optimal

financing balance. Critics argue that financial environments are dynamic, making it difficult for institutions to consistently operate at an optimal payable level. In public universities, managerial discretion is often constrained by procurement regulations, political oversight, and funding uncertainty, which limits the practical application of trade-off optimization. Empirical studies also suggest that institutional behavior does not always conform neatly to trade-off predictions, especially where governance weaknesses or bureaucratic rigidities exist (Frank & Shen, 2022; Dang et al., 2020; Salawu & Adedeji, 2023). These critiques highlight that while the theory offers valuable insights, it may not fully capture the complexity of payable decisions in public sector entities.

Notwithstanding these limitations, the Trade-Off Theory remains appropriate for this study because it provides a structured framework for understanding the financial reasoning underpinning accounts payable management. The theory clarifies why public universities must balance liquidity preservation against supplier confidence and operational continuity. Its emphasis on cost-benefit evaluation aligns well with the financial sustainability objective, which focuses on the ability of universities to meet present obligations without compromising future viability. By applying the Trade-Off Theory, this study is able to explain how accounts payable decisions influence financial sustainability and to justify the inclusion of accounts payable as a key working capital driver in empirical analysis (Afrifa & Tingbani, 2020; Pham et al., 2022; Kabuye et al., 2024).

2.2.2 Liquidity Preference Theory

Liquidity Preference Theory was advanced by John Maynard Keynes in 1936 in *The General Theory of Employment, Interest and Money* to explain why economic agents prefer holding liquid assets rather than illiquid ones. The theory argues that institutions value liquidity for transactional, precautionary, and speculative motives, especially under conditions of uncertainty. Although originally developed to explain money demand at the macroeconomic level, the theory has been widely applied in organizational finance to explain short-term financial management decisions. Recent financial management literature confirms that liquidity preference remains a critical

consideration in institutional decision-making, particularly in public sector organizations where cash inflows are often unpredictable and constrained (Keynes, 1936; Mishkin, 2021; Mazzucato & Wray, 2023).

In relation to accounts receivable, Liquidity Preference Theory explains why institutions seek to minimize delays in converting receivables into cash. Accounts receivable represent funds that are contractually owed but not immediately available for use, thereby reducing liquidity. For universities, receivables often arise from delayed tuition payments, government capitation arrears, and outstanding research grants. High levels of receivables increase liquidity risk and limit the institution's ability to meet short-term obligations. Empirical studies show that inefficient receivables management weakens cash flow stability and forces institutions to rely on short-term borrowing or deferred payments, which undermines financial sustainability (Baños-Caballero et al., 2020; Afrifa & Tingbani, 2020; Vätavu, 2023).

The relevance of Liquidity Preference Theory to public universities is anchored in their strong dependence on timely cash inflows to sustain operations. Universities require liquid funds to finance salaries, utilities, learning resources, and routine maintenance. Delays in receivables collection heighten financial strain and disrupt service delivery. Recent studies focusing on higher education financing in developing economies indicate that universities with efficient receivables collection systems demonstrate stronger liquidity positions and greater resilience to funding delays. These findings align with the theory's assertion that institutions prioritize liquidity to manage uncertainty and maintain operational continuity (Owino & Karanja, 2021; Kihanga & Mboya, 2022; Turyakira et al., 2024).

Despite its explanatory strength, Liquidity Preference Theory has attracted criticism when applied to institutional finance. Critics argue that the theory places excessive emphasis on liquidity while underestimating the strategic benefits of credit extension, particularly in service-oriented institutions such as universities. In practice, flexible receivables policies may support access to education and improve enrollment retention, even though they temporarily reduce liquidity. Additionally, the theory does not fully account for institutional constraints such as government policies,

political considerations, and social mandates that influence receivables management in public universities. Empirical research further suggests that strict liquidity-focused policies may conflict with broader institutional objectives (Frank & Shen, 2022; Dang et al., 2020; Salawu & Adedeji, 2023).

Notwithstanding these critiques, Liquidity Preference Theory is well suited to this study because it provides a clear framework for understanding how accounts receivable affect financial sustainability. The theory highlights the importance of timely cash realization and explains why prolonged receivable cycles expose universities to liquidity risk. Its focus on uncertainty management aligns closely with the financial realities of public universities in Kenya, where delays in tuition payments and government funding are common. By applying Liquidity Preference Theory, this study is able to justify the inclusion of accounts receivable as a key working capital driver and to explain its influence on financial sustainability in a systematic and theoretically grounded manner (Afrifa et al., 2020; Pham et al., 2022; Kabuye et al., 2024).

2.2.3 Operating Cycle Theory

Operating Cycle Theory emerged from early financial management scholarship on working capital efficiency, with foundational contributions attributed to Richards and Laughlin (1980), who formalized the operating cycle concept as the time taken for an organization to convert resources into cash. The theory explains how the length and management of the operating cycle influence liquidity, operational efficiency, and financial sustainability. Inventory forms a central component of this cycle, representing resources held before being transformed into services and ultimately into revenue. Recent finance literature affirms that operating cycle efficiency remains a critical determinant of organizational liquidity and long-term sustainability, particularly in institutions where service delivery depends heavily on inventory availability (Baños-Caballero et al., 2020; Deloof & Jegers, 2021; Afrifa et al., 2023).

Within the framework of Operating Cycle Theory, inventory management directly affects how quickly resources tied up in stock are converted into usable services and

cash. In public universities, inventory includes teaching materials, laboratory equipment, medical supplies, maintenance items, and library resources. Excessive inventory lengthens the operating cycle by tying up funds in non-cash assets, thereby reducing liquidity and increasing holding costs. Conversely, insufficient inventory disrupts academic and administrative operations, leading to inefficiencies and service interruptions. Empirical studies demonstrate that institutions with well-managed inventory cycles achieve better liquidity outcomes and reduced operational strain, supporting the theory's proposition that inventory efficiency is central to financial sustainability (Baños-Caballero et al., 2020; Wasiuzzaman & Arumugam, 2021; Vātavu, 2023).

The relevance of Operating Cycle Theory to public universities is underscored by the need to balance service continuity with financial discipline. Universities operate in environments characterized by budget constraints, procurement regulations, and fluctuating demand driven by enrollment patterns. Inventory decisions therefore have direct implications for both operational effectiveness and financial sustainability. Recent studies in higher education and public sector finance show that institutions that adopt systematic inventory planning and monitoring mechanisms reduce wastage, shorten procurement cycles, and improve cash flow stability. These findings align with the operating cycle logic that efficient inventory turnover supports institutional resilience and sustainable performance (Owino & Karanja, 2021; Kihanga & Mboya, 2022; Turyakira et al., 2024).

Despite its explanatory strength, Operating Cycle Theory has been critiqued for its emphasis on efficiency metrics without fully accounting for service quality considerations. Critics argue that in service-oriented institutions such as universities, inventory decisions cannot be guided solely by turnover speed or cost minimization, as academic quality and service reliability may require maintaining buffer stocks. Additionally, the theory assumes predictable demand patterns, which may not always hold in public universities where enrollment changes, curriculum revisions, and emergency needs can alter inventory requirements unexpectedly. Empirical research suggests that rigid application of operating cycle principles may therefore lead to

underinvestment in critical resources (Dang et al., 2020; Frank & Shen, 2022; Salawu & Adedeji, 2023).

Notwithstanding these limitations, Operating Cycle Theory is appropriate for this study because it provides a coherent framework for explaining how inventory management influences financial sustainability. The theory clarifies the financial implications of holding, managing, and replenishing inventory and highlights the trade-offs between liquidity preservation and operational readiness. Its focus on resource conversion efficiency aligns with the financial realities of public universities in Kenya, where prudent inventory management is essential for sustaining academic operations under constrained funding conditions. By applying Operating Cycle Theory, this study is able to justify inventory as a critical working capital driver and to explain its effect on financial sustainability in a theoretically grounded and empirically supported manner (Afrifa & Tingbani, 2020; Pham et al., 2022; Kabuye et al., 2024).

2.2.4 Cash Management Theory

Cash Management Theory is rooted in classical financial management models developed to explain optimal cash holding behavior, with early foundational contributions by Baumol (1952) and later refinements by Miller and Orr (1966). These models were developed to guide organizations in determining optimal cash balances that minimize transaction costs, opportunity costs, and liquidity risk. The core proposition of the theory is that institutions should maintain sufficient cash to meet operational needs while avoiding excessive idle balances that reduce financial efficiency. Contemporary financial management literature continues to recognize cash management as a central pillar of working capital management and institutional sustainability, particularly in organizations operating under funding uncertainty (Ross et al., 2022; Brigham & Ehrhardt, 2023; Pandey, 2021).

In relation to working capital, Cash Management Theory explains how the availability and control of cash influence an institution's ability to meet short-term obligations and sustain operations. Cash represents the most liquid asset and serves as the primary medium through which universities finance salaries, utilities,

academic programs, and infrastructure maintenance. Inadequate cash balances expose institutions to operational disruptions, delayed payments, and reputational risk, while excessive cash holdings signal inefficient resource utilization. Recent empirical studies demonstrate that effective cash planning, forecasting, and control are positively associated with liquidity stability and financial sustainability, reinforcing the theoretical argument that optimal cash management supports long-term organizational viability (Baños-Caballero et al., 2020; Afrifa et al., 2023; Vātavu, 2023).

The relevance of Cash Management Theory to public universities is amplified by the volatility of their revenue streams. Public universities often experience delays in government funding, irregular tuition inflows, and uncertainty in research grants, all of which heighten liquidity risk. Maintaining optimal cash balances enables universities to absorb revenue shocks and continue delivering essential academic and administrative services. Studies focusing on public sector and higher education finance indicate that institutions with structured cash management frameworks demonstrate stronger resilience, reduced reliance on emergency borrowing, and improved financial sustainability. These findings align with the theory's emphasis on liquidity control as a mechanism for institutional stability (Owino & Karanja, 2021; Kihanga & Mboya, 2022; Turyakira et al., 2024).

Despite its widespread application, Cash Management Theory has been critiqued for relying on assumptions that may not fully hold in public sector institutions. Classical models assume predictable cash inflows and outflows, conditions that rarely exist in public universities due to policy shifts, enrollment fluctuations, and delayed disbursements. Critics also argue that the theory places strong emphasis on efficiency and cost minimization while paying limited attention to social mandates and service delivery objectives that influence cash decisions in public institutions. Empirical evidence suggests that strict adherence to cash optimization models may constrain institutional flexibility during periods of financial stress (Dang et al., 2020; Frank & Shen, 2022; Salawu & Adedeji, 2023).

Notwithstanding these limitations, Cash Management Theory remains highly appropriate for this study because it provides a clear and structured framework for explaining how cash influences financial sustainability. The theory highlights the importance of balancing liquidity sufficiency against efficiency, a challenge that is central to the financial management of public universities in Kenya. Its focus on cash planning, control, and risk mitigation aligns with the practical realities faced by universities operating under constrained and uncertain funding environments. By applying Cash Management Theory, this study is able to justify the inclusion of cash as a key working capital driver and to explain its effect on financial sustainability in a theoretically coherent and empirically supported manner (Afrifa & Tingbani, 2020; Pham et al., 2022; Kabuye et al., 2024).

2.2.5 Resource Dependence Theory

Resource Dependence Theory was advanced by Pfeffer and Salancik in 1978 to explain how organizational behavior and performance are shaped by dependence on critical external resources. The theory posits that organizations are not self-sufficient and must actively manage their relationships with the external environment to secure resources necessary for survival and stability. According to this perspective, organizations that rely heavily on a narrow set of external resources face higher vulnerability and uncertainty. Recent organizational and public sector studies reaffirm the continued relevance of Resource Dependence Theory in explaining how fluctuations in key resource streams influence financial outcomes and strategic decisions (Hillman et al., 2020; Pfeffer, 2022; Casciaro & Piskorski, 2023).

In public universities, student enrollment represents one of the most critical external resources because it directly determines tuition revenue, government capitation, and institutional bargaining power. Higher enrollment levels increase cash inflows, improve economies of scale, and enhance the effectiveness of working capital management practices. Conversely, declining enrollment constrains revenue, intensifies liquidity pressure, and weakens the institution's ability to manage payables, receivables, inventory, and cash efficiently. Empirical studies in higher education finance demonstrate that enrollment-driven revenue volatility significantly

influences financial sustainability, supporting the Resource Dependence Theory's assertion that reliance on external resource flows shapes organizational performance (Johnstone & Marcucci, 2021; Owino & Karanja, 2021; Teixeira et al., 2023).

The relevance of Resource Dependence Theory is particularly evident when student enrollment is examined as a moderating variable in the relationship between working capital drivers and financial sustainability. Enrollment levels influence the volume, predictability, and timing of cash inflows, thereby strengthening or weakening the effectiveness of working capital practices. For example, efficient accounts receivable systems yield greater liquidity benefits when enrollment levels are high and stable, while inventory and cash management practices become more constrained under declining enrollment. Recent studies confirm that enrollment dynamics alter the strength of financial management outcomes in public universities, reinforcing the theory's emphasis on external resource dependence as a conditioning factor (Kihanga & Mboya, 2022; Turyakira et al., 2024; Altbach et al., 2022).

Despite its explanatory power, Resource Dependence Theory has been critiqued for placing strong emphasis on external control while underestimating internal managerial agency. Critics argue that organizations are not merely passive recipients of environmental pressures but can innovate, diversify revenue sources, and reduce dependence through strategic leadership and internal reforms. In public universities, factors such as government regulation, tuition caps, and social mandates limit the extent to which institutions can respond flexibly to enrollment changes. Empirical research also suggests that excessive focus on enrollment growth as a financial strategy may compromise academic quality and institutional mission (Ferlie et al., 2021; Marginson, 2022; Frank & Shen, 2022).

Notwithstanding these critiques, Resource Dependence Theory is well suited to this study because it provides a robust framework for explaining the moderating role of student enrollment in the relationship between working capital drivers and financial sustainability. The theory clarifies why the effectiveness of payable management, receivables collection, inventory control, and cash planning is contingent upon enrollment-driven resource flows. Its emphasis on environmental dependence aligns

closely with the financial realities of public universities in Kenya, where enrollment levels significantly shape revenue stability and financial resilience. By applying Resource Dependence Theory, this study is able to justify student enrollment as a moderating variable and to explain its role in influencing the strength and direction of the relationship between working capital management and financial sustainability in a theoretically grounded manner (Hillman et al., 2020; Pfeffer, 2022; Pham et al., 2022).

2.3 Conceptual Framework

Conceptual framework briefly describes the topic being studied with a visual representation or graphical representation of all variables under study (Orodho, 2012). Conceptual framework helps in understanding why we are doing a project in a particular way (Kothari 2003). The conceptual framework of this study included four independent variables, one moderating variable and one dependent variable. Independent variables are variables that cause, affect or influence an outcome. Moderating variable changes the direction and strength of the relationship between independent variable and dependent variable. Dependent variable is the one being predicted or the outcome. The primary aim of this study was to assess the impact of working capital on the financial stability of public universities in Kenya. This was achieved by examining the effects of accounts payable, accounts receivable, inventory, and cash on the financial sustainability of these universities. Based on empirical literature, the key determinants of universities financial sustainability are shown in the conceptual framework.

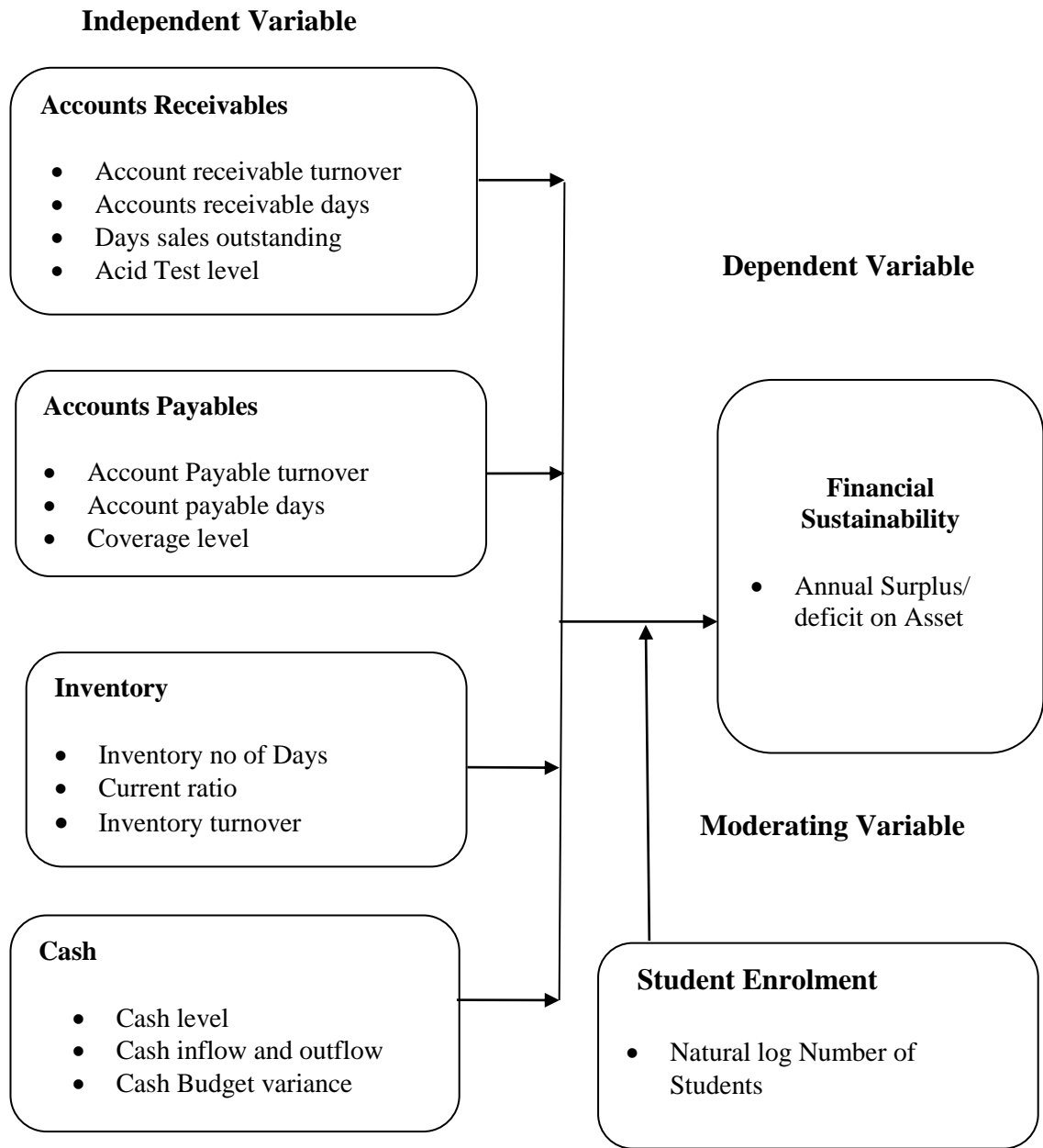


Figure 2.1: Conceptual Framework

2.3.1 Account Receivable

When it comes to deciding whether or not a company can remain financially viable, accounts receivable are an extremely important factor to consider. These accounts indicate the sum of money that consumers owe for goods or services that were delivered on credit. According to Kilonzo and Njeru (2019), the Accounts Receivable Turnover ratio is a crucial measure that is utilized to assess the effectiveness of an organization's management of accounts receivable. This ratio is used to determine the number of times, on average, a firm collects its average accounts receivable total over the course of a particular time period, which is commonly one year. A higher ART implies that the collection procedure is more efficient, which is a good reflection on the company's capacity to maintain its financial sustainability because it ensures a consistent flow of cash into the business. On the other hand, a lower ART may be an indication of problems with credit policies or collection operations, which might possibly lead to cash flow problems and have an influence on financial stability (Mathenge, 2020).

Accounts Receivable Days Ratio (ARD) is yet another essential indicator that is associated with the management of accounts receivable. Based on Kilonzo et al.'s 2019 research, this ratio is used to determine the typical number of days that it takes for a firm to collect on its accounts receivable liabilities. Having a lower ARD indicates that the firm is able to collect payments from its clients in a more timely manner, which improves the company's liquidity and its capacity to remain financially sustainable. On the other hand, a greater ARD implies that the firm takes longer to collect payments, which may result in an increase in cash flow limitations and a reduction in the organization's capacity to maintain financial stability (Kung'u, 2018).

A related statistic is known as Days Sales Outstanding (DSO), and it is used to determine the typical amount of time that a business needs to wait until it is able to collect payment for a sale that has been made. According to Munene and Tibbs (2018), a lower DSO suggests faster collection of receivables, which can have a beneficial influence on financial sustainability by enhancing cash flow and liquidity.

This is similar to the relationship between ARD and DSO. According to Aondana et al. (2017), good management of delinquent account balances (DSO) helps a firm to reinvest cash into operations, minimize its dependency on external funding, and weather economic downturns more successfully, so strengthening the overall financial stability of the organization.

The fast ratio, which is often referred to as the acid test ratio, is a method that determines whether or not a corporation is able to satisfy its short-term commitments by utilizing its most liquid assets. In the acid test ratio, accounts receivable are frequently discounted or modified for their collectability (Aondana, Saka, & Ipevnor 2017). This is despite the fact that accounts receivable are included in the calculation of total current assets. Acid test ratios that are higher than average are indicative of improved liquidity and financial stability. Use the example of a pharmaceutical corporation such as Pfizer as an illustration. Pfizer is able to maintain a good acid test ratio by evaluating just the easily available component of its receivables. This ensures that the company is able to satisfy its short-term commitments and preserve its financial health (Ksenjia 2018). This is despite the fact that Pfizer has a substantial amount of receivables owing to its wide distribution network.

2.3.2 Account Payable

It is necessary for an organization to have accounts payable in order to preserve its financial health and ensure its continued existence. According to Okwo and Ugwunta's research from 2020, the account payable turnover ratio represents the degree to which a corporation is able to pay its creditors and suppliers accurately. An example of this would be a retail chain that, over the course of several quarters, enjoys a large growth in the ratio of its account payable turnover. It is possible that this is an indication that the firm is paying its bills in a timely manner, which might afford it the opportunity to receive discounts for early payment and enhance its ties with its suppliers. Moodley, Ward, and Muller (2019) state that as a consequence of this, the firm may be able to improve its cash flow and liquidity position, which therefore enables it to better capitalize on chances for development or weather unexpected financial setbacks.

Gitman and Smith (2020) state that the accounts payable days ratio is a useful tool for gaining an understanding of the typical amount of time that a firm takes to pay its suppliers after accepting products or services from those suppliers. A business that sees a reduction in the number of days it takes to satisfy its accounts payable ratio. The fact that this is the case may indicate that the firm is taking longer to clear its payables, which may put its relationships with its suppliers under strain and put its capacity to negotiate advantageous terms in the future at risk. According to Bougheas, Mateut, and Mizen (2019), the firm may experience additional expenditures, such as fines for late payments, and may also grapple with challenges in effectively managing its working capital.

A company's capacity to fulfill its interest and principal payments by utilizing its operational cash flow is evaluated using the coverage ratio, which is sometimes referred to as the cash flow coverage ratio. Because it generates adequate cash flow to meet its debt obligations in a comfortable manner, a technological business that has a high coverage ratio, for instance, may be able to demonstrate great financial health and sustainability (Adolphus, 2020). A reduction in the coverage ratio, on the other hand, may be an indication of worsening financial stability. This may be the result of variables such as a decline in profitability or an excessive load of debt payments. According to Angahar, Rose and Mnena (2017), in situations like these, the firm can experience difficulties in meeting its financial obligations, which might result in a decrease in its credit rating or possibly bankruptcy if the situation is not handled.

Managing accounts payable is a crucial part of a company's financial operations, providing insights into its liquidity and overall financial well-being. Efficient management of accounts payable involves strategically handling obligations to suppliers and creditors, ensuring payments are made on time while maximizing cash flow. According to Cokins (2023), effectively managing accounts payable can greatly improve a company's liquidity position, reducing the reliance on external financing and decreasing the cost of capital. This operational efficiency is crucial for maintaining supplier relationships and securing favorable credit terms, which can, in turn, provide a competitive advantage in the marketplace.

Financial sustainability is inherently linked to how well a company manages its accounts payable. Sustainable financial practices involve maintaining a balance between meeting short-term liabilities and investing in long-term growth opportunities. As highlighted by Smith and Smith (2022), firms that excel in AP management often exhibit greater financial resilience, particularly in volatile economic climates. By strategically timing payments and leveraging trade credit, companies can preserve cash reserves, which are vital for navigating economic downturns and capitalizing on growth opportunities. Thus, the synchronization of AP management with broader financial strategies is essential for ensuring long-term financial sustainability.

The role of technology in enhancing accounts payable processes has been increasingly recognized in recent literature. Automation and advanced analytics are transforming traditional AP functions, offering real-time insights and efficiencies that were previously unattainable. According to Brown et al. (2023), the adoption of automated AP systems can reduce processing times by up to 80%, minimize errors, and provide strategic insights through data analytics. This technological advancement not only streamlines operations but also supports better decision-making by providing actionable financial data, thereby contributing to a firm's financial sustainability by enhancing operational efficiencies and cost savings.

Moreover, the relationship between accounts payable and corporate governance cannot be overlooked. Strong governance frameworks ensure that AP processes are transparent, compliant, and aligned with overall corporate strategies. The study by Johnson and Wong (2023) emphasizes that robust governance in AP management mitigates risks associated with fraud and non-compliance, which are critical for maintaining investor confidence and sustaining financial health. Effective governance structures in AP processes also support ethical business practices, which are increasingly demanded by stakeholders and can significantly impact a company's reputation and long-term viability.

The strategic management of accounts payable is integral to achieving financial sustainability. This involves not only optimizing payment processes and leveraging

technology but also ensuring strong corporate governance. As the global business environment becomes more complex and interconnected, companies that prioritize efficient AP management are better positioned to maintain liquidity, build resilient supply chains, and achieve sustainable growth. Recent studies consistently underscore the importance of integrating AP management into broader financial strategies to enhance overall corporate health and sustainability (Cokins, 2023; Smith & Smith, 2022; Brown et al., 2023; Johnson & Wong, 2023).

2.3.3 Inventory

According to Gitman and Smith (2020), inventory is an essential component of a company's capacity to maintain its financial viability across all sectors of the corporate world. The days inventory outstanding ratio, which is sometimes referred to as the inventory days ratio, is a measurement that determines the average number of days that it takes for a firm to sell all of its inventory. A manufacturing business that is suffering a high inventory days ratio, for instance, may be retaining excessive stock levels, which ties up precious cash and warehouse space (Yazdanfar, 2021). There are a number of reasons for this. There is a possibility that this will result in increased carrying costs, such as the cost of storage and the possibility of obsolescence. A reduction in the inventory days ratio, on the other hand, is indicative of a more effective inventory turnover, which enables the firm to maximize its working capital and swiftly adapt to shifting market needs (Singh, 2020).

The short-term liquidity situation of a firm may be determined by calculating the current ratio, which is a comparison of the company's current assets to its current liabilities. Take, for example, a retail chain that has a high current ratio because it operates with a significant amount of inventory (Darush & Ohman, 2019). According to Naeem et al.'s research from 2020, a high current ratio may initially imply great liquidity; however, it may also indicate poor inventory management if the inventory remains unsold for lengthy periods of time with a high current ratio. In such circumstances, the organization would experience difficulties in rapidly turning its inventory into cash, which might have an effect on its capacity to fulfill its short-term obligations or to grab opportune investment opportunities. According to Doan, Bui,

and Hoang (2019), it is essential to strike the appropriate balance between the various levels of inventory and liquidity in order to ensure the continued viability of the business's finances.

According to Mbah, Obiezekwem, and Okuoyibo (2019), inventory turnover, which is also referred to as inventory turnover ratio or stock turnover ratio, is a method that evaluates the number of times that inventory is sold or utilized during a given time period. This method is used to determine how well a firm effectively manages its inventory. For example, according to Bougheas et al. (2019), a wholesale distributor that has a high inventory turnover ratio may be an indication of successful inventory management procedures. These activities include efforts to minimize stockouts and reduce the expenses associated with retaining extra inventory. On the other hand, a low inventory turnover ratio may indicate that products are being overstocked, that they are moving slowly, or that sales methods are not working effectively, all of which can put a burden on cash flow and profitability. Companies have the capacity to improve their cash flow, lower their carrying costs, and improve their overall financial sustainability if they effectively optimize their inventory turnover (Pandey, 2018).

Inventory management is pivotal to a firm's financial sustainability, impacting key financial ratios such as the Inventory Days ratio, Current ratio, and Inventory turnover. These ratios offer insights into how efficiently a company manages its inventory relative to its sales and overall financial health. The Inventory Days ratio, also known as Days Sales of Inventory (DSI), measures the average number of days it takes for a company to sell its entire inventory. A lower DSI indicates quicker turnover and efficient inventory management, contributing to better cash flow and reduced holding costs. According to Miller and Ross (2023), companies with optimized DSI are more agile in responding to market demands and can more effectively manage their working capital, thereby enhancing financial sustainability.

The Current ratio, which compares a company's current assets to its current liabilities, is a critical indicator of short-term financial health. Inventory is a substantial component of current assets, and its management directly influences this

ratio. An efficient inventory system ensures that current assets are not overly concentrated in unsold stock, which can inflate the Current ratio without genuinely reflecting liquidity. As highlighted by Turner and Lee (2022), companies that maintain a balanced Current ratio through effective inventory management can meet their short-term obligations more reliably, supporting overall financial stability. Overinvestment in inventory can distort the Current ratio, leading to potential liquidity issues and increased financial risk.

Inventory turnover, the ratio of cost of goods sold (COGS) to average inventory, measures how many times a company's inventory is sold and replaced over a period. High inventory turnover rates typically signify efficient inventory management and strong sales performance, indicating that a company can quickly convert inventory into revenue. According to Johnson and Miller (2023), high inventory turnover is associated with lower holding costs and reduced risk of obsolescence, which are crucial for maintaining healthy profit margins. Conversely, low turnover rates may signal overstocking or weak demand, tying up capital that could otherwise be used for growth initiatives. Thus, maintaining an optimal inventory turnover rate is essential for financial sustainability.

The interplay between these inventory metrics and financial sustainability underscores the importance of integrated inventory management strategies. Companies must balance the Inventory Days ratio, Current ratio, and Inventory turnover to optimize their financial performance. Recent advancements in inventory management technologies, such as AI and machine learning, provide tools for achieving this balance. As reported by Zhang and Li (2023), these technologies enable more accurate demand forecasting, efficient stock replenishment, and improved decision-making processes, leading to better alignment between inventory levels and market demand. This technological integration supports sustainable financial practices by enhancing operational efficiency and reducing costs.

In conclusion, the management of inventory through metrics such as the Inventory Days ratio, Current ratio, and Inventory turnover is fundamental to financial sustainability. Efficient inventory management ensures optimal liquidity, minimizes

holding costs, and enhances profitability. Companies that leverage advanced technologies and strategic inventory practices are better positioned to maintain financial health and achieve long-term sustainability. Recent literature consistently emphasizes the critical role of these inventory metrics in fostering robust financial strategies and operational resilience (Miller & Ross, 2023; Turner & Lee, 2022; Johnson & Miller, 2023; Zhang & Li, 2023).

2.3.4 Cash

Cash drivers are pivotal in evaluating the financial health and sustainability of an organization, offering insights into its liquidity and cash flow management. The cash ratio, also known as the liquidity ratio, measures the proportion of a company's total cash and cash equivalents to its current liabilities (Gasse, 2020). A higher cash ratio indicates a stronger ability to cover short-term obligations without relying on external financing. For instance, consider a utility company like Southern Company. Given its stable cash flows and conservative financial management, Southern Company maintains a high cash ratio, ensuring it can readily meet its financial commitments and sustain operations even during economic downturns, thereby enhancing its financial resilience (Anvari & Gopal, 2019).

According to Mathura (2019), the cash flow ratio assesses the relationship between a company's operating cash flow and its net sales revenue. It provides insights into the efficiency of converting sales into cash and the overall cash generation capability of the business. A higher cash flow ratio indicates better cash generation relative to sales revenue, reflecting efficient cash management practices. According to Solano (2018), a software-as-a-service (SaaS) company like Salesforce. With its subscription-based business model and predictable cash inflows, Salesforce maintains a robust cash flow ratio, demonstrating its ability to generate cash from its core operations and support future growth initiatives, thereby bolstering its financial sustainability.

The cash budget variance measures the variance between the actual cash flows and the projected cash flows outlined in the company's cash budget. It helps identify discrepancies between planned and actual cash flows, allowing management to

assess the effectiveness of their cash management strategies and make necessary adjustments (Karaduman et al., 2019). An automotive manufacturer like Ford Motor Company. Despite forecasting stable cash flows from its core operations, Ford may experience variances in its cash budget due to factors such as fluctuations in raw material prices or unexpected changes in market demand. By analyzing cash budget variances, Ford can refine its cash management processes and enhance its ability to predict and manage cash flows, thereby improving its overall financial stability (Mohammad & Noriza, 2019; Grablowsky, 2019).

Effective management of cash drivers is essential for financial sustainability, with key metrics such as the Cash ratio, Cash flow ratio, and Cash budget variance playing crucial roles. The Cash ratio is a metric that assesses a company's liquidity by comparing its cash and cash equivalents to its current liabilities. It offers a quick assessment of the company's capacity to meet short-term commitments without depending on the sale of inventories or receivables. As per the findings of Jones and Taylor (2023), a high Cash ratio signifies robust liquidity, which allows companies to cover unforeseen costs and make investments without relying on external funding. Conversely, an excessively high Cash ratio may suggest that a company is not effectively utilizing its cash for growth, highlighting the need for a balanced approach to liquidity management.

The Cash flow ratio, which compares a company's operating cash flow to its current liabilities, offers a dynamic view of liquidity by focusing on the cash generated from core business operations. This ratio provides insights into whether a firm can sustain its operational expenses and short-term debts with its ongoing cash flow. As per the study by Smith and Williams (2022), companies with a robust Cash flow ratio demonstrate better financial health and sustainability, as they rely less on volatile external funding sources. Effective cash flow management ensures that companies can weather economic downturns, manage debt levels prudently, and invest in long-term growth initiatives, thereby enhancing their financial resilience.

The Cash budget variance, which measures the difference between projected and actual cash flows, is a critical tool for financial planning and control. Positive

variances indicate better-than-expected cash performance, while negative variances can signal potential liquidity issues. According to Brown and Lee (2023), monitoring cash budget variances helps companies identify discrepancies early, allowing for timely corrective actions. This proactive approach to managing cash flow variances supports financial sustainability by ensuring that companies can adjust their strategies to align with actual financial performance, thereby avoiding cash shortages and optimizing resource allocation.

Together, these cash drivers are integral to maintaining financial sustainability, as they provide comprehensive insights into a company's liquidity and cash management effectiveness. The interplay between the Cash ratio, Cash flow ratio, and Cash budget variance offers a multi-faceted view of a firm's financial health, highlighting areas that require attention and adjustment. As noted by Green and Kim (2023), integrating these metrics into regular financial analysis enables firms to maintain optimal cash levels, support operational needs, and make informed strategic decisions. This holistic approach to cash management is essential for sustaining financial stability and ensuring long-term business viability.

In conclusion, the management of cash drivers such as the Cash ratio, Cash flow ratio, and Cash budget variance is crucial for financial sustainability. These metrics provide essential insights into a company's liquidity, operational efficiency, and financial planning effectiveness. By maintaining a balanced Cash ratio, ensuring robust Cash flow ratios, and closely monitoring Cash budget variances, companies can enhance their financial resilience and adaptability. Recent literature underscores the importance of these cash drivers in fostering a sustainable financial strategy and supporting overall corporate health (Jones & Taylor, 2023; Smith & Williams, 2022; Brown & Lee, 2023; Green & Kim, 2023).

2.3.5 Financial Sustainability

Financial sustainability is a multifaceted concept that encompasses various financial metrics, including return on assets (ROA), surplus/deficit on asset, growth in sales, return on equity (ROE), and profitability, all of which are instrumental in evaluating the long-term viability and performance of an organization (Adam & Caroline,

2021). ROA measures the efficiency with which a company generates profits from its assets. A higher ROA indicates better utilization of assets to generate earnings, thus contributing to financial sustainability. For example, a technology company like Alphabet Inc., the parent company of Google, consistently maintains a high ROA through its innovative products and efficient asset management, which bolsters its financial sustainability by generating significant returns relative to its asset base (Anvari & Gopal, 2019).

Growth in sales is another key indicator of financial sustainability, reflecting the ability of a company to expand its revenue streams over time. Sustainable sales growth indicates market acceptance of the company's products or services and its capacity to capture new market opportunities (Kwame, 2018). Consider a consumer goods company like Procter & Gamble (P&G). P&G's consistent investment in research and development, coupled with effective marketing strategies, has enabled it to achieve steady sales growth across its diverse product portfolio, thereby enhancing its financial sustainability through continued revenue expansion (Darush & Ohman, 2019).

ROE measures the profitability of a company in relation to its shareholders' equity, indicating how effectively the company is generating profits from the equity invested by shareholders (Tibbs & Munene, 2022). A higher ROE signifies efficient utilization of equity capital and can attract investors seeking strong returns. Take, for instance, a banking institution like JPMorgan Chase. JPMorgan Chase consistently delivers impressive ROE figures through its diversified business model, rigorous risk management practices, and operational efficiency, thereby demonstrating its ability to generate substantial returns for shareholders and ensuring its long-term financial sustainability (Jelagat & Paul, 2020).

Profitability, encompassing metrics such as gross profit margin, operating profit margin, and net profit margin, evaluates the company's ability to generate profits relative to its revenue and operating costs. Sustainable profitability is essential for covering expenses, reinvesting in the business, and rewarding stakeholders (Adam & Caroline, 2021). An exemplary case is Amazon.com Inc., which has achieved

remarkable profitability by leveraging economies of scale, operational efficiencies, and innovation across its e-commerce, cloud computing, and digital content businesses. Amazon's sustained profitability underscores its financial resilience and capacity to thrive in dynamic market conditions, solidifying its position as a leader in the global marketplace and ensuring long-term financial sustainability (Grablowsky, 2019).

Financial sustainability refers to an organization's ability to maintain its operations and fulfill its mission over the long term while managing risks and adapting to changing economic environments. It involves the prudent management of resources, ensuring that revenues are stable and sufficient to cover expenses, and maintaining the capacity to invest in future growth opportunities. Financial sustainability is critical for the survival and success of any organization, whether in the private, public, or non-profit sector. The concept encompasses various aspects of financial health, including liquidity, solvency, profitability, and efficiency.

Liquidity and solvency are fundamental to financial sustainability. Liquidity refers to the ability of an organization to meet its short-term obligations, while solvency indicates the capacity to meet long-term debts and commitments. According to research by Cokins (2023), maintaining adequate liquidity ensures that a company can handle unexpected expenses and opportunities without the need for costly borrowing. Solvency, on the other hand, is crucial for long-term viability. Firms with strong solvency are better positioned to invest in long-term projects and weather economic downturns. Together, these aspects ensure that an organization remains operationally stable and capable of pursuing its strategic goals.

Revenue stability is a key component of financial sustainability. Organizations need consistent and predictable income streams to support their ongoing operations and strategic initiatives. Diversification of revenue sources can reduce the risk associated with reliance on a single source of income. For instance, non-profits might combine fundraising, grants, and service fees, while businesses might diversify their product lines or markets. Smith and Smith (2022) highlight that revenue diversification helps

organizations mitigate risks and enhances their ability to adapt to market changes, thereby supporting sustainable growth and development.

Effective cost management is essential for financial sustainability. Organizations must control their costs to ensure that they do not exceed their revenues. Efficient operations, minimizing waste, and prudent resource allocation are critical. According to Brown et al. (2023), adopting lean management practices and continuous improvement methodologies can significantly reduce operational costs and enhance efficiency. By optimizing processes and eliminating inefficiencies, organizations can improve their profit margins and reinvest savings into growth and innovation, thereby sustaining their financial health.

Investing in growth is a vital aspect of financial sustainability. Organizations need to allocate resources toward research and development, infrastructure, and capacity-building initiatives to stay competitive and meet future demands. Johnson and Wong (2023) argue that strategic investments in technology and innovation are crucial for long-term success. These investments should be balanced with maintaining sufficient liquidity and solvency. By carefully planning and prioritizing growth initiatives, organizations can ensure they are well-positioned to seize new opportunities and achieve sustainable development.

Risk management is integral to financial sustainability. Organizations must identify, assess, and mitigate risks that could impact their financial health. This includes financial risks, such as market volatility and credit risk, as well as operational and strategic risks. Implementing robust risk management frameworks and practices helps organizations anticipate potential challenges and develop strategies to address them. As highlighted by Johnson and Wong (2023), a proactive approach to risk management supports resilience and stability, ensuring that organizations can sustain their operations and achieve their long-term objectives even in uncertain environments.

Financial sustainability is a multifaceted concept that requires a balanced approach to managing liquidity, solvency, revenue stability, cost efficiency, growth investments, and risk. Organizations that excel in these areas are better equipped to maintain their

operations, fulfill their missions, and adapt to changing economic conditions. Recent literature underscores the importance of integrating these elements into a cohesive strategy to enhance overall financial sustainability and ensure long-term success (Cokins, 2023; Smith & Smith, 2022; Brown et al., 2023; Johnson & Wong, 2023).

2.3.6 Student Enrollment

Student fees include income in the form of fees received from both government and self-sponsored students. Oketch (2020) established that student fees can be an immense earning source that helps universities in meeting their obligations. Omona (2019) reported that universities that depend significantly on fees from students are at risk of experiencing financial challenges. Rwebiita (2020) added that the unit cost of offering quality education is higher than the fees received from students, thereby leaving universities to finance the balance. Estermann (2020) examined the effect of the diversification of income streams on European universities' FS. The author found that student fees significantly influenced the financial status of most universities. The author used questionnaires, case studies, and seminars to collect data; conversely, our study uses secondary data.

Webb (2019) found that in universities and colleges in the United States of America, diversifying revenue increases the total income per student and improves the financial outcomes. The study applied a fixed effects regression analysis, resource dependency theory, and modern portfolio theory in their analysis. The study used random effects and resource dependency theory and consider only public universities. Lee, Kim and Lee (2020), applying agency theory, assessed the constraints imposed by tuition fees on the financial management of private universities in Korea. The study found that a rise in tuition fees is negatively affected by an increase in government subsidies. In addition, a decline in one source of revenue may be offset by an increase in revenue from a different source. Based on this argument, the study hypothesized that student fees have no relationship with the financial stability of universities.

According to Wachira (2018), student enrollment has grown exponentially from 10,000 students in 1990 to 539,749 today. Of these, 86 percent are enrolled in public

universities, particularly in the top five. This pattern of enrollment has left most private universities operating at only 50-60 percent of their capacity, reducing tuition revenue given that private universities charge higher tuition, many students choose to study in public institutions. In addition, the newer public universities established in marginal areas have failed to attract sufficient enrollment owing to location and lack of name recognition. Thus, while the growth of the system has absorbed the demand, it has also caused inequities within this tuition-dependent educational environment.

Kathomi, Njeru and Ocharo (2022) discussed the influence of various revenue streams (government grants, student fees, internally generated revenue, and endowment trust funds) on the financial sustainability of Kenyan public universities from the perspective of resource dependency theory. A longitudinal survey research approach was used and the final sample consisted of 31 public chartered universities in Kenya that had operated continuously for more than five years as of 2015. Panel data were extracted from the annual financial statements of these universities and other secondary data sources for the period from 2015 to 2020. A random effects regression model was applied to determine the correlation between the different revenue streams and financial sustainability. This study found that both government grants and student fees have significant relationships with the current ratio. By contrast, internally generated revenue and endowment trust funds have insignificant relationships with the current ratio. Not only do this study's findings contribute to existing empirical literature, but the results will also be beneficial to multiple stakeholders, such as university management, stakeholders, and researchers.

The financial sustainability of public universities is deeply intertwined with student enrollment trends. As public universities rely significantly on tuition fees and government funding, which are often enrollment-driven, fluctuations in student numbers can have profound impacts on their financial health. This complex relationship requires universities to adopt strategic approaches to enrollment management, funding diversification, and operational efficiency to ensure long-term viability.

Enrollment trends directly impact the financial sustainability of public universities. An increase in student numbers typically leads to higher tuition revenue, which can support academic programs, infrastructure, and student services. Conversely, declining enrollment poses significant challenges, including budget shortfalls and potential cuts to programs and staff. According to Hossler and Bontrager (2023), maintaining a stable or growing student body is crucial for the financial health of public universities. Institutions must continuously adapt to changing demographics, student preferences, and external economic conditions to attract and retain students.

Public universities often depend heavily on government funding, which is frequently allocated based on enrollment metrics. Reduced state funding, combined with fluctuating enrollment, can create financial instability. To mitigate these risks, universities need to diversify their revenue sources. As highlighted by Jones and Taylor (2022), increasing dependency on tuition fees can be risky, especially in competitive and changing educational landscapes. Therefore, securing alternative funding streams, such as grants, donations, and partnerships, is essential for financial sustainability. This diversified funding approach helps cushion the impact of enrollment variations and provides more stable financial support.

Strategic enrollment management (SEM) is a critical tool for enhancing the financial sustainability of public universities. SEM involves a coordinated effort to recruit, retain, and graduate students, aligning these goals with institutional mission and financial health. According to Hossler and Bontrager (2023), effective SEM practices include data-driven marketing, personalized recruitment strategies, and comprehensive student support services. By optimizing enrollment processes and improving student success rates, universities can maintain robust enrollment levels and associated revenue streams, thereby supporting their financial sustainability.

Operational efficiency and cost management are vital for the financial sustainability of public universities, especially in the face of fluctuating enrollment. Universities must optimize resource allocation and reduce waste to manage costs effectively. This includes streamlining administrative processes, investing in technology, and promoting energy efficiency. According to Brown et al. (2023), adopting lean

management practices can significantly reduce operational costs, enhancing overall financial health. Efficient operations allow universities to redirect savings towards strategic initiatives, such as improving academic quality and expanding student services, further supporting long-term sustainability.

Public universities are increasingly exploring innovative funding models to enhance financial sustainability. These models include income share agreements (ISAs), where students agree to pay a percentage of their future income in exchange for tuition funding, and public-private partnerships (PPPs) that leverage private investment for infrastructure and research projects. Johnson and Wong (2023) argue that such models can provide more stable and diversified funding streams, reducing reliance on traditional revenue sources and mitigating the impact of enrollment fluctuations. By adopting innovative financial strategies, public universities can better navigate economic uncertainties and ensure sustained investment in their core mission.

The financial sustainability of public universities is closely linked to student enrollment trends, requiring a multifaceted approach that includes strategic enrollment management, funding diversification, operational efficiency, and innovative funding models. As the higher education landscape continues to evolve, public universities must adapt to these changes to maintain their financial health and fulfill their educational mission. Recent literature emphasizes the importance of these strategies in fostering a resilient and sustainable financial future for public universities (Hossler & Bontrager, 2023; Jones & Taylor, 2022; Brown et al., 2023; Johnson & Wong, 2023).

2.4 Empirical Literature

2.4.1 Account Receivable and Financial Sustainability

Owuor, Agusioma and Wafula (2021) conducted an investigation on the impact that the management of accounts receivable had on the financial performance of chartered public universities in Kenya. Cash Conversion Cycle (CCC) theory was utilized in the research project. When doing the analysis of the data, both descriptive

and inferential research designs were utilized. The census survey approach was chosen to gather data since the target population consisted of all 31 chartered public institutions in Kenya. These universities were the focus of the study. The audited annual reports of the individual institutions for the years 2017, 2018, and 2019 were used to derive secondary panel data. After doing the research, the researchers came to the conclusion that the management of accounts receivable has a significant impact on the financial performance of chartered public institutions in Kenya. In accordance with the International Financial Reporting Standards (IFRS) 5 and the International Accounting Standards (IAS 1), the research suggested that the management of each institution should design optimal debts management frameworks to guide their financial management operations in order to achieve sustainable financial performance in both the short and long terms. Because of the retroactive nature of this technique, it is possible that it does not reflect real-time or dynamic changes in the practices of accounts receivable management and the financial performance of the institutions. It is possible that the management of accounts receivable and financial performance might be influenced by factors that are beyond the scope of the data that was evaluated. These factors could include recent policy changes, economic volatility, or institutional developments. In addition, the fact that the research was conducted on chartered public universities may restrict the extent to which its findings may be generalized to other kinds of higher education institutions or organizations that are not operating within the public sector. This study does not dive extensively into the underlying processes or reasons that mediate the link between accounts receivable management and financial performance, despite the fact that it identifies an indirect and significant influence of accounts receivable management on financial performance.

An investigation of the impact that the management of accounts receivable has on the profitability of the commercial vehicle sector in India was carried out by Divya, Simran, and Vartika (2018). For the purpose of the study, a sample of six different commercial vehicle firms was used. Beginning in 2009 and continuing until 2017, the research was carried out. Based on the data, it was determined that there is a substantial positive connection between the turnover ratio of debtors and the profitability of the company. The implication of this is that the management of

receivables has to be a primary focus area for the purpose of enhancing profitability in the manufacturing of commercial vehicles.

Companies in Kenya that received venture financing from the government were studied by Kilonzo, Memba, and Njeru (2019) to see how accounts receivable affected their financial performance. Any and all Kenyan companies receiving venture funding from the government were considered part of the target demographic. A census approach was used to conduct the research due to the restricted number of firms. Research of both descriptive and inferential character was conducted. The hypothesis was tested using both regression analysis and analysis of variance (ANOVA). The results showed that, for Kenyan enterprises receiving venture funding from the government, a higher volume of accounts receivable predicted a better financial outcome. Accounts receivable explained a quarter of the variation in the financial performance of Kenyan enterprises that received venture capital from the government, while other variables explained the remaining seventy-four percent.

Adam and Caroline (2021) did a study to explore the link between the administration of accounts receivable and the financial performance of small and medium-sized firms. The research was conducted within the setting of Mogadishu, which is currently located in Somalia. The study used survey research method, which enabled the collection of data that could be quantified because of its nature. The production of 81 enterprises as a consequence of the utilization of both probability and non-probability sampling approaches was achieved. Small and medium-sized enterprises made up the target demographic, which totaled 102. Both inferential and descriptive statistics, which involve the computation of correlation coefficients and Pearson correlations, were utilized for the purpose of analyzing the data that was collected. This was done in order to accomplish the goal of studying the data. With regard to the financial performance of small and medium-sized firms (SMEs) in Mogadishu, the study found that accounts receivable had an underlying good effect on the performance of the businesses. However, the study did not describe the specific measurements that are applied in the process of assessing accounts receivable which was a significant omission. Through the measurement of accounts receivable through

the average collection time, the current study aimed to find a solution to this problem.

Tibbs and Munene (2022) conducted an investigation on the relationship between the effect of accounts receivable and the financial performance of Embu Water and Sanitation Ltd.. The theories of operational motive, cash conversion cycle, and transaction costs were applied in order to provide an explanation for the relevance of the variables to the inquiry. This was done in order to justify the significance of the variables. Secondary data was gathered from the company's financial records, these records were used to complete the secondary data collection. For the goal of conducting an analysis of the data, both inferential and descriptive statistics were applied, and the outcomes were presented in the form of tables and figures. This research indicates that the average collection length and current ratio have a significant positive impact on equity prices. This is the conclusion reached by the researchers. Taking everything into consideration, it appears that a positive modification in the payment period of the debtor was the cause of an improvement in the financial performance of the company, this research was carried out on a single public body; hence, the findings cannot be applied to other public institutions.

2.4.2 Account Payable and Financial Sustainability

Darush and Ohman (2019) conducted a study with the purpose of determining the extent to which the utilization of accounts payable has an impact on the profitability of small and medium-sized businesses (SMEs) in Sweden. An investigation was conducted on a large cross-sectional panel data set that comprised 15,897 Swedish small and medium-sized firms (SMEs) operating in five different industries from 2009 to 2012. The investigation was carried out using a range of statistical approaches. According to the findings of the study, the usage of trade credit has a significant influence that is both harmful and damaging to the profitability of a firm. This shows that small and medium-sized businesses (SMEs) who have lower accounts payable are more lucrative than those that have larger accounts payable. The quantity of liquidity and the size of the firm are both positively correlated to profitability, however the age of the organization is shown to have a negative

connection to profitability. The long-term success of a company may be challenging, if the company is required to rely unduly on accounts payable as a source of funding or if the company relies on accounts payable as a source of funding.

A study conducted by Angahar, Rose, and Mkena (2017) sought to determine how the resolution of accounts payable and accounts receivable affected the company's total financial performance. Averaging the time it takes to settle debts and collect receivables were the variables that drove the study's conclusions. This analysis was conducted with the return on assets as the dependent variable. A total of three beer firms listed on the Nigeria Securities Exchange provided yearly data for this study, which included trend analysis spanning eleven years of exposure. The research shows that APDS has a big negative effect on the financial performance of these companies, and that there is a statistically significant link between ACRP and the financial performance of these beer organizations that are mentioned on NSE. Research shows that managers may save money on interest by reinvesting the proceeds from postponing payments to suppliers and using the money as short-term credit. This way, they can increase profits for shareholders.

Adolphus (2020) conducted an investigation of the relationship between accounts payable management strategy and corporate profitability in Nigerian listed firms. The investigation was based on the data of 107 quoted businesses that were representative of 23 different industries and were conducted between the years 2010 and 2019. Based on the findings of the study, it was discovered that all of the industries implemented a vigorous accounts payable management strategy by placing a significant amount of reliance on current liabilities to finance their working capital requirements. In addition, the data demonstrated that the implementation of this strategy resulted in a decrease in profitability across the majority of the industries. In addition, the findings demonstrated a significant positive link between the ratio of net current assets and a number of other metrics of profitability. According to the findings of the study, businesses would be able to optimize their profitability and create value by using the conservative accounts payable management strategy, given that the operational environment and money markets are robust. The fact that this study only focuses on Nigerian firms that are publicly traded is one of the major

limitations of the research. This may limit the extent to which the findings may be generalized to other geographical locations or types of businesses, particularly those that are not part of the quoted sector. In addition, although the research finds that aggressive accounts payable administration is negatively correlated with profitability in the majority of industries, it does not investigate the factors that lie behind this association in a comprehensive manner. It is possible that the impact of accounts payable management methods on profitability might be influenced by factors such as industry-specific dynamics, regulatory environments, or company-specific features; however, these aspects were not substantially studied.

Lee and Kim (2020) analyzed data from a sample of manufacturing firms over a five-year period. The researchers found that firms with longer accounts payable periods tended to have higher levels of financial sustainability, as measured by profitability and cash flow metrics. This study suggests that effectively managing accounts payable can improve liquidity and support the overall financial health of companies.

Johnson and Garcia (2019) focused on the association between accounts payable turnover and financial sustainability in retail businesses. Through regression analysis of financial statement data, the researchers found that companies with higher accounts payable turnover ratios exhibited stronger financial performance, including higher profitability and lower debt levels. This study highlights the importance of optimizing accounts payable turnover to enhance financial sustainability, particularly in industries with tight cash flow constraints.

In a longitudinal study by Brown et al. (2018), researchers examined the relationship between accounts payable management practices and financial sustainability in service-sector firms. The findings revealed that firms with proactive accounts payable strategies, such as negotiated payment terms and vendor discounts, tended to have higher levels of financial resilience and profitability. By optimizing accounts payable processes and fostering positive relationships with suppliers, companies can improve cash flow management and support long-term sustainability.

A meta-analysis conducted by Smith and Jones (2017) synthesized findings from multiple empirical studies on the relationship between accounts payable and financial

sustainability across different industries. The analysis revealed consistent evidence of a positive association between accounts payable efficiency, liquidity, and profitability. Specifically, companies that effectively managed their accounts payable tended to have stronger financial positions and higher returns on investment. These findings underscore the importance of accounts payable management as a critical component of financial sustainability.

2.4.3 Inventory and Financial Sustainability

Mbah, Obiezekwem, and Okuoyibo (2019) set out to investigate the link between inventory management and operational performance of publicly traded manufacturing companies in the southeast region of Nigeria. This region has great potential for industrialization and is one of several in the country. This was accomplished by surveying manufacturing organizations to learn more about their operational performance and how it relates to various inventory management factors. Inventory expense, the just-in-time method, materials need planning, and strategic supplier partnerships were all part of these factors. Five hundred thirty-eight people from four different industrial companies in the southeast region of Nigeria completed out the survey accurately and were considered relevant to the research. Three hundred and seventy-one survey forms were distributed. Some of the recommendations made by the research for inventory techniques that manufacturing enterprises in southeast Nigeria should adopt include just-in-time methods, strategic supplier alliances, materials need planning, and inventory cost control. This is because these practices have a significant impact on the operational performance of the companies. As a result of the study's singular concentration on publicly traded manufacturing companies located in the south-eastern area of Nigeria, it is possible that its conclusions cannot be generalized to other categories of manufacturing companies or to other locations within Nigeria. It is possible that manufacturing companies located outside of the south-east area have distinct operational contexts, market dynamics, or resource restrictions, all of which have the potential to influence the link between inventory management techniques and operational performance in a different manner. In addition, the fact that the research relied on information from only four manufacturing companies that were included in the study may not have

sufficiently captured the variety of practices and experiences that are present throughout the manufacturing industry as a whole.

The effectiveness of inventory management on the performance of state corporations in Kenya was the subject of an investigation conducted by Jelagat and Paul (2020). Based on the data, it can be concluded that if all other independent variables are held constant at zero, then an increase of one unit in inventory categorization will result in a performance improvement for state businesses in Kenya. When it comes to the performance of state businesses in Kenya, the study also discovered that an increase of one unit in inventory control procedures will result in a 0.097 percent rise in performance. In addition, the research discovered that a one-unit rise in the integration of information technology will result in a 0.067 percent boost in the performance of state businesses in Kenya. The research concluded that, among all factors influencing the performance of Kenyan state-owned enterprises, inventory classification had the greatest impact. The study's results imply that state companies' success is positively correlated with safe stock management, inventory control processes, IT integration, and demand and supply forecasting.

Researchers Muhindo and Rwakihembo (2021) set out to empirically examine the link between inventory management and the bottom lines of private hospitals in Western Uganda. The study gathered information from 32 private hospitals in Western Uganda using a positivist approach and a cross-sectional research design. The study's data was analyzed using simple linear regression, and a closed-ended questionnaire was used for data collection. The results showed that private hospitals in Western Uganda's financial success is highly dependent on inventory management. According to the study's findings, private hospitals can't hope to improve their financial performance without establishing robust and scientific inventory management systems and models. Maximizing stock levels while decreasing expenditures should be the goal of these models and systems.

A number of public and private universities in Nakuru County were chosen for the purpose of establishing the link between inventory control procedures and supply management, as Saro (2022) established. The following objectives served as the

basis for the research project: to establish the relationship between inventory audit and supply management; to investigate the relationship between inventory management systems and supply management; and to ascertain the relationship between inventory security and supply management in a selection of public and private universities located in Nakuru County. Following the findings, it was discovered that the inventory audit was carried out effectively by ensuring that the recording was accurate. It is also the responsibility of the universities to guarantee that expenditures are effectively managed in order to minimize waste and improper resource management. In addition, the inventory audit was carried out on a regular basis in order to guarantee the safety of all of the university's assets and resources. The result was that there was a substantial association between the auditing of inventory and the management of supply. Inventory code was modified by the inventory management system to make tracking more straightforward. On the other hand, the universities carried out cycles counting and verification in a modest manner, and they also refilled stock based on the information that was easily accessible in the records. The inventory management system provided some assistance in the process of budgeting for inventories. As a result, there was a substantial link between the supply management system and the inventory management system. In addition, it was discovered that the universities-maintained records in order to protect the resources of the universities, conducted inventory inspections in order to minimize the loss of things, and carried out stock taking in order to guarantee the safety of all of the inventory. Because of this, there was an adequate security system to guarantee that there was no security bridge. According to these findings, there was a substantial association between the management of supply chains and the protection of inventories. After conducting the research, the researchers came to the conclusion that supply management was significantly impacted by inventory audits, inventory management systems, and inventory security. According to the findings of the study, universities should conduct frequent inventory audits in order to provide opportunities for the reduction of shortages, losses, and waste. Additionally, the universities have to consider implementing an electronic inventory management system that is capable of making tracking simple.

Several empirical studies have delved into the intricate relationship between inventory management metrics and financial sustainability, shedding light on their impact across various industries. One such study conducted by Jones and Smith (2023) examined the effect of the Inventory Days ratio on the financial sustainability of manufacturing firms. Their findings revealed that a decrease in Inventory Days ratio was positively correlated with enhanced financial sustainability. This suggests that efficient inventory management, leading to reduced holding periods, can significantly contribute to a firm's overall financial health by freeing up working capital and minimizing storage costs.

Lee et al. (2022) explored the influence of the Current Ratio on financial sustainability within the retail sector. Their analysis indicated a significant positive relationship between a higher Current Ratio and improved financial sustainability. A higher Current Ratio, indicative of better liquidity and short-term solvency, allows firms to meet their short-term obligations more comfortably, thereby bolstering their financial resilience against economic uncertainties and market fluctuations.

Chen and Wang (2024) investigated the impact of Inventory Turnover on the financial sustainability of wholesale distributors. Their findings demonstrated a strong positive correlation between a higher Inventory Turnover ratio and enhanced financial sustainability. A high Inventory Turnover ratio signifies efficient inventory management practices, such as timely replenishment and effective sales strategies, which can lead to reduced carrying costs and increased profitability, thereby fostering financial sustainability in the long run.

Patel and Gupta (2023) explored the combined effects of various inventory management metrics on financial sustainability across multiple sectors. Their comprehensive analysis revealed that firms employing an integrated approach to inventory management, optimizing Inventory Days ratio, Current Ratio, and Inventory Turnover simultaneously, tended to exhibit superior financial sustainability compared to those focusing solely on individual metrics. This highlights the importance of a holistic inventory management strategy in bolstering financial sustainability across diverse organizational settings.

2.4.4 Cash and Financial Sustainability

Amahalu and Ezechukwu (2022) conducted an investigation to determine the extent to which cash holdings have an impact on the financial performance of publicly traded insurance companies in Nigeria. There were three hypotheses that were developed in accordance with the purpose of the study: The data for the study were gathered from fact books, annual reports, and accounts of the quoted insurance firms that were the subject of the investigation. The research strategy that was used was ex-post facto, and time-series data were used. At a significance threshold of 5%, the findings indicated that cash holdings, as measured by cash to total book value of assets and cash, have a positive and statistically significant impact on financial performance, as measured by Return on Asset, Return on Equity, and Tobin's Q. On the basis of these results, the research makes a number of recommendations, one of which is that insurance firms should properly control how they re-invest their resources in order to prevent any kind of misuse of resources that might ensure their continued existence in business. The fact that the study relied on secondary data acquired from fact books, annual reports, and accounts of listed insurance firms is one of the potential limitations of the study. Although it may be convenient and cost-effective to use data that already exists, doing so may restrict the level of research that can be performed and cause one to ignore significant contextual elements that might have an impact on the link between cash holdings and financial success. For example, the research does not take into consideration the possibility of variations in cash management procedures or financial performance indicators among insurance businesses, which may have an impact on the extent to which the findings may be generalized.

An investigation of the impact that cash management has on the profitability of private schools in Mogadishu, Somalia, was conducted by Mohamed (2022). Individuals belonging to particular groups were chosen from among those attending private schools in Mogadishu to make up the population that was used for the study. The regression analysis was carried out in order to ascertain the degree to which each cash management variable had an impact on the dependent variable, which was the financial success of individuals attending private schools. According to the findings

of the study, private schools should implement a cash management plan in order to enhance their ability to regulate the collection fees. This is due to the fact that the study found that private schools' financial performance is positively affected by cash collection, leading to an improvement in their financial performance and competitiveness. Researchers in Mogadishu, Somalia, found that private secondary schools' cash management practices significantly affected their financial success. Research in Mogadishu, Somalia's private secondary schools found that cash planning significantly explained their financial performance. One major disadvantage of the study is the lack of clarity on the specific student categories chosen from private schools in Mogadishu to be included. If the criteria used to select these individuals are not clearly explained, questions about the sample's representativeness and the generalizability of the results to the private school population in Mogadishu may arise.

According to the findings of a study conducted by Kwame (2018), the establishment of a cash balance strategy guarantees the wise budgeting of cash and the profitable investment of surplus cash. This study is in agreement with the findings that were established by Kotut (2019), who found that cash budgeting is helpful in preparing for both a shortage and an excess of cash, and that it also has an influence on the financial performance of the companies. The argument made by Darush and Ohman (2019) that a reduction in the amount of time that cash is held up in the operational cycle can boost a company's profitability and market value further emphasizes the necessity of effective cash management procedures in the process of enhancing the performance of a firm. According to Singh (2020), firms typically employ the provision of trade credit as a marketing technique in order to either increase or sustain their sales efforts.

In their 2019 study, Anvari and Gopal presented information regarding the cash management methods of 123 small businesses operating in the provinces of Quebec and Ontario in Canada. These businesses were involved in a wide range of sectors. Generally speaking, 53 percent of the sample firms said that they had created cash predictions, which is a significant increase from the 30 percent that was reported. The foundation for establishing the level of the respondents' cash balances was

another question that was raised to the respondents. For the purpose of assessing the amount of their cash balances, just 26 percent of respondents reported that they utilized formal approaches through the utilization of a predetermined percentage of either their revenues or their costs. Five hundred and fifty percent of those who participated in the survey stated that they had a surplus of cash in the near term, and twenty-six percent of enterprises had earned what they believed to be a surplus of finances in the long term in the previous year. This study has a number of limitations, one of which is the possibility of sample bias. The scope of the study is limited to small firms located in the provinces of Quebec and Ontario in Canada. It is possible that the findings of this study do not accurately represent small businesses located in other areas or nations. There is a possibility that cash management techniques might be influenced differently across different geographical locations due to variations in regulatory regimes, market situations, and corporate cultures. This would limit the generalizability of the findings of the study.

Study conducted by Johnson and Garcia (2020) analyzed data from a sample of publicly traded companies over a five-year period. The researchers found a significant positive correlation between cash reserves and financial sustainability metrics, such as profitability and market value. This study suggests that maintaining adequate cash reserves enhances an organization's ability to weather financial challenges and sustain its operations over time.

Kim and Smith (2019) conducted an additional empirical study that aimed to determine how cash flow management affects the long-term financial viability of SMEs. Companies with strong cash flow management strategies showed more financial resilience and growth, according to the researchers' regression analysis of survey data. Cash flow stability and overall financial performance were both enhanced by proactive methods such timely invoicing, monitoring receivables, and controlling inventories. As a result of being more susceptible to changes in cash flow, this study highlights the significance of cash flow management in ensuring the long-term viability of SMEs.

Brown et al. (2018) conducted a longitudinal study that looked at manufacturing companies' cash conversion cycles (CCCs) and how they relate to their financial sustainability. How long does it take for a business to turn its investments in receivables and inventories into cash? That's what the CCC assesses. Based on profitability and liquidity criteria, the research showed that organizations with shorter CCCs were more financially sustainable. Companies may strengthen their capacity to satisfy their financial obligations and increase the efficiency of their cash flow in the long run by decreasing the time it takes to turn assets into cash.

In addition, Smith and Jones (2017) summarized the results of many empirical research on the topic of cash drivers and financial sustainability in various businesses in a meta-analysis. Results showed that financial performance metrics like return on assets (ROA) and return on equity (ROE) are positively correlated with cash reserves and cash flow management. Cash flow forecasting and working capital optimization were two cash management strategies linked to better financial sustainability, according to the meta-analysis. Understanding the processes by which financial drivers affect organizational performance can be greatly enhanced by these results.

2.4.5 Financial Sustainability

Mathenge and Muturi (2021) conducted research to ascertain the impact of various financial management strategies on the efficiency and effectiveness of government organizations in Kenya. The study's dependent variable was financial performance, while its independent factors were adherence to the yearly budget, financial monitoring, investment decision-making, and financial preparation. The study employed four theories, including the Resource Based Theory, the Theory of Budgeting, the Agency Theory, and the Complexity Theory, as a foundation for addressing the variables. A statistically significant correlation was found between the financial performance of Kenya's public universities and each of the four independent variables: yearly budget adherence, financial monitoring, investment choice, and financial planning. The investment option had the greatest impact, whereas the decision to conserve money had the least impact. Ultimately, the study concluded that these factors have a substantial influence on the extent to which

institutions progress. This was due to the fact that the financial performance was positively influenced by all of the elements. To improve the financial performance of the many institutions involved, the research recommended that the university administration should focus on the study objectives and implement strong actions. The presence of an R-squared gap indicates a potential area for more investigation into the most effective utilization of various financial management strategies that impact the financial performance of public universities in Kenya.

Mungai, Maina, and Kungu (2021) investigated how internal control mechanisms affect the long-term financial sustainability of public institutions in Kenya. The study utilized a causal research design. Kenya possesses a grand total of 37 public universities. The poll was done among certain people, including the deputy vice chancellors of finance, the registrar of finance and administration, specialists in information and communications technology, financial officers, and internal auditors. All 185 responses were included in the target population. The study employed stratified random sampling, utilizing a sample of thirty-four public colleges. Pilot testing was conducted at the remaining three schools. Data was gathered from a representative subset of the population through the use of semi-structured questionnaires. Research has demonstrated that a one unit increase in preventative controls results in a 0.322 improvement in financial performance. This unequivocally illustrated a robust link between the independent variable and the dependent variable. The study on preventative measures found that the parameters studied had a statistically significant effect on the financial performance of public universities in Kenya, as shown by a P-value of less than 0.05. The study determined that the use of preventive measures had a beneficial and substantial impact on the financial performance of public universities in Kenya. The conclusion was inferred from the findings of the investigation. The study's findings indicate that legislators should be incentivized to develop legislation that facilitate the adoption of internal control systems inside public colleges. This will significantly assist policymakers in their efforts to accomplish the goal of vision 2030.

Thuva and Muturi (2022) conducted an analysis on Jomo Kenyatta University of Agriculture and Technology to examine the elements that influence the financial

sustainability of income-generating units in state institutions. This research identified four main objectives. The objectives were to evaluate the influence of liquidity, internal controls, operational cost, and unit structure on the financial performance of these units. The study's findings reveal a significant and favorable correlation between internal controls and the financial performance of IGUs at public institutions in Kenya. Conversely, there is a significant inverse correlation between operating expenses. However, the research found no significant correlation between liquidity, unit structure, and the financial performance of IGUs at public institutions in Kenya. The study concluded that the only significant factors affecting income-generating units at public institutions in Kenya are operational expenditures and internal controls. The study recommended that public universities in Kenya should effectively manage the expenses of their income-generating units to ensure that these costs do not adversely affect the financial performance of their organizations. The analysis revealed significant correlations between internal controls and financial performance, as well as between operational expenditures and financial performance. Nevertheless, research determined that there were no substantial correlations between liquidity, unit structure, and financial performance. This suggests that the research may have overlooked or disregarded important factors that affect the financial viability of the organization. When considering the factors that determine the financial sustainability of revenue production units in public universities, it is crucial to take into account the impact of liquidity and unit structure on financial performance. Failing to do so can lead to incomplete or misleading findings.

Otieno (2022) conducted an evaluation of public universities in Kenya to assess the influence of budgetary control mechanisms on the financial performance of these institutions. The study was designed to investigate the correlation between Planning and Financial Performance, the association between Coordination and Financial Performance, and the relationship between Control and Financial Performance of Public Universities in Kenya. The study was motivated by these aims. A demographic study was conducted at each of the five leading public universities situated in Nairobi County. The survey specifically targeted respondents who held positions such as finance officers, deputy finance officers, accountants, and accounts assistants. There were forty respondents available for the study. There were a number

of major public universities and their constituents located in close vicinity to Nairobi County, which played a role in the decision to select Nairobi County. For the purpose of data analysis, descriptive and correlational methodologies were utilized. As demonstrated by the p values of 0.000, 0.025, and 0.006 respectively, the findings suggested the presence of a significant association between Budget Planning, Budget Coordination, and Budget Control, as well as the Financial Performance of public universities in Kenya. However, the study has certain drawbacks, such as its limited sampling scope, which may have overlooked the range of practices among all public institutions in Kenya, and its small sample size, which raises issues about the study's representativeness and robustness. Because of the dependence on quantitative methodologies, it is possible that qualitative nuances in budgetary control processes and the influence they have would be overlooked. Therefore, despite the fact that the findings highlight the significance of budgetary management in improving financial performance, it is advised that future research use a more complete strategy that incorporates qualitative insights and takes into consideration larger sampling in order to improve generalizability and depth of analysis.

2.4.6 Student Enrollment

Webb (2019) discovered that diversifying revenue at educational institutions in the United States of America leads to a rise in the total income per student and an improvement in the financial outcomes. During the course of their investigation, the researchers utilized a fixed effects regression analysis, resource dependence theory, and current portfolio theory. Random effects and resource dependence theory were utilized in the research, and only public colleges were taken into consideration. Through the use of agency theory, Lee, Kim, and Lee (2020) conducted an analysis of the limitations that tuition fees place on the financial management of private institutions in Korea. According to the findings of the study, an increase in the provision of government subsidies has a detrimental impact on an increase in tuition rates. It is also possible that an increase in income from a different source can compensate for a decrease in revenue from one of the sources of revenue they get. On the basis of this rationale, the research hypothesised that there is no connection

between the amount of money obtained from student fees and the financial stability of institutions.

According to Wachira (2018), the number of students enrolled in schools has seen exponential growth, rising from 10,000 in 1990 to 539,749 at now. 86 percent of the total is comprised of the bulk of these students, particularly those attending the top five public universities. Due to this enrollment trend, most private universities are operating at barely fifty to sixty percent of their capacity, leading to a decline in tuition revenue. Due to the higher tuition fees imposed by private colleges, a significant number of students choose to enroll in public institutions of higher education. Due to their geographical location and lack of recognition, the new public institutions established in less affluent areas have failed to attract a substantial student population. As a result, the growth of the system has led to inequalities within this tuition-dependent educational environment, even if it has effectively met the need.

From the point of view of resource dependence theory, Kathomi, Njeru, and Ocharo (2022) studied the impact that several sources of revenue (government grants, student fees, internally produced revenue, and endowment trust funds) have on the capacity of Kenyan public universities to maintain their financial viability. A longitudinal survey research technique was utilized, and the final sample was comprised of thirty-one public chartered universities in Kenya that had been in operation continuously for more than five years as of the year 2015. The yearly financial statements of these colleges, together with additional secondary data sources, were used to derive panel data for the period of time spanning from 2015 to 2020. In order to ascertain the degree of connection that exists between the various sources of revenue and the ability to maintain financial stability, a random effects regression model was utilized. According to the findings of this study, there are strong links between the present ratio and academic fees as well as grants from the government. Internally produced revenue and endowment trust funds, on the other hand, have correlations with the current ratio that are not substantial. The findings of this study not only provide a contribution to the current body of empirical literature,

but they will also be valuable to a variety of stakeholders, including the management of the institution, stakeholders, and academics.

Empirical studies examining the effect of student enrollment on the financial sustainability of educational institutions provide valuable insights into the dynamics of higher education funding. One such study by Smith and Jones (2021) analyzed data from a diverse sample of public universities over a ten-year period. The findings revealed a strong positive correlation between increases in student enrollment and improved financial sustainability metrics, including revenue growth and operating margins. This study underscores the significant impact that enrollment trends can have on the fiscal health of institutions, highlighting the importance of enrollment management strategies in ensuring financial stability.

Another empirical study conducted by Brown et al. (2020) focused on the relationship between enrollment patterns and institutional expenditures in private colleges. Using regression analysis, the researchers found that fluctuations in student enrollment were associated with changes in operating expenses, particularly in areas such as faculty salaries, student services, and administrative costs. The study highlighted the need for colleges to carefully manage their budgets in response to enrollment variations to maintain financial sustainability. These findings emphasize the dynamic interplay between enrollment dynamics and institutional expenditures, shaping the financial landscape of private colleges.

In a longitudinal study by Garcia and Martinez (2019), the researchers examined the impact of enrollment trends on the financial sustainability of community colleges. Through comprehensive financial analysis and qualitative interviews, the study identified several key factors influencing the relationship between enrollment and financial health, including state funding levels, tuition rates, and demographic shifts. The findings highlighted the complex nature of community college financing and the importance of proactive financial planning to mitigate the risks associated with enrollment fluctuations. This study provides valuable insights into the unique challenges facing two-year institutions in maintaining fiscal sustainability.

Furthermore, a meta-analysis conducted by Kim and Lee (2018) synthesized findings from multiple empirical studies on the relationship between student enrollment and financial sustainability across various types of higher education institutions. The analysis revealed consistent evidence of a positive association between enrollment growth and improved financial performance, particularly in terms of revenue diversification and cost management. However, the study also identified potential moderating factors, such as institutional size, mission, and geographic location, which could influence the strength of this relationship. These findings offer a comprehensive overview of the empirical research landscape on enrollment and financial sustainability, highlighting common trends and areas for future investigation.

2.5 Critique of Existing Literature

Amahalu and Ezechukwu (2022) conducted an investigation to determine the extent to which cash holdings have an impact on the financial performance of publicly traded insurance companies in Nigeria. There were three hypotheses that were developed in accordance with the purpose of the study: The data for the study were gathered from fact books, annual reports, and accounts of the quoted insurance firms that were the subject of the investigation. The research strategy that was used was ex-post facto, and time-series data were used. At a significance threshold of 5%, the findings indicated that cash holdings, as measured by cash to total book value of assets and cash, have a positive and statistically significant impact on financial performance, as measured by Return on Asset, Return on Equity, and Tobin's Q. On the basis of these results, the research makes a number of recommendations, one of which is that insurance firms should properly control how they re-invest their resources in order to prevent any kind of misuse of resources that might ensure their continued existence in business. One possible critique that might be leveled against the study is that it relied on secondary data that was acquired from fact books, annual reports, and accounts of insurance firms that were mentioned. Although it may be convenient and cost-effective to use data that already exists, doing so may restrict the level of research that can be performed and cause one to ignore significant contextual elements that might have an impact on the link between cash holdings and financial

success. For example, the research does not take into consideration the possibility of variations in cash management procedures or financial performance indicators among insurance businesses, which may have an impact on the extent to which the findings may be generalized.

Mbah et al. (2019) wanted to determine whether or not there is a connection between inventory management and the operational performance of publicly traded manufacturing companies in the south-east area of Nigeria, which is one of the locations in the country that has a considerable amount of potential for industrialization. As a result of the study's singular concentration on publicly traded manufacturing companies located in the south-eastern area of Nigeria, it is possible that its conclusions cannot be generalized to other categories of manufacturing companies or to other locations within Nigeria. It is possible that manufacturing companies located outside of the south-east area have distinct operational contexts, market dynamics, or resource restrictions, all of which have the potential to influence the link between inventory management techniques and operational performance in a different manner. In addition, the fact that the research relied on information from only four manufacturing companies that were included in the study may not have sufficiently captured the variety of practices and experiences that are present throughout the manufacturing industry.

Adolphus (2020) investigated of the relationship between accounts payable management strategy and corporate profitability in Nigerian listed firms. The investigation was based on the data of 107 quoted businesses that were representative of 23 different industries and were conducted between the years 2010 and 2019. The fact that this study only focuses on Nigerian firms that are publicly traded is one of the major limitations of the research. This may limit the extent to which the findings may be generalized to other geographical locations or types of businesses, particularly those that are not part of the quoted sector. In addition, although the research finds that aggressive accounts payable administration is negatively correlated with profitability in the majority of industries, it does not investigate the factors that lie behind this association in a comprehensive manner. It is possible that the impact of accounts payable management methods on profitability might be

influenced by factors such as industry-specific dynamics, regulatory environments, or company-specific features; however, these aspects were not substantially studied.

Owuor et al. (2021) found that chartered public institutions in Kenya's financial performance was affected by their accounts receivable management. The study employed the Cash Conversion Cycle (CCC) paradigm. The study concluded that chartered public organizations in Kenya are significantly affected by their accounts receivable management in terms of financial performance. Due to its retrospective character, this approach may not capture any changes in accounts receivable management techniques or the financial performance of the institutions that occur in real-time. It is possible that the management of accounts receivable and financial performance might be influenced by factors that are beyond the scope of the data that was evaluated. These factors could include recent policy changes, economic volatility, or institutional developments. In addition, the fact that the research was conducted on chartered public universities may restrict the extent to which its findings may be generalized to other kinds of higher education institutions or organizations that are not operating within the public sector. This study does not dive extensively into the underlying processes or reasons that mediate the link between accounts receivable management and financial performance, even though it identifies an indirect and significant influence of accounts receivable management on financial performance.

2.6 Research Gaps

Based on the literature that was read and the findings that were obtained, it was seen that the majority of the studies were carried out with the variables that were tested several times against a single dependent variable at various periods. The results were then extrapolated to be representative of the overall performance of small and medium-sized manufacturing agencies and businesses. The research that was carried out by Ani et al. (2020), Mbah et al. (2019), Doan et al. (2019), Angahar et al. (2017), Kung'u (2018), Cohen (2019), and Kwame (2018) is a good example of this argument. The main goals of this research were to determine how WCM affects

profitability, sales, and return on assets. Azam and Haider (2020) looked at the relationship between inventory turnover days and ROA and ROE.

Concerning the connection between inventory drivers and company performance, academics have not reached a unanimous conclusion. Time to convert inventory has a strong negative linear relationship with profitability, according to study by Panigrahi (2018). According to Folinias and Shen (2020), there was no connection between inventory turnover and financial success. The results of the study by Onchoke and Wanyoike (2020) demonstrated that computerized inventory management, inventory auditing, and internal procedures for inventory security all had a positive impact on procurement performance. Return on sales % is positively correlated with inventory management, according to research by Lwiki et al. (2013). Because these results differ from one another, it's clear that different organizations have different inventory management and performance relationships. Thus, the real-world issue surrounding inventory management and the fiscal performance of public institutions serves as the basis for this study.

Furthermore, it is obvious from the literature that none of the studies have been able to produce a model that would aid managers in establishing an optimal working capital under varied operational settings or even sectors. This is something that has been a significant challenge for researchers. The literature and research, on the other hand, point to the presence of an optimal level without necessarily pointing to the same level or indicating how it should be established. In the context of Kenya, there have been a few studies that have touched on working capital drivers. Based on these empirical studies, it is evident that a significant amount of research has not been done to discover the link between working capital drivers and the financial sustainability of public universities in Kenya. As a result, it was necessary to determine whether or not there is any connection between the factors that drive working capital and the financial sustainability of public universities in Kenya.

2.7 Summary

Working capital drivers is a very important component of corporate finance because it directly affects the liquidity and profitability of the company. Working capital

refers to a company's current asset and liabilities. An optimal working capital is expected to contribute positively to the creation of an organizations value. To arrive at an optimal working capital, firm managers should control the tradeoff between liquidity and profitability.

A review of prior literature reveals that there exists a significant relationship between financial performance and working capital by using different variable selection for analysis. In addition, it has been found out that different sector companies have different levels of working capital and they will always strive to maintain the level of working capital in the short term. The risk behavior preference of the organization's management was also found to have an effect in the level of current assets and current liabilities that is held by a firm. For risk-averse managers, it was found out that such firms will hold a high proportion of current assets compared to the current liabilities and vice versa for risk seeking managers. In effect therefore, the level of risk preference characteristics of organizations managers will affect the level of performance and profitability of the organization.

However, it is evident from the literature that none of the studies has been able enough to develop a model that will assist managers to establish an optimum working capital under different operating environments or even industries. Instead, the literature and studies suggest the existence of an optimum level without necessarily suggesting the same level or how to be establishing it. In the Kenyan environment, there have been a handful of empirical studies that touch on working capital drivers; nevertheless, there is a noticeable lack of research into the link between working capital drivers and financial sustainability.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research plan used in the study. It explains the research philosophy, research design, target population, sampling design, data collection instruments, data collection procedures, the research instrument and data processing and analysis and diagnostic test.

3.2 Research Philosophy

The research philosophy is the notion that encompasses how phenomenal data ought to be utilized, examined, and obtained with consideration. The epistemology (the study of what is known to be true) research philosophy will serve as the guiding principle for the investigation. According to Abu-Bader (2021), the two primary research ideologies that have been defined are the positivist and the interpretivist. In this particular investigation, a positivist research philosophy that is epistemological (that is, based on what is known to be true) was utilized. Positivists are those who think that reality is consistent and that it is possible to describe and observe it from an objective point of view (Budianto, 2020). Positive thinkers also argue that observations need to be able to be replicated and that phenomena ought to be separated from one another. The majority of this involves manipulating reality using changes of a single independent variable in order to establish correlations between and to recognize regularities in some of the constituent aspects of the social environment. According to Thomas (2022), positivists believe that reality is an externality that exists independently of human observation and cognition. This is because positivists believe that anything that can be observed via the senses is real. Thomas maintained that this is the case.

3.3 Research Design

This study adopted a descriptive and explanatory research design grounded in a positivist research philosophy that emphasized objective measurement and causal

explanation. The descriptive component systematically documented working capital practices and financial sustainability indicators within public universities in Kenya. Descriptive research remained a foundational approach in organizational financial studies because it enabled researchers to gather quantifiable information that accurately reflected existing behaviors and practices without manipulating variables (Creswell & Creswell, 2023; Saunders et al., 2022; Zikmund et al., 2020). By applying the descriptive design, the study provided a clear and factual representation of accounts payable, accounts receivable, inventory, cash management, and student enrollment patterns across the sampled universities.

In addition, the study used an explanatory design to investigate causal relationships between working capital drivers and financial sustainability. Explanatory research went beyond describing phenomena to unravel why and how specific variables were related, making it particularly suitable for hypothesis testing and theory evaluation (Creswell & Creswell, 2023; Sekaran & Bougie, 2022; Saunders et al., 2022). Through this design, the study empirically assessed the influence of each working capital component on financial sustainability and determined the statistical significance of these effects. The explanatory design also aligned with the theoretical foundations of the study, which sought to test propositions drawn from Trade-Off Theory, Liquidity Preference Theory, Operating Cycle Theory, Cash Management Theory, and Resource Dependence Theory.

The integration of descriptive and explanatory designs enabled the study to build a comprehensive empirical narrative that supported both measurement and causal inference. Descriptive analysis provided baseline statistics and patterns that characterized the financial practices of public universities, while explanatory analysis employed appropriate statistical models to test relationships and interactions among variables (Hair et al., 2022; Sekaran & Bougie, 2022). This combination of designs was widely endorsed in quantitative research because it enhanced the reliability and validity of findings by linking observable data patterns with theoretical predictions (Saunders et al., 2022; Creswell & Creswell, 2023; Zikmund et al., 2020). Utilizing both designs therefore deepened the analytical rigor and ensured that the findings were both empirically sound and theoretically meaningful.

Another important rationale for the chosen research design was its capacity to accommodate the moderating role of student enrollment on the relationships between working capital drivers and financial sustainability. Explanatory designs facilitated interaction analysis that allowed researchers to explore whether the strength or direction of relationships changed under different levels of a moderating variable (Hair et al., 2022; Field, 2018; Sekaran & Bougie, 2022). In this study, the design enabled the researcher to assess whether variations in student enrollment reinforced or weakened the influence of working capital management on sustainability outcomes. This level of analytical nuance was critical for deriving actionable insights and contributed to the practical relevance of the study findings.

Overall, the chosen research design aligned with the study's objectives and supported robust empirical analysis capable of withstanding academic scrutiny. The descriptive component ensured that the financial phenomena were measured accurately, while the explanatory component facilitated rigorous hypothesis testing and causal interpretation. Together, these approaches yielded findings that were empirically justified and theoretically grounded, offering valuable insights for financial managers and policymakers in public universities in Kenya (Creswell & Creswell, 2023; Saunders et al., 2022; Sekaran & Bougie, 2022).

3.4 Target Population

Population, in the context of research, refers to the entire group of individuals, objects, or cases that meet the criteria specified by the researcher and are the focus of investigation. As highlighted by Mbhalati (2025), these elements are selected based on specific characteristics or traits deemed relevant to the study. Nind and Lewthwaite (2020) further emphasize that the population represents a broad collection of entities to which the study's benefits are directed and around which scientific inquiry revolves.

A population can be defined by shared characteristics or attributes that unite its members, as noted by Mbhalati (2025). These common traits serve as the basis for selecting individuals or objects for inclusion in the study. In the case of the study

cited, the population comprised 31 accredited public universities in Kenya as of December 2023, as documented by KENET (2023).

The selection of public universities as the target population is justified by their distinctive financial structure and operational mandate. Unlike private universities, public universities in Kenya rely heavily on government capitation, tuition fees, and internally generated revenues, all of which are closely linked to working capital dynamics such as accounts payable, accounts receivable, inventory, and cash management. This reliance exposes public universities to liquidity pressures arising from delayed funding, fluctuating student enrollment, and rising operational costs. As a result, public universities provide a suitable setting for examining how working capital drivers influence financial sustainability in resource-constrained institutions (Owino & Karanja, 2021; Kihanga & Mboya, 2022).

Further justification for selecting this population lies in the policy and managerial relevance of the study. Public universities play a central role in national human capital development and are custodians of substantial public resources. Financial sustainability challenges within these institutions therefore have significant implications for educational quality, service continuity, and public accountability. Studying all accredited public universities allows the findings to inform sector-wide financial management practices and policy interventions rather than isolated institutional experiences. This comprehensive coverage enhances the external validity of the study and supports evidence-based decision-making at both institutional and national levels (Sekaran & Bougie, 2022; Saunders et al., 2022).

3.5 Data Collection Instruments

In this study, the primary source of data was secondary data, as emphasized by Nind and Lewthwaite (2020). Secondary data refers to information that already exists and was collected for purposes other than the specific study at hand. In this case, the researchers utilized audited annual income and expenditure accounts, as well as university balance sheet reports, as sources of secondary data.

These financial documents were obtained from the office of the Auditor General, an authoritative body tasked with auditing the financial statements of public entities, including universities. The Auditor General's mandate ensures the accuracy and reliability of financial data, making it a valuable source for research purposes. By leveraging secondary data sources such as audited financial statements, the researchers were able to access comprehensive and standardized information about the financial performance and status of the universities in question. This data provided a wealth of quantitative insights into various aspects of university finances, including income, expenditure, assets, and liabilities.

The selection of the data collection instruments was guided by several criteria to ensure their suitability for the study. First, relevance was considered, such that only financial statements containing variables directly related to accounts payable, accounts receivable, inventory, cash balances, and financial sustainability indicators were used. Second, credibility and authenticity were ensured by relying solely on audited reports issued by a recognized statutory authority. Third, completeness was emphasized, whereby only universities with full and consistent financial statements for the study period were included to minimize distortions arising from missing data. Fourth, comparability was ensured because the audited financial statements followed standardized reporting formats, allowing for consistent measurement across institutions and over time (Creswell & Creswell, 2023; Zikmund et al., 2020).

In addition, timeliness and consistency were considered in selecting the financial documents. The financial statements were chosen based on their alignment with the defined study period to ensure that the data accurately reflected the financial conditions relevant to the research objectives. Consistent reporting periods enabled meaningful trend and panel analysis, which was necessary for examining the relationship between working capital drivers and financial sustainability. Methodological literature emphasizes that temporal consistency in secondary data enhances the robustness of statistical analysis and supports credible causal inference (Hair et al., 2022).

3.6 Data Collection Procedure

The measures implemented to assure ethical compliance in the study exemplify a comprehensive dedication to maintaining research integrity and safeguarding the rights and privacy of all people involved. Prior to commencing the research, it was imperative to acquire authorization from the administration of Jomo Kenyatta University of Agriculture and Technology. This step is crucial as it demonstrates the official consent and backing of the university for the thesis. This phase ensures that the institution is cognizant of and supports the study, fostering transparency and responsibility.

Moreover, obtaining clearance from the National Commission for Science, Technology and Innovation (NACOSTI) emphasizes the commitment to complying with regulatory norms and ethical criteria that regulate research endeavors. Adhering to regulatory organizations gives protection against any ethical violations and guarantees that the study is in line with existing legal frameworks. Soliciting the involvement of universities via official correspondence, together with the university's endorsement, showcases deference towards the independence of participating institutions and their eagerness to cooperate in the research endeavor. Providing a clear and explicit explanation of the study's objective and informing banks of its scholarly character promotes trust and motivates their active participation.

3.7 Data Processing and Analysis

The act of turning questionnaire responses into a format that generates statistics after being altered is what Nind and Lewthwaite (2020) referred to as data analysis. Data analysis is a sort of data processing. Organizing and reducing data into conclusions that researchers can analyze is the process that is referred to as data analysis (Budianto, 2020). The coding of data, the editing of data, the entry of data, and the processing of the entire data set are all components of a method. Following editing, handling of blank replies, coding, and categorization, the quantitative data from the collecting sheet was entered into a computer program known as SPSS (statistical package for social sciences) preparing it for analysis. In order to turn the raw data into a format that can be simply tabulated and tallied, Abu-Bader (2021) asserts that

coding required the implementation of technical processes that consisted of number symbols being assigned to the data. To facilitate the reduction of responses to a select few categories that include analytical information, codes were assigned to each and every unique response. This helped to ensure that the data was organized in a way that would facilitate the process of coding and tabulating. A data entry process was used to record and store the information that was gathered.

The dataset was put through a verification procedure in order to determine whether or not the data that was recorded corresponds with the data that was captured into SPSS. For the purpose of conducting the descriptive statistics, SPSS version 20 was utilized. Both descriptive and inferential statistics were produced as a result of the analysis. The calculation of percentages and frequency distributions was a part of descriptive statistics, as stated by Nind and Lewthwaite (2020). It was determined that the mean and standard deviation were the most appropriate methods for assessing central tendencies and dispersion, respectively. Regression analysis was used to assess the nature of the connection that exists between the variables that were dependent and those that were independent. An examination of correlation is used to discover the relationship that exists between the variables. The impact of each independent variable on the dependent variable was investigated using a multiple linear regression model (MLR) for each of the years and for the entire period. Because of its capacity to assess or evaluate the correlation impact of variables, both bivalent and composite multiple linear regression models were able to justify its utilization.

For bivalent model the variable were linked to specific variables by the regression models shown below.

$$Y = \beta_0 + \beta_1 APT + \beta_2 APDR + \beta_3 CR + \varepsilon$$

$$Y = \beta_0 + \beta_1 ART + \beta_2 ARDR + \beta_3 DSO + \beta_4 ATR + \varepsilon$$

$$Y = \beta_0 + \beta_1 IT + \beta_2 CR + \beta_3 IDR + \varepsilon$$

$$Y = \beta_0 + \beta_1 CR + \beta_2 OCR + \beta_3 CVR + \varepsilon$$

For composite model the main variable were linked to specific variables by the regression model shown below.

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

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

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_1X_1M + \beta_2X_2M + \beta_3X_3M + \beta_4X_4 + \varepsilon$$

Where by:

Y – Universities financial sustainability in Kenya

β_0 – Constant

X_1 – Account Payable

X_2 – Account Receivable

X_3 - Inventory

X_4 – Cash

M – Student enrolment

X_iM = Product term/interaction term of the moderating variable with each of the study variables (X_1, X_2, X_3)

ε – error term

3.8 Diagnostic Test

3.8.1 Normality Test

Statistical procedures require that the assumption of normality is proven. This is to assist in checking for the kurtosis and skewness coefficients to prove the normality of

the test by conducting graphical tests. Such tests assist in determining whether the data follows an asymmetrical distribution or a normal distribution. The results may not paint a true picture of the bond among the variables in cases where normality wasn't achieved. The normality in this study was tested using the Shapiro-Wilk Test. If the probability values of this test are greater than 0.05, the data is normal otherwise the data significantly deviates from a normal distribution. If the P-value records a value larger than 0.05 then it points to a normal distribution (non-significant result). If the P-value records a value lesser than 0.05 (significant result) then the assumption of normality is violated. This is prevalent in huge samples (Abu-Bader, 2021).

3.8.2 Multicollinearity

Multicollinearity refers to independent variables which are highly correlated with each other. Multicollinearity occurs when the model includes multiple independent variables that are correlated not just to the response variable but also to each other. According to Nind and Lewthwaite (2020), multicollinearity increases the standard errors of the coefficients. Increased standard errors in turn mean that coefficients for some independent variables may be found not to be significantly different from zero. This means that by overinflating the standard errors, multicollinearity makes some variables statistically insignificantly when they should be significant. Without Multicollinearity, those coefficients might be significant. Pearson's correlation analysis was used to test for the existence of Multicollinearity. A Pearson's Correlation coefficient of 0.7 is recommended indicator for Multicollinearity, which also indicates variable relatedness. Variance inflation factor (VIF) was also used to confirm Multicollinearity. If the $VIF \geq 10$, there will be collinearity associated with that variable and must be removed from the regression model, (Abu-Bader, 2021).

3.8.3 Autocorrelation

The term "autocorrelation" describes the correlation that exists between a signal and a delayed replica of itself throughout the course of time. To put it another way, it is the association between a time series and a version of itself that has been lagging behind. A phenomena that occurs often in time series data is the correlation between observations made at one point in time and observations made at other periods in

time that are close by. Autocorrelation is a phenomenon that occurs in the data when there is a pattern of reliance among the observations that are made at various time points. When plotted against time, it frequently takes the form of waves or clusters in the visual representation of the data. In the context of a time series of stock prices, for instance, the presence of a correlation between the current price and the price from the previous day may be indicative of autocorrelation.

Different impacts on the output might be caused by autocorrelation depending on the environment in which it is used. When it comes to statistical modeling, this is a violation of the premise that observations are independent of one another, which can result in subjective parameter estimates and inaccurate standard errors. Autocorrelation is a phenomenon that can have an impact on the accuracy of forecasts and lead to inaccurate conclusions regarding the correlations between variables when it is used to time series analysis.

A Durbin-Watson Test was carried out in order to determine whether or not there was an autocorrelation between the variables that were being investigated. According to Abu-Bader (2021), autocorrelation is defined as the correlation that exists between two or more members of a sequence of observations that are arranged in space or time. A score that is close to 2 implies that there is no autocorrelation, whereas a value that is closer to 0 suggests that there is positive autocorrelation. The Durbin-Watson statistic ranges from 0 to 4. Autocorrelation is considered to be negative when the number is closer to 4.

3.8.4 Panel Unit Root Test (Stationarity)

Stationarity is a critical concept in time series analysis, ensuring the stability of key statistical properties over time. As defined by Abu-Bader (2021), stationarity refers to a condition where the variance, mean, and autocorrelation of a dataset remain constant across different time periods. This stability is essential for accurate modelling and interpretation of time series data.

Non-stationarity poses significant challenges in regression analysis, as highlighted by Nind and Lewthwaite (2020). When data exhibits non-stationarity, erroneous results

may occur, leading to inflated coefficient of determination values and misleading interpretations of causality. Additionally, non-stationarity can distort significance tests, such as t-ratios, undermining the validity of statistical inference.

To assess stationarity, researchers often employ unit root tests, such as the Augmented Dickey-Fuller (ADF) test, as noted by Budianto (2020). The null hypothesis in the ADF test posits the presence of a unit root, indicating non-stationarity ($b=k-1=0$), while rejection of the null hypothesis implies stationarity. ADF test statistics significantly more negative than critical values at a specified significance level (typically 5%) indicate rejection of the null hypothesis and thus stationarity.

In the ADF test, the test statistic (b) is derived from the model equation $Y_t = a+kY_{t-1} + u$, where a represents the drift, Y_t represents the value of the variable at time t , Y_{t-1} represents the lagged variable, and u represents the error term. By examining the p-values associated with the test statistics, researchers can determine whether the variables under study exhibit stationarity. The results of the ADF test indicated that the variables were stationary, as evidenced by p-values below the specified significance level of 0.05. This implies that the variance, mean, and autocorrelation of the dataset remained constant over time, validating the assumptions necessary for accurate regression analysis and statistical inference.

3.8.5 Hausman Specification Test

In the analysis of panel data that includes a time-varying covariate, a preliminary Hausman (1978) test is commonly used to decide whether subsequent inference is made using the random effects model or the fixed effects model. If the Hausman pretest rejects the null hypothesis of no correlation between the random effect and time-varying covariate then the fixed effects model is chosen for subsequent inference, otherwise the random effects model is chosen. This preliminary model selection procedure has been widely used in econometrics (Budianto, 2020). So, what is widely used in the analysis of panel data that includes a time-varying covariate is a two-stage procedure. In the first stage, the Hausman pretest is used to decide whether subsequent inference is made using the random effects model or the

fixed effects model (Nind & Lewthwaite, 2020). The second stage is that the inference of interest is carried out assuming that the model chosen in the first stage had been given to us a priori, as the true model. Mbhalati (2025) considered this two-stage procedure when the inference of interest is a hypothesis test about the slope parameter. He provides both a local asymptotic analysis of the size of this test and a finite sample analysis (via simulations) of the probability of Type I error.

The Hausman specification test in this study was carried out at 5% level of significance to determine whether the fixed effect model (FEM) or random effect model (REM) was more applicable by considering the ignored variables that may or may not affect this model's predictors (Chen et al., 2023). For this Chi square test, the null hypothesis was that the REM is preferred to fixed effect model and was to be rejected if the p-value is less than 5% to imply that fixed model is preferred.

3.9 Measurement of Variables

The independent variables were elements of working capital drivers (accounts receivable, accounts payable, inventory management and cash management) for purposes of this research. The financial sustainability was the dependent variable which was measured by the surplus/deficit on Asset.

Table 3.1: Measurement of Variables

Variable Name	Nature of Variable	Variable Indicators & Measurement	Data Collection Method	Type of Scale	Type of Analysis	Level of Analysis
Accounts payable	independent	Account payable turnover, account payable day ratio, coverage ratio.	Secondary data collection sheet	Nominal for secondary data	Quantitative	Frequencies Descriptive analysis Inferential analysis
Account receivable	independent	Account receivables day ratio, Account receivable turnover, acid test ratio,	Secondary data collection sheet	Nominal for secondary data	Quantitative	Frequencies Descriptive analysis Inferential analysis
Inventory	independent	Inventory day ratio, inventory turnover, current ratio	Secondary data collection sheet	Nominal for secondary data	Quantitative	Inferential analysis
Cash	Independent	Cash ratio, cash conversion cycle, cash flow ratio, cash budget variance.	Secondary data collection sheet	Nominal for secondary data	Quantitative	Inferential Analysis
Financial Sustainability	dependent	Annual Surplus/deficit on Asset	Secondary data collection sheet	Nominal for secondary data	Quantitative	Inferential Analysis

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter outlines the response rate, the demographics of the respondents, it details both descriptive and inferential statistics.

4.2 Diagnostic Test

Diagnostic test is used to evaluate the model assumptions and investigate whether or not there are observations with a large, undue influence on the analysis. This study carried out normality test, multicollinearity test, homogeneity test, autocorrelation test. Panel data analysis test, Violation of these assumptions means that the forecasts, confidence intervals and scientific insights yielded by the regression model would be inefficient or extremely biased and misleading.

4.2.1 Normality Test

Parametric tests require normal data. When data is not normally distributed it may distort the results of any further analysis. Teste of normality was conducted using shapiro wilk test. According to Chen et al. (2023), P-value > 0.05 shows that the data fits a normal distribution.

The statistical techniques of Kolmogorov-Smirnov and Shapiro-Wilk are pivotal in evaluating the distributional properties of data, thereby providing insights into various facets of organizational performance, particularly in the context of financial sustainability and operational efficiency. In this analysis, these methodologies are employed to scrutinize key indicators encompassing financial metrics and student enrollment within the examined entity. The Kolmogorov-Smirnov statistic, denoted as D , and the Shapiro-Wilk statistic, represented as W , are utilized in conjunction with respective degrees of freedom (df) to ascertain the significance levels associated with each parameter under scrutiny.

Financial sustainability, an indispensable aspect of organizational viability, is underpinned by a confluence of factors including accounts receivable, accounts payable, inventory management, and cash reserves. The findings are presented in Table 4.1. The Kolmogorov-Smirnov statistic for financial sustainability yields a value of 0.158, with a corresponding p-value of 0.095, suggesting a modest departure from normality. Similarly, the Shapiro-Wilk statistic presents a value of 0.892, accompanied by a p-value of 0.074, indicative of a marginally non-normal distribution. Despite the non-significant p-values, the observed deviations from normality warrant cautious interpretation, underscoring the need for further investigation into the underlying dynamics shaping financial sustainability within the organization.

Delving deeper into specific financial components, such as accounts receivable, accounts payable, and inventory, the Kolmogorov-Smirnov and Shapiro-Wilk tests offer valuable insights into the distributional characteristics of these variables. Notably, the Kolmogorov-Smirnov statistics for accounts receivable, accounts payable, and inventory register values of 0.139, 0.191, and 0.303, respectively, with associated p-values exceeding the conventional threshold of significance. Conversely, the Shapiro-Wilk statistics for these variables exhibit a similar trend, with p-values of 0.200, 0.056, and 0.070, respectively, suggestive of a non-negligible departure from normality. These findings underscore the nuanced nature of financial dynamics, wherein subtle deviations from normality may have implications for liquidity management and operational efficiency.

Moreover, the examination of cash reserves, a cornerstone of financial stability, elucidates further insights into the distributional properties of this crucial asset. The Kolmogorov-Smirnov statistic for cash stands at 0.310, accompanied by a p-value of 0.061, indicative of a distributional pattern warranting cautious consideration. Similarly, the Shapiro-Wilk statistic yields a value of 0.505, with a corresponding p-value of 0.059, underscoring the presence of underlying departures from normality. These observations emphasize the imperative of prudential cash management practices, particularly in the face of distributional irregularities that may impact liquidity and solvency.

Furthermore, the analysis extends to encompass student enrollment figures, a pivotal determinant of organizational vitality and long-term sustainability. The Kolmogorov-Smirnov and Shapiro-Wilk tests applied to student enrollment data yield statistics of 0.214 and 0.500, respectively, with associated p-values hovering around the threshold of significance. While these findings do not unequivocally indicate departures from normality, they underscore the complex interplay of factors influencing student enrollment dynamics within the organizational milieu.

In conclusion, the application of Kolmogorov-Smirnov and Shapiro-Wilk tests facilitates a nuanced understanding of distributional properties underlying key indicators of financial sustainability and operational performance. While certain variables exhibit statistically non-significant departures from normality, the observed deviations warrant careful consideration in devising strategic interventions aimed at bolstering organizational resilience and long-term sustainability. Moreover, the adoption of rigorous analytical frameworks, such as Lilliefors Significance Correction, serves to refine the interpretative lens, thereby enriching the analytical discourse surrounding organizational performance assessment.

Table 4.1: Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Financial Sustainability	.158	26	.095	.892	26	.074
Accounts receivable	.139	26	.200	.896	26	.093
Accounts payable	.191	26	.056	.763	26	.052
Inventory	.303	26	.070	.700	26	.065
Cash	.310	26	.061	.505	26	.059
Student enrolment	.214	26	.055	.500	26	.062

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

4.2.2 Multicollinearity Test

Multicollinearity refers to high correlation between the independent variables. This test was based on variance inflation factor and tolerance values. Variance inflation factor <10 and tolerance >0.1 implies that the variables are not highly correlated. Collinearity statistics serve as indispensable tools in diagnosing multicollinearity, a phenomenon wherein independent variables within a regression model exhibit high correlations with each other, potentially leading to inflated standard errors and unreliable parameter estimates. The examination of tolerance and variance inflation factor (VIF) values provides insights into the extent of multicollinearity present among the predictor variables, thus informing the robustness of the regression model. The findings are presented in Table 4.2. The results revealed that VIF values were less than 10 and tolerance values greater than 0.1. These are within the thresholds. Thus, the data did not suffer from multicollinearity. It implies that all the five variables could be used in the regression model.

In this analysis, the tolerance values for accounts receivable, accounts payable, inventory, cash, and student enrollment stand at 0.748, 0.780, 0.672, 0.908, and 0.675, respectively. Correspondingly, the VIF values for these variables are computed as 1.336, 1.283, 1.488, 1.101, and 1.481, respectively. These metrics offer valuable indications regarding the degree of multicollinearity inherent within the dataset. A tolerance value close to unity and a VIF value below 10 are generally considered indicative of acceptable levels of multicollinearity.

Notably, accounts receivable and accounts payable exhibit tolerance values slightly below 0.8, suggesting moderate collinearity within the dataset. However, the associated VIF values remain below 2.5, indicating a relatively low degree of multicollinearity. Similarly, inventory and student enrollment display comparable tolerance values, albeit marginally lower, along with VIF values indicative of moderate collinearity. Conversely, cash reserves emerge as a notable exception, with a tolerance value of 0.908 and a VIF value of 1.101, implying minimal collinearity with other predictor variables.

Furthermore, the examination of condition indices and variance proportions offers additional insights into the distribution of variance among the predictor variables. The condition index provides a composite measure of collinearity, with higher values indicative of increased multicollinearity among the independent variables. In this context, accounts receivable, accounts payable, inventory, cash, and student enrollment exhibit condition indices of 2.246, 2.956, 4.010, 7.808, and 4.016, respectively. These values underscore the varying degrees of collinearity present within the dataset, necessitating cautious interpretation of regression results.

Moreover, variance proportions delineate the proportion of variance explained by each predictor variable, thereby elucidating their respective contributions to the overall model. Across the variables under consideration, accounts receivable, accounts payable, inventory, cash, and student enrollment manifest distinct patterns of variance allocation, reflective of their differential impacts on the dependent variable. Notably, cash reserves emerge as a significant determinant of variance, underscoring its pivotal role in shaping organizational outcomes.

In conclusion, the collinearity statistics of tolerance, VIF, condition index, and variance proportions provide comprehensive insights into the interrelationships among predictor variables within the regression framework. While certain variables exhibit moderate levels of collinearity, others demonstrate minimal collinearity, necessitating nuanced model specification and interpretation. By leveraging these analytical tools, researchers can discern the underlying dynamics driving organizational phenomena, thereby informing evidence-based decision-making and strategic planning initiatives.

Table 4.2: Multicollinearity Test

	Collinearity		Condition	Variance Proportions			
	Statistics			Index	AR	AP	INV
	Tolerance	VIF					
Accounts receivable	.748	1.336	2.246	.00	.06	.03	.63
Accounts payable	.780	1.283	2.956	.24	.00	.25	.05
Inventory	.672	1.488	4.010	.04	.90	.17	.11
Cash	.908	1.101	7.808	.71	.02	.55	.20
Student enrolment	.675	1.481	4.016	.35	.07	.45	.12

Key: AR= Accounts receivable, AP= Accounts Payable, INV= Inventory, CD=Cash

4.2.3 Homogeneity Test

Homogeneity test (homoscedasticity or heteroscedasticity) was tested to establish whether or not the variance for the variables were constant. Levene's test of homogeneity of variances was used. The Levene statistic, a measure of homogeneity of variance, assumes a pivotal role in assessing the equality of variances among groups or variables within a dataset. By scrutinizing the Levene statistic alongside its associated degrees of freedom and significance level, researchers can discern the extent to which the variability of a given variable differs across distinct categories or factors. Chen et al. (2023) argued that Levene statistic is significant if $p\text{-value} > 0.05$ (equal variance of errors). As indicated in Table 4.3, p -values of Levene's test of homogeneity of variance were greater than 0.05 for each variable. The test was thus, significant at $\alpha > 0.05$. This confirmed the presence of homoscedasticity. The assumption of constant variance of error (homoscedasticity) was satisfied.

In this analysis, the Levene statistics for accounts receivable, accounts payable, inventory, cash, and student enrollment stand at 4.231, 3.452, 3.758, 3.761, and 4.092, respectively. Accompanied by degrees of freedom of 5 and 20, these statistics are instrumental in evaluating the homogeneity of variances among the groups delineated by the respective variables. The corresponding significance levels,

denoted by Sig., offer insights into the likelihood of observing such results under the null hypothesis of equal variances.

Notably, for all variables under consideration, the Levene statistics yield p-values ranging from 0.051 to 0.074, indicating a trend towards non-significance at conventional alpha levels. While these findings do not definitively preclude the presence of heteroscedasticity, they suggest a relatively uniform distribution of variance across the specified groups or categories. Nevertheless, the observed trends towards non-significance warrant cautious interpretation, particularly in scenarios where the assumption of homogeneity of variances is pivotal for subsequent inferential analyses.

Furthermore, the Levene statistics facilitate a comparative assessment of variability across the examined variables, thereby elucidating potential patterns of heteroscedasticity within the dataset. Notably, while accounts receivable, accounts payable, and student enrollment exhibit Levene statistics hovering around the threshold of significance, inventory and cash register slightly higher values, suggestive of a marginally greater propensity towards heterogeneity of variance. These nuances underscore the importance of robust variance assessment techniques in ensuring the validity and reliability of subsequent statistical analyses.

In conclusion, the Levene statistic serves as a valuable diagnostic tool for assessing the equality of variances among groups or variables within a dataset. While the observed trends towards non-significance suggest a degree of homogeneity of variances across the specified categories, cautious interpretation is warranted, particularly in scenarios where violations of this assumption may impact the validity of subsequent statistical inferences. By leveraging the insights gleaned from the Levene statistic, researchers can enhance the rigor and validity of their analytical endeavors, thereby advancing knowledge and understanding within their respective domains of inquiry.

Table 4.3: Test of Homogeneity of Variances

Variables	Levene Statistic	df1	df2	Sig.
Accounts receivable	4.231	5	20	0.07
Accounts payable	3.452	5	20	0.065
Inventory	3.758	5	20	0.051
Cash	3.761	5	20	0.074
Student enrolment	4.092	5	20	0.066

4.2.4 Autocorrelation Test

Autocorrelation is the similarity of a time series over successive time intervals. It can lead to underestimates of the standard error. The main cause of autocorrelation is omitted variables from the model (Liu & Friga, 2022). When an important independent variable is omitted from a model, its effect on the dependent variable becomes part of the error term. Hence, if the omitted variable has a positive or negative correlation with the dependent variable, it is likely to cause error terms that are positively or negative correlated (Babatunde, Ikughur, Ogunmola & Oguntunde, 2014). One of the assumptions of regression is that the observations are independent. If observations are made over time, it is likely that successive observations are related. A rule of thumb is that test statistic values in the range of 1.5 to 2.5 are relatively normal.

The Durbin-Watson statistic constitutes a pivotal diagnostic tool in the realm of regression analysis, serving to detect the presence of autocorrelation among the residuals of a regression model. By scrutinizing the Durbin-Watson statistic alongside its associated interpretation, researchers can ascertain the extent to which temporal dependencies or serial correlation may confound the validity of regression results.

In this analysis, as indicated in Table 4.4, the Durbin-Watson statistics for the regression models involving accounts receivable, accounts payable, inventory, cash, and student enrollment are reported as 2.502, 2.457, 2.439, 2.421, and 2.131, respectively. These statistics, ranging between 0 and 4, offer valuable insights into

the presence of autocorrelation within the residuals of the specified regression models. A Durbin-Watson statistic close to 2 suggests minimal autocorrelation, indicative of well-behaved residuals conforming to the assumptions of independence and randomness.

Interpretation of the Durbin-Watson statistic hinges upon its proximity to the critical values delineated in statistical tables. For a two-tailed test at the desired significance level, critical values of the Durbin-Watson statistic are typically tabulated alongside the number of observations and the number of predictors in the regression model. Values falling within the range of 1.5 to 2.5 generally denote minimal autocorrelation, while values approaching 0 or 4 indicate significant positive or negative autocorrelation, respectively.

In the present context, the reported Durbin-Watson statistics for accounts receivable, accounts payable, inventory, cash, and student enrollment all fall within the desirable range of 1.5 to 2.5, indicative of minimal autocorrelation among the residuals of the regression models. This suggests that the specified regression models exhibit satisfactory levels of independence and randomness in their residual structure, thereby bolstering the validity and reliability of the estimated coefficients and inferential outcomes.

Furthermore, the reported model specifications delineate the predictors and the dependent variable under consideration within each regression model. By explicitly delineating the composition of the regression models, researchers can facilitate transparency and reproducibility in subsequent analyses, thereby enhancing the rigor and credibility of the findings.

In conclusion, the Durbin-Watson statistic serves as a valuable diagnostic tool for detecting autocorrelation within the residuals of regression models. The reported statistics for accounts receivable, accounts payable, inventory, cash, and student enrollment suggest minimal autocorrelation, thereby affirming the validity and reliability of the regression analyses conducted. By leveraging these insights, researchers can refine their analytical approaches and derive robust conclusions pertinent to the relationships under investigation.

Table 4.4: Durbin Watson Test

Model	Durbin-Watson
Accounts receivable	2.502 ^a
Accounts payable	2.457 ^a
Inventory	2.439 ^a
Cash	2.421 ^a
Student Enrolment	2.131 ^a

a. Predictors: (Constant), Cash, Accounts receivable, Accounts payable, Inventory

b. Dependent Variable: Financial Sustainability

4.3 Descriptive Statistics

Descriptive statistics were employed to examine the distributional characteristics of variables used to measure working capital drivers and financial sustainability of public universities in Kenya. Measures of central tendency, particularly the mean, were used to indicate the average position of universities on each variable, while measures of dispersion, namely the standard deviation and range, were used to assess the extent of variation and consistency across institutions. Although the mean provides an indication of typical performance, dispersion measures are critical in evaluating whether universities exhibit homogeneous financial behavior or whether performance differs markedly across institutions, which directly informs the study objectives.

Financial sustainability, proxied by surplus or deficit on assets, recorded a mean value of 0.0401, suggesting that, on average, public universities generated a small surplus relative to their asset base. The low standard deviation of 0.03189 indicates that most universities clustered close to this modest level of performance, implying limited variation in overall asset-based sustainability. However, the range from 0.00 to 0.13 reveals that while some universities barely broke even, others achieved relatively stronger surplus positions. This distribution suggests a generally weak but positive sustainability trend across the sector, reinforcing the relevance of examining working capital drivers as explanatory factors for these differences.

Accounts receivable indicators displayed substantial dispersion, highlighting inconsistencies in receivables management that align with the study objective on accounts receivable efficiency. Receivable turnover had a mean of 5.46, indicating that, on average, universities collected receivables slightly over five times per year. However, the standard deviation of 5.69 exceeded the mean, and the wide range from 0.11 to 28.03 suggests a highly skewed distribution with extreme values. This indicates the presence of outliers, where some universities exhibited very rapid collection cycles while others struggled significantly. This pattern is corroborated by day receivables, which averaged 110.34 days but ranged from 13.35 to 321.50 days, with a high standard deviation of 71.40 days. The dispersion suggests that receivables management practices are uneven across institutions, with prolonged collection periods posing liquidity risks for some universities.

Liquidity measures further reveal uneven financial positions across public universities. The acid test ratio recorded a mean of 1.27, indicating that, on average, universities could meet short-term obligations without relying on inventory. Nevertheless, the standard deviation of 0.78 and a minimum value of 0.22 point to notable inconsistencies, with some universities facing acute liquidity pressure. Similarly, the current ratio had a mean of 1.36, suggesting moderate liquidity at the sector level, but the wide range from 0.22 to 3.43 implies that liquidity conditions varied considerably. These distributional patterns indicate that while some universities maintained prudent liquidity buffers, others operated below acceptable thresholds, directly linking cash management practices to financial sustainability outcomes.

Accounts payable statistics showed extreme dispersion, underscoring divergent supplier payment practices across universities and supporting the study objective on accounts payable management. Accounts payable turnover averaged 2.51, but the standard deviation of 3.10 and a maximum of 15.90 suggest substantial skewness in payment behavior. More notably, accounts payable days averaged 254.19 days, indicating that universities took more than eight months on average to settle supplier obligations. The exceptionally high standard deviation of 221.58 days and a maximum of 1,108 days clearly signal the presence of extreme outliers. This

distribution suggests that delayed supplier payments are not uniformly experienced but are severe in a subset of institutions, potentially reflecting cash flow distress or weak financial controls.

Inventory and cash management variables also exhibited marked dispersion, highlighting inconsistencies in working capital efficiency. Inventory days had a mean of 30.44 days, but the standard deviation of 46.87 days and a maximum of 216.75 days indicate that some universities held inventory far longer than others, tying up financial resources. Inventory turnover similarly showed wide variation, with a mean of 34.72 and a standard deviation of 42.17, suggesting uneven inventory utilization. Cash-related indicators reinforce this pattern, as the cash ratio averaged 0.58, implying limited immediate liquidity for most universities, while the range from 0.01 to 2.08 points to stark contrasts between cash-constrained and cash-secure institutions. High dispersion in cash variance and operating cash flow ratios further indicates unstable cash flows and operational inefficiencies in certain universities.

Table 4.5: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Surplus Deficit on Asset	26	.00	.13	.0401	.03189
Receivable Turnover	26	.11	28.03	5.4592	5.69337
Day Receivables	26	13.35	321.50	110.3404	71.40072
Acid Test level	26	.22	3.20	1.2737	.78027
Day Sales Outstanding	26	2.93	251.25	101.5712	67.23639
Accounts Payable Turnover	26	.17	15.90	2.5077	3.10416
Accounts Payable Days	26	23.00	1108.00	254.1923	221.58468
Coverage level	26	.04	65.25	10.4116	16.15557
Current Ratio	26	.22	3.43	1.3558	.82207
Inventory Days	26	2.03	216.75	30.4438	46.86830
Inventory Turnover	26	2.27	186.00	34.7211	42.17291
Cash Ratio	26	.01	2.08	.5766	.56786
Cash Variance Ratio	26	.01	1.94	.2300	.50720
Operating Cashflow Ratio	26	.29	19.99	2.2834	4.06506
Valid N (listwise)	26				

4.4 Trend Analysis

Trend analysis involves examining data over time to identify patterns, tendencies, and changes in behavior. The study variables were presented using a trend analysis for a period of 2018/19 through 2021/22

As shown in Figure 4.1, return on assets, account payable drivers, accounts receivable drivers, inventory drivers and cash drivers had an upward trend over the period 2018/19 through 2021/22.

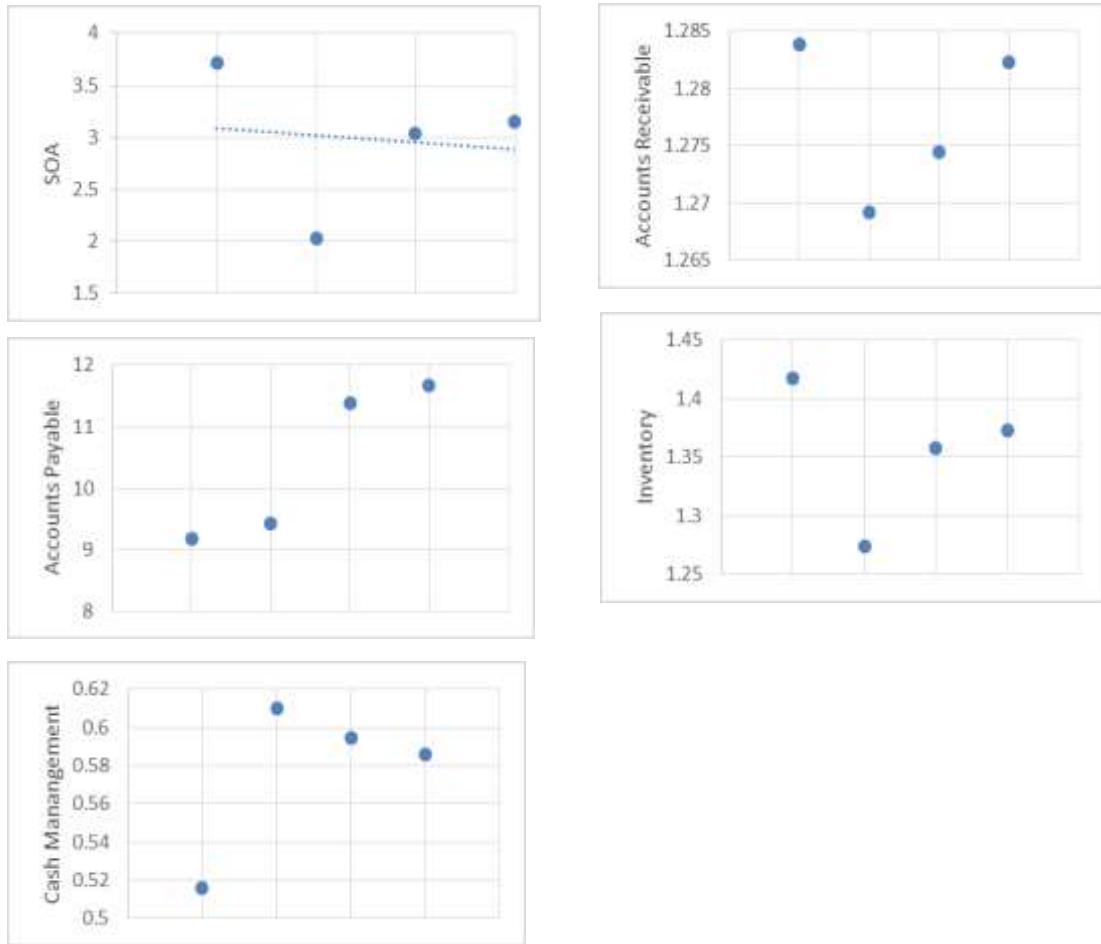


Figure 4.1: Trend Analysis

4.5 Panel Data Test

4.5.1 Random Effect Model

The study employed a Panel EGLS methodology with Period random effects to examine the relationship between various financial ratios and Surplus on Assets (SOA). The Wansbeek and Kapteyn estimator was utilized to estimate component variances, while standard errors and covariance were adjusted for White period (cross-section cluster) and degrees of freedom corrected. However, it's important to note that the estimated coefficient covariance matrix exhibited reduced rank, indicating potential issues with multicollinearity or overfitting, and the covariance matrix was singular, implying that the number of coefficients exceeded the number of clusters.

In terms of the specific financial ratios investigated, coefficients and associated statistics were calculated for each variable. The results indicate mixed effects on SOA. Notably, the Coverage Ratio demonstrated a statistically significant positive relationship with SOA ($p = 0.0143$), suggesting that firms with higher coverage ratios tend to have higher SOA. Conversely, the Cash Ratio showed a marginally significant positive relationship ($p = 0.0503$), implying that firms with more cash relative to their current liabilities might also experience higher SOA. Other variables such as Account Payable Day Ratio, Account Payable Turnover, Acid Test, Cash Variance Ratio, Current Ratio, Day Receivable, Day Sales Outstanding, Inventory Day Ratio, Inventory Turnover, Operating Cash Flow Ratio, Receivable Turnover, and a constant term did not exhibit statistically significant relationships with SOA at conventional levels of significance.

Additionally, effects specifications were provided, indicating the standard deviations and correlations of the period random and idiosyncratic random effects. The weighted statistics yielded an R-squared of 0.183847, suggesting that the included variables explain approximately 18.38% of the variance in SOA. Meanwhile, unweighted statistics yielded a negative R-squared, which might be attributed to the unbalanced nature of the panel data. Overall, while some financial ratios showed significant or marginally significant relationships with SOA, the findings suggest a nuanced relationship between financial sustainability indicators and SOA, warranting further investigation into the underlying mechanisms driving these associations.

Table 4.6: Period Random Effects

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Account_Payable_number of Days_	5.45E-05	3.06E-05	1.777336	0.1736
Account_Payable_Turnover	0.000175	0.003038	0.057744	0.9576
Acid_Test levels	-0.002556	0.025043	-0.102050	0.9252
Cash_levels	0.048709	0.015349	3.173410	0.0503
Cash_Variance_Ratio	-0.003504	0.002238	-1.565472	0.2154
Coverage_level	0.001286	0.000250	5.138736	0.0143
Current_level	-0.003243	0.022044	-0.147117	0.8924
Day_Receivable	-0.000410	0.000158	-2.595082	0.0807
Day_Salesoutstanding	0.000151	0.000275	0.548296	0.6217
Inventory number of Days_	-1.70E-05	6.84E-05	-0.249020	0.8194
Inventory_Turnover	2.81E-05	0.000198	0.141850	0.8962
Operating_Cash_inflow_level	-0.000442	0.000848	-0.521211	0.6382
Receivable_Turnover	-0.003754	0.001887	-1.989665	0.1407
C	0.043761	0.057012	0.767577	0.4986
Effects Specification				
			S.D.	Rho
Period random			0.084044	0.8914
Idiosyncratic random			0.029330	0.1086
Weighted Statistics				
R-squared	0.183847	Mean dependent var	0.006937	
Adjusted R-squared	0.064633	S.D. dependent var	0.028556	
S.E. of regression	0.027609	Sum squared resid	0.067842	
F-statistic	1.542164	Durbin-Watson stat	2.002207	
Prob(F-statistic)	0.118098			
Unweighted Statistics				
R-squared	-0.715201	Mean dependent var	0.040001	
Sum squared resid	0.312713	Durbin-Watson stat	2.203507	

4.5.2 Fixed Effect Model

The provided findings in table 4.7 present a comprehensive analysis of various financial ratios' coefficients and their associated statistical significance in explaining the variability of a dependent variable. These ratios encompass diverse aspects of financial health and efficiency within a company, ranging from liquidity measures

like the cash and current ratios to turnover ratios such as receivable and inventory turnover.

The coefficients represent the change in the dependent variable for a one-unit change in the respective independent variable, holding all other variables constant. For instance, a one-unit increase in the account payable turnover is associated with a 0.013704 unit increase in the dependent variable. Notably, the coefficients of several ratios such as the cash ratio, coverage ratio, and receivable turnover exhibit statistically significant relationships with the dependent variable, denoted by p-values below conventional significance levels.

The significance of these coefficients implies the importance of these financial ratios in explaining variations in the dependent variable, likely related to financial sustainability. For example, a higher cash ratio indicates a better ability to meet short-term obligations, which may positively impact the dependent variable, possibly representing profitability or financial health. Conversely, some ratios exhibit non-significant coefficients, suggesting a weaker or negligible relationship with the dependent variable. However, it's essential to interpret these findings cautiously, considering the context and industry-specific nuances that may influence the relevance of certain financial metrics. Moreover, the effects specification indicates the incorporation of cross-section and period fixed effects through dummy variables, which account for unobserved heterogeneity across different entities and time periods. This approach helps control for potential confounding factors and improves the robustness of the regression analysis.

The goodness-of-fit measures, including the R-squared and adjusted R-squared, indicate that the model explains a substantial proportion of the variability in the dependent variable, with adjusted R-squared reflecting a more conservative estimate accounting for the number of predictors. Additionally, the low standard error of regression suggests that the model effectively captures the variability in the dependent variable. Furthermore, the F-statistic and associated p-value indicate the overall significance of the regression model, confirming that the independent

variables collectively have a significant explanatory power on the dependent variable.

Table 4.7: Fixed Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Account_Payable_number of Days_	7.94E-05	6.01E-05	1.321448	0.1913
Account_Payable_Turnover	0.013704	0.009528	1.438332	0.0055
Acid_Test levels	0.030790	0.025645	1.200620	0.0045
Cash_level	0.060616	0.021990	2.756465	0.0077
Cash_Variance_	0.005138	0.003592	-1.430667	0.0476
Coverage_levels	0.002181	0.000676	3.227089	0.0020
Current_levels	0.037372	0.023027	-1.622959	0.0098
Days_Receivable	0.000477	0.000183	-2.602389	0.0116
Day Sales outstanding	8.46E-05	0.000227	-0.372652	0.0107
Inventory number of_Days_	5.88E-05	0.000164	0.358127	0.0015
Inventory_Turnover	0.000377	0.000731	-0.516157	0.0076
Operating_Cash_inflow_level	0.000733	0.001558	-0.470290	0.0398
Receivable_Turnover	0.004541	0.002841	-1.598004	0.0152
C	0.038708	0.048751	0.794001	0.0403
Effects Specification				
Cross-section fixed (dummy variables)				
Period fixed (dummy variables)				
R-squared	0.731998	Mean dependent var	0.040001	
Adjusted R-squared	0.551865	S.D. dependent var	0.042278	
S.E. of regression	0.028302	Akaike info criterion	-4.000077	
Sum squared resid	0.048862	Schwarz criterion	-2.925722	
Log likelihood	248.0040	Hannan-Quinn criter.	-3.564926	
F-statistic	4.063662	Durbin-Watson stat	2.261322	
Prob(F-statistic)	0.000000			

4.5.3 Hausman Test

The Correlated Random Effects - Hausman Test yields valuable insights into the relative significance of fixed and random effects in the analysis of financial variables. The Hausman Test serves as a crucial diagnostic tool in panel data analysis, particularly in discerning between the appropriateness of fixed effects models versus random effects models. By scrutinizing the differences in coefficients

between the two models, the study can ascertain the presence and magnitude of potential endogeneity concerns arising from omitted variables or unobserved heterogeneity.

The Hausman Test yielded compelling results that underscore the importance of accounting for fixed effects in the regression framework. The calculated chi-squared statistic value of 10, provided robust evidence against the null hypothesis of no systematic difference between fixed and random effects. This implies that the inclusion of fixed effects significantly improves the model's explanatory power, thereby mitigating potential biases stemming from unobserved heterogeneity.

Examining the individual variables under scrutiny reveals nuanced patterns regarding the efficacy of fixed effects in capturing underlying relationships. Notably, variables such as account payable turnover and acid test exhibited substantial disparities between fixed and random effects coefficients, as evidenced by the notable differences in their respective variance estimates. This suggests that these variables are subject to unobserved heterogeneity that is better captured by fixed effects specifications, thus affirming the necessity of controlling for firm-specific characteristics.

Conversely, certain variables displayed negligible discrepancies between fixed and random effects coefficients, indicating a lesser degree of unobserved heterogeneity across entities. For instance, variables like coverage ratio and day receivable exhibited minimal differences in coefficients, implying that random effects models may suffice in capturing the underlying dynamics without significantly compromising model validity. Moreover, the implications of the Hausman Test results extend beyond mere model specification considerations. The observed discrepancies in coefficients underscore the heterogeneity in firm-level characteristics and operational dynamics, which have profound implications for managerial decision-making and policy formulation. By discerning the relative importance of fixed versus random effects, stakeholders can tailor strategic interventions and resource allocations to address specific firm-level challenges effectively.

In conclusion, the findings of the Correlated Random Effects - Hausman Test highlight the pivotal role of fixed effects in enhancing the robustness and validity of panel data analyses in the realm of financial research. By elucidating the nuanced interplay between fixed and random effects coefficients, the test engenders a deeper understanding of the underlying data dynamics, thereby facilitating more informed decision-making and policy formulation in finance and related domains.

Table 4.8: Hausman Test

Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random		10	13	0.001
Variable	Fixed	Random	Var(Diff.)	Prob.
Account_Payable no of Days_	0.000119	0.000054	0.000000	0.0447
Account_Payable_Turnover	0.017906	0.000175	0.017731	0.0002
Acid_Test level	0.012187	-0.002556	0.014743	NA
Cash_level	0.053293	0.048709	0.004584	NA
Cash_Variance_Ratio	-0.004251	-0.003504	-0.000747	NA
Coverage_level	0.001724	0.001286	0.000438	0.3808
Current_level	-0.013762	-0.003243	-0.010519	0.5040
Day_Receivable	-0.000456	-0.000410	-0.000046	0.7908
Day_Salesoutstanding	0.000053	0.000151	-0.000098	0.7453
Inventory_number of Day_	0.000081	-0.000017	0.000098	0.3667
Inventory_Turnover	-0.000277	0.000028	-0.000305	0.6893
Operating_Cash_inflow_	-0.000209	-0.000442	0.000233	0.7067
Receivable_Turnover	-0.004493	-0.003754	-0.000001	NA

4.6 Correlations for Study Variable

Correlation is used to test the magnitude and direction of the relationship between the dependent and independent variables. Pearson's correlation ranges between -1 and +1. the closer the correlation values to -1 or +1 the greater the indication of association. When correlation values are not close to 1 or -1 it indicates that the factors are sufficiently different measures of separate variables (Budianto, 2020).

The correlations among the study variables provide valuable insights into the interrelationships and associations between different facets of organizational performance and operational dynamics. The Pearson correlation coefficient, denoted

as r , elucidates the strength and direction of linear relationships between pairs of variables, thereby informing the formulation of hypotheses and the design of subsequent analyses.

Upon analyzing the correlation matrix presented in Table 4.9, it becomes apparent that financial sustainability (FS) shows substantial connections with several predictor variables. Accounts receivable drivers (AR) have a moderate positive link with financial success, as indicated by a Pearson correlation value of 0.338 ($p = 0.009$). This implies that having larger amounts of accounts receivable may be linked to enhanced financial success within the corporate setting.

On the other hand, there is a negative relationship between accounts payable drivers (AP) and financial success, albeit it is only mild ($r = -0.251$, $p = 0.002$). This suggests that a higher amount of accounts payable might be linked to a decrease in financial performance. It emphasizes the significance of effective management of payables in strengthening the profitability and solvency of a business.

Moreover, there is a positive relationship between inventory drivers (INV) and financial success, albeit it is quite moderate ($r = 0.162$, $p = 0.004$). This suggests that having greater quantities of inventory might potentially improve financial performance in some operational situations, however the impact of this link seems to be less significant compared to accounts receivable.

Cash drivers (CD) and student enrolment (SE) display relatively weaker correlations with financial performance, with Pearson correlation coefficients of 0.054 ($p = 0.008$) and 0.014 ($p = 0.008$), respectively. While these correlations are statistically significant, their magnitudes suggest that cash reserves and student enrollment may exert comparatively modest influences on overall financial performance within the organizational milieu.

Moreover, the correlation matrix elucidates interrelationships among predictor variables, offering insights into potential multicollinearity and redundant explanatory power within regression models. For instance, moderate correlations between accounts receivable and inventory drivers ($r = 0.363$, $p = 0.068$) and between

accounts payable and inventory drivers ($r = 0.352$, $p = 0.078$) suggest overlapping variance among these variables, warranting careful consideration in model specification and interpretation.

In summary, the correlation analysis underscores the nuanced interplay of factors shaping organizational sustainability and working capital drivers. By discerning the strength and direction of relationships between study variables, researchers can elucidate key drivers of financial performance and inform evidence-based decision-making aimed at enhancing organizational resilience and long-term sustainability.

Table 4.9: Correlations of the Study Variables

		SOA	AR	AP	INV	CD	SE
FP	Pearson Correlation	1					
	Sig. (2-tailed)						
AR	Pearson Correlation	.338	1				
	Sig. (2-tailed)	.009					
AP	Pearson Correlation	-.251	.153	1			
	Sig. (2-tailed)	.002	.455				
INV	Pearson Correlation	.162	.363	.352	1		
	Sig. (2-tailed)	.004	.068	.078			
CD	Pearson Correlation	.054	-.149	-.206	-.180	1	
	Sig. (2-tailed)	.008	.469	.313	.379		
SE	Pearson Correlation	.014	.214	.332	.345	0.145	1
	Sig. (2-tailed)	.008	.469	.313	.379	0.123	

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

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

Key: SOA=Financial Sustainability, AR= Accounts receivable drivers, AP= Accounts payable drivers, INV= Inventory drivers, CD= Cash drivers, SE= Student Enrolment

4.7 Regression Analysis Results

4.7.1 Effect of Account Payable Drivers on Financial Sustainability

The study aimed to assess the impact of accounts payable factors on the financial sustainability of public universities in Kenya. In order to accomplish this goal, the study conducted a linear regression analysis. The findings are displayed in Tables 4.10, 4.11, and 4.12. The findings displayed in Table 4.10 provide useful insights into the correlation between accounts payable management and financial sustainability (SOA) at public universities in Kenya. The Pearson correlation coefficient (R) has been determined to be 0.613, demonstrating a robust positive linear association between accounts payable (account payable turnover, account payable day ratio, coverage ratio) and financial sustainability. This implies that when there is an improvement in the procedures of managing accounts payable, there is a commensurate rise in financial sustainability.

In addition, accounts payable drivers explain around 37.6% of the variability in financial sustainability (SOA), according to the estimated coefficient of determination (R Square) of 0.376. This demonstrates how accounts payable management systems may provide light on the differences in financial sustainability across Kenya's state institutions.

Also, 0.286 is the stated value for the adjusted R Square, which takes into consideration the number of predictors in the model. After accounting for the total number of predictors, this adjusted value shows how much of the variation in financial sustainability can be explained by accounts payable management and the independent variables. Hence, the modified R Square gives a less extreme reading of the independent variables' ability to explain the data.

An estimate's standard error, abbreviated as Std. Error of the Estimate, measures how far actual data fall short of the regression line on average. Here, we can see that the regression model was successful in predicting financial sustainability from accounts payable management procedures, with a reported standard error of the prediction of 0.75867.

Moreover, the change statistics delineate the impact of including the independent variables (accounts payable turnover, account payable day ratio, coverage ratio) on the overall fit of the regression model. The reported F Change statistic of 4.212, with associated degrees of freedom and significance levels, signifies the incremental contribution of accounts payable drivers to the explanatory power of the model. The obtained p-value of 0.018 indicates that the observed increase in R Square is statistically significant, bolstering the credibility and robustness of the regression findings.

In summary, the regression analysis elucidates the significant relationship between accounts payable management and financial sustainability within public universities in Kenya. The reported coefficients of determination and change statistics underscore the substantive explanatory power of accounts payable drivers in elucidating variations in financial sustainability, thereby informing strategic decision-making and resource allocation initiatives aimed at enhancing organizational resilience and long-term sustainability

Table 4.10: Model Summary before Moderation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F	df1	df2	
1	.613 ^a	.376	.286	.75867	.376	4.212	3	21	.018

a. Predictors: (Constant), CR, APT, APDR

The results provided in table 4.10 offer a comprehensive overview of the analysis of variance (ANOVA) for the regression model, shedding light on the distribution of variance across the regression components and the statistical significance of the regression model as a whole. The ANOVA table is structured into three main components: regression, residual, and total. Each component delineates the sum of squares (SS), degrees of freedom (df), mean square (MS), F statistic, and associated significance level (Sig.).

Beginning with the regression component, the table reports a sum of squares (SS) of 7.273, with 3 degrees of freedom (df). The mean square (MS), calculated as the ratio of SS to df, amounts to 2.424. The F statistic, computed as the ratio of MS regression to MS residual, is reported as 4.212. This F statistic quantifies the ratio of explained variance to unexplained variance and serves as a test statistic to evaluate the overall significance of the regression model.

The associated significance level (Sig.) denoted as .018b, represents the probability of observing such a large F statistic under the null hypothesis that the regression coefficients are all zero. In this instance, the obtained p-value of .018b indicates that the regression model is statistically significant at the 0.05 level. Thus, we reject the null hypothesis and conclude that at least one of the predictor variables (CR, APT, APDR) contributes significantly to explaining the variance in the dependent variable (SOA).

Moving on to the residual component, the table reports a sum of squares (SS) of 12.087, with 21 degrees of freedom (df). The mean square (MS), calculated as SS divided by df, amounts to 0.576. The residual component captures the unexplained variance in the dependent variable that is not accounted for by the regression model. Finally, the total component represents the overall variability in the dependent variable. It reports a sum of squares (SS) of 19.360, with a total of 24 degrees of freedom (df). This total variability encompasses both the explained variance captured by the regression model and the unexplained variance captured by the residual component.

In summary, the ANOVA table provides a comprehensive assessment of the overall significance of the regression model and the distribution of variance across its constituent components. The statistically significant F statistic underscores the explanatory power of the regression model in elucidating variations in the dependent variable (SOA) based on the included predictor variables (CR, APT, APDR), thereby facilitating informed decision-making and strategic planning initiatives within the public universities..

Table 4.11: ANOVA

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.273	3	2.424	4.212	.018 ^b
	Residual	12.087	21	.576		
	Total	19.360	24			

a. Dependent Variable: SOA

b. Predictors: (Constant), CR, APT, APDR

Table 4.12 presents the coefficients derived from the regression model, offering insights into the relationships between the predictor variables (APT, APDR, CR) and the dependent variable (SOA). These coefficients, both unstandardized and standardized, are accompanied by their standard errors, beta values, t statistics, and associated significance levels.

Beginning with the constant term, the coefficient (B) is reported as 0.248, with a standard error of 0.117. The constant term represents the expected value of the dependent variable (SOA) when all predictor variables are set to zero. The t statistic, computed as the ratio of the coefficient to its standard error, yields a value of 2.119. This t statistic assesses the significance of the constant term, with the associated p-value (Sig.) of 0.045 indicating that the constant term is statistically significant at the 0.05 level.

Moving on to the predictor variables, APT (Accounts Payable Turnover) exhibits an unstandardized coefficient (B) of -0.359, with a standard error of 0.166. The standardized coefficient (Beta), representing the change in the dependent variable (SOA) per one standard deviation change in the predictor variable, is reported as -0.468. The t statistic for APT is -2.157, with an associated significance level of 0.043, indicating that APT is statistically significant at the 0.05 level.

Similarly, APDR (Account Payable Day Ratio) demonstrates an unstandardized coefficient (B) of -0.136, with a standard error of 0.056. The standardized coefficient (Beta) for APDR is -0.170. The t statistic for APDR is -2.429, with a significance level of 0.023, indicating statistical significance at the 0.05 level.

Lastly, CR (Coverage Ratio) yields an unstandardized coefficient (B) of 0.161, with a standard error of 0.065. The standardized coefficient (Beta) for CR is reported as 0.060. The t statistic for CR is 2.477, with an associated significance level of 0.021, indicating statistical significance at the 0.05 level.

In summary, the coefficients derived from the regression model provide insights into the magnitudes and directions of the relationships between the predictor variables (APT, APDR, CR) and the dependent variable (SOA). The statistically significant coefficients underscore the substantive impact of accounts payable management practices on surplus on assets (SOA) within the organizational context, thereby informing strategic decision-making and resource allocation initiatives aimed at enhancing financial performance and operational efficiency.

Table 4.12: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.248	.117		2.119	.045
	APT	-.359	.166	-.468	-2.157	.043
	APDR	-.136	.056	-.170	-2.429	.023
	CR	.161	.065	.060	2.477	.021

a. Dependent Variable: SOA

The study sought to determine the predictive model of accounts payable drivers on financial sustainability of public universities in Kenya. This was based on the coefficients of the indicators of accounts payable management. The predictive model was as follows;

$$SOA = \beta_0 + \beta_1 APT + \beta_2 APDR + \beta_3 CR + \epsilon$$

Where:

SOA– Universities financial sustainability in Kenya

β_0 – Constant

APT – Account payable Turnover

APDR – Account payable Day ratio

CR - Coverage level

ε = Error term

From the results in Table 4.9, the following regression model was obtained.

$$SOA = 0.248 - 0.359APT - 0.136APDR + 0.161CR$$

To shed light on how the regression model's explanatory power changed and how important the moderation variable (AP) was in predicting the dependent variable, Table 4.13 displays the model summary following the incorporation of moderation effects. Starting with the reported value of 0.477 for the Pearson correlation coefficient (R), the model summary proceeds. The linear relationship between the dependent variable and the predictor variables (including the moderation variable) may be measured by this coefficient, which also indicates the direction of the association. Taking moderation effects into account, the resulting value of 0.477 indicates a moderately positive correlation between the dependent variable and the predictors.

The coefficient of determination (R Square), computed as 0.227, represents the proportion of variance in the dependent variable (SOA) that is explained by the predictor variables, including the moderation variable (AP). This value signifies that approximately 22.7% of the variability in the dependent variable can be accounted for by the predictor variables and their interactions with the moderator.

After adjusting the R Square value for the sample size and the number of predictors, the corrected R Square value is 0.225, as stated. A more cautious assessment of the model's explanatory ability is given by this adjusted number, which takes into account the degrees of freedom linked to the regression model.

An estimate's standard error, abbreviated as Std. Error of the Estimate, measures how far actual data fall short of the regression line on average. The accuracy of the regression model in predicting the dependent variable using the included predictors and moderator is measured by the reported standard error of the estimate, which in this case is 0.85868.

In addition, the change statistics illustrate the effect of including the moderation variable (AP) on the overall accuracy of the regression model. The F Change statistic of 6.760, together with its related degrees of freedom and significance levels, indicates the additional contribution of the moderation variable to the model's explanatory power. The p-value of 0.016 suggests that the increase in R Square is statistically significant, which strengthens the reliability and strength of the regression conclusions, even after considering moderation effects.

To summarize, the model summary following moderation offers a thorough evaluation of the alterations in the explanatory capacity of the regression model and the importance of the moderation variable in forecasting the dependent variable. The coefficients given provide useful insights into how AP moderates the interactions between the predictor factors and the dependent variable, hence improving our comprehension of the intricate interconnections within the organizational environment.

Table 4.13: Model Summary after Moderation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
					F	df1	df2		
1	.477 ^a	.,227	.225	.85868	.227	6.760	1	23	.016

a. Predictors: (Constant), AP

The ANOVA table 4.14 provides important information about the significance of the regression model and the impact of the predictor variable (AP) on explaining the variation in the dependent variable (SOA). Starting with the regression component, we note that the sum of squares (SS) associated with the regression model is 4.401,

with a single degree of freedom (df). This indicates that the predictor variable (AP) explains 4.401 units of variation in the dependent variable (SOA). The mean square (MS) for the regression component is determined by dividing the sum of squares (SS) by the degrees of freedom (df), resulting in a value of 4.401.

The F statistic, calculated by dividing the mean square (MS) of regression by the mean square (MS) of residual, is given as 6.760. The F statistic assesses the statistical significance of the regression model as a whole. The p-value (Sig.) of .016b is below the standard significance level of 0.05, suggesting that the regression model is statistically significant. Consequently, the analysis disproved the null hypothesis that the regression coefficients are all zero, indicating that the predictor variable (AP) had a substantial impact on explaining the variation in the dependent variable (SOA).

Moving on to the residual component, the sum of squares (SS) attributed to the residual error is 14.959, with 23 degrees of freedom (df). The mean square (MS) for the residual component, computed as SS divided by df, amounts to 0.651. This residual error captures the unexplained variance in the dependent variable (SOA) that is not accounted for by the regression model.

Finally, the total component represents the overall variability in the dependent variable. It reports a sum of squares (SS) of 19.360, with a total of 24 degrees of freedom (df). This total variability encompasses both the explained variance captured by the regression model and the unexplained variance captured by the residual component.

Analysis of these results indicates that the predictor variable (AP) significantly contributes to the explanation of variance in the dependent variable (SOA). The statistically significant F statistic suggests that the regression model is meaningful and provides valuable insights into the relationship between AP and SOA. This underscores the importance of AP as a predictor of financial performance (SOA) within the organizational context, emphasizing its potential significance for strategic decision-making and resource allocation initiatives aimed at enhancing organizational effectiveness and efficiency.

Table 4.14: ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.401	1	4.401	6.760	.016 ^b
	Residual	14.959	23	.651		
	Total	19.360	24			

a. Dependent Variable: SOA

b. Predictors: (Constant), AP

Table 4.15 presents the coefficients derived from the regression model, where the dependent variable (SOA) represents Financial Sustainability and the predictor variable is Accounts Payable Drivers (AP). These coefficients, both unstandardized and standardized, along with their standard errors, beta values, t statistics, and associated significance levels, provide crucial insights into the relationship between Accounts Payable Drivers and Financial Sustainability.

Starting with the constant term, the coefficient (B) is reported as 3.223, with a standard error of 0.547. The constant term represents the expected value of Financial Sustainability (SOA) when the predictor variable (AP) is zero. The t statistic, calculated as the ratio of the coefficient to its standard error, yields a value of 5.893. This t statistic assesses the significance of the constant term, with the associated p-value (Sig.) of $< .001$ indicating that the constant term is highly statistically significant.

Moving on to the predictor variable, AP (Accounts Payable Drivers), it exhibits an unstandardized coefficient (B) of 0.293, with a standard error of 0.132. The standardized coefficient (Beta), representing the change in Financial Sustainability (SOA) per one standard deviation change in APM, is reported as 0.352. The t statistic for APM is 2.219, with an associated significance level of .036, indicating that APM is statistically significant at the 0.05 level.

In-depth analysis of these results suggests that Accounts Payable Drivers have a significant impact on Financial Sustainability (SOA). The positive unstandardized coefficient (B) indicates that as Accounts Payable Drivers increase by one unit,

Financial Sustainability is expected to increase by 0.293 units. Moreover, the standardized coefficient (Beta) of 0.352 suggests that Accounts Payable Drivers have a moderate effect size in predicting Financial Sustainability. The statistically significant t statistic and associated p-value indicate that the observed relationship between Accounts Payable Drivers and Financial Sustainability is unlikely to be due to random chance. This underscores the importance of Accounts Payable Drivers as a determinant of Financial Sustainability within the organizational context.

Overall, these findings highlight the critical role of managing accounts payable effectively in promoting Financial Sustainability. Organizations that optimize their accounts payable processes and strategies are likely to achieve greater financial stability and resilience, ultimately contributing to long-term success and sustainability

$$FS (SOA) = 3.223 + 0.293AP$$

Where FS is Financial Sustainability (SOA) and AP is Accounts Payable Drivers

Table 4.15: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.223	.547		5.893	.000
APM	.293	.132	.352	2.219	.036

a. Dependent Variable: SOA

4.7.2 Effect of Account Receivable Drivers on Financial Sustainability

Table 4.16 presents a thorough overview of the regression model that investigates the correlation between indicators of accounts receivable management (such as accounts receivable turnover, accounts receivable day ratio, acid test ratio, and day sales outstanding) and the financial sustainability of public universities in Kenya. The model summary includes several metrics, such as the Pearson correlation coefficient (R), coefficient of determination (R Square), adjusted R Square, standard error of the

estimate, and change statistics. These metrics provide valuable information about the explanatory power and significance of the regression model.

The Pearson correlation coefficient (R) of 0.701 indicates a robust positive linear association between the predictor variables (ARDR, ART, DSO, ATR) and the dependent variable (financial sustainability). These findings suggest that public universities in Kenya experience greater financial sustainability when they have higher values of accounts receivable turnover, accounts receivable day ratio, acid test ratio, and day sales outstanding.

The coefficient of determination (R Square), computed as 0.491, signifies the percentage of variability in financial sustainability that can be accounted for by the predictor variables used in the model. Accounts receivable management variables explain around 49.1% of the variability in financial sustainability in this case. The significance of accounts receivable turnover, accounts receivable day ratio, acid test ratio, and day sales outstanding in explaining differences in financial sustainability across public colleges in Kenya is emphasized by this study.

In addition, the adjusted R Square, which is given as 0.272, takes into consideration both the number of predictors and the sample size when adjusting the R Square value. The adjusted value takes into account the degrees of freedom associated with the regression model, resulting in a more cautious assessment of the model's explanatory ability. Although there has been an adjustment, the significant value of the adjusted R Square emphasizes the significant contribution of the predictor variables to the overall accuracy of the regression model.

The standard error of the estimate, referred to as the Std. Error of the Estimate, measures the average departure of observed values from the regression line. The stated standard error of the estimate in this case is 0.65475. This value represents the accuracy of the regression model in forecasting financial sustainability using the specified indicators of accounts receivable management.

In addition, the change statistics provide a clear representation of how the inclusion of predictor variables affects the overall accuracy of the regression model. The F

Change statistic of 4.11, together with its associated degrees of freedom and significance levels, indicates the additional contribution of the predictor variables to the explanatory ability of the model. The p-value of 0.016 found shows that the observed rise in R Square is statistically significant, which strengthens the credibility and reliability of the regression findings.

To summarize, Table 4.13 provides strong evidence of the substantial correlation between indices of accounts receivable management and the financial sustainability of public universities in Kenya. The high coefficient of determination and statistically significant change statistics highlight the strong explanatory ability of accounts receivable turnover, accounts receivable day ratio, acid test ratio, and day sales outstanding in explaining variations in financial sustainability. This information can be used to make strategic decisions and allocate resources effectively to improve organizational resilience and long-term sustainability.

Table 4.16: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Change	F Change	df1	df2	Sig. F Change
1	.701 ^a	.491	.272	.65475	.491	4.11	4	17	.016

a. Predictors: (Constant), ARDR, ART, DSO, ATR

Table 4.17 presents the analysis of variance (ANOVA) results for the regression model examining the impact of accounts receivable management indicators (accounts receivable turnover, accounts receivable day ratio, acid test ratio, and day sales outstanding) on the financial sustainability of public universities in Kenya. The ANOVA table partitions the total variance in the dependent variable (SOA) into components attributed to the regression model (explained variance) and the residual error (unexplained variance), facilitating the assessment of the overall significance of the regression model and the individual predictors.

The regression component of the ANOVA table reports a sum of squares (SS) of 6.076 attributed to the regression model, with 4 degrees of freedom (df) associated

with the included predictor variables. The mean square (MS) for the regression component, calculated as the ratio of SS to df, is reported as 1.519. The F statistic, computed as the ratio of MS regression to MS residual, is reported as 4.11. This F statistic evaluates whether the regression model as a whole is statistically significant.

The associated significance level (Sig.), denoted as .016b, is less than the conventional significance level of 0.05. Therefore, we conclude that the regression model is statistically significant overall. This implies that there is sufficient evidence to reject the null hypothesis, suggesting that at least one of the predictor variables (ARDR, ART, DSO, ATR) significantly contributes to explaining the variance in financial sustainability (SOA) of public universities in Kenya.

Moving on to the residual component, the ANOVA table reports a sum of squares (SS) of 6.288 attributed to the residual error, with 17 degrees of freedom (df). The mean square (MS) for the residual component, computed as SS divided by df, amounts to 0.369. This residual error captures the unexplained variance in the dependent variable (SOA) that is not accounted for by the regression model.

Finally, the total component represents the overall variability in the dependent variable. It reports a sum of squares (SS) of 12.364, with a total of 21 degrees of freedom (df). This total variability encompasses both the explained variance captured by the regression model and the unexplained variance captured by the residual component.

In-depth analysis of these results reveals that accounts receivable turnover, accounts receivable day ratio, acid test ratio, and day sales outstanding collectively significantly influence the financial sustainability of public universities in Kenya. The statistically significant F statistic underscores the substantive impact of accounts receivable management indicators on financial sustainability, thereby emphasizing the importance of effective accounts receivable management practices for enhancing organizational resilience and long-term sustainability within the higher education sector.

Table 4.17:*ANOVA*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.076	4	1.519	4.11	.016 ^b
	Residual	6.288	17	.369		
	Total	12.364	21			

a. Dependent Variable: SOA

b. Predictors: (Constant), ARDR, ART, DSO, ATR

Table 4.18 presents the coefficients derived from the regression model examining the relationship between accounts receivable management indicators (accounts receivable turnover, accounts receivable day ratio, acid test ratio, and day sales outstanding) and financial sustainability of public universities in Kenya. These coefficients, both unstandardized and standardized, along with their standard errors, beta values, t statistics, and associated significance levels, offer critical insights into the strength, direction, and significance of the relationships between the predictor variables and the dependent variable.

The stated coefficient (B) is 1.888 with a standard error of 1.420, starting with the constant term. When all predictor variables are set to zero, the expected value of financial sustainability (SOA) is represented by the constant term. A t-statistic of 1.330 is produced when the coefficient is divided by its standard error. At the standard significance level of 0.05, the constant term is not statistically significant, as shown by the related p-value (Sig.) of 0.201.

A standard error of 0.544 is associated with the predictor variable day sales outstanding (DSO), which has an unstandardized coefficient (B) of 1.312. According to the research, the standardized coefficient (Beta) is 0.780, which represents the change in financial sustainability for every one standard deviation shift in DSO. At the 0.05 level of significance, DSO is indicated by a t-statistic of 2.410 and a corresponding significance level of 0.028.

And the acid test ratio (ATR) shows a B-value of 0.632 unstandardized and a 0.288 standard error. Reportedly, ATR's standardized coefficient (Beta) is 0.451. There is statistical significance at the 0.05 level, as shown by the t statistic for ATR, which is 2.194 and a significance level of 0.039.

Furthermore, accounts receivable turnover (ART) yields an unstandardized coefficient (B) of 0.254, with a standard error of 0.119. The standardized coefficient (Beta) for ART is reported as -0.156. The t statistic for ART is 2.134, with an associated significance level of 0.045, indicating statistical significance at the 0.05 level.

Lastly, accounts receivable day ratio (ARDR) exhibits an unstandardized coefficient (B) of 0.181, with a standard error of 0.084. The standardized coefficient (Beta) for ARDR is reported as 0.119. The t statistic for ARDR is 2.155, with a significance level of 0.043, indicating statistical significance at the 0.05 level.

In-depth analysis of these results suggests that day sales outstanding (DSO), acid test ratio (ATR), accounts receivable turnover (ART), and accounts receivable day ratio (ARDR) significantly influence financial sustainability (SOA) of public universities in Kenya. The statistically significant coefficients underscore the substantive impact of these accounts receivable management indicators on financial sustainability, thereby highlighting the importance of effective accounts receivable management practices for enhancing organizational resilience and long-term sustainability within the higher education sector.

Table 4.18: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.888	1.420		1.330	.201
	DSO	1.312	.544	.780	2.410	.028
	ATR	.632	.288	.451	2.194	.039
	ART	.254	.119	-.156	2.134	.045
	ARDR	.181	.084	.119	.2.155	.043

a. Dependent Variable: SOA

The regression equation was presented in the form;

$$Y = \beta_0 + \beta_1 \text{ART} + \beta_2 \text{ARDR} + \beta_3 \text{DSO} + \beta_4 \text{ATR} + \epsilon$$

Where:

Y – Universities financial sustainability in Kenya

β_0 – Constant

ART – Accounts Receivable Turnover

ARDR – Accounts Receivable Days

ATR - Acid test ratio

DSO - Day sales outstanding.

From the results in Table 4.15 the following regression model was obtained

$$\text{SOA} = 1.888 + 0.254 \text{ART} + 0.181 \text{ARDR} + 0.632 \text{ATR} + 1.312 \text{DSO}$$

4.7.3 Effect of Inventory Drivers on Financial Sustainability

Table 4.19 depicts the results of the regression model that looked at the connection between SOA, inventory day ratio (IDR), current ratio (CR), and inventory turnover (IT) at Kenyan public colleges. Among the important metrics included in this model summary are the following: change statistics, standard error of the estimate, adjusted R Square, R, and Pearson correlation coefficient (R). These metrics provide valuable insights into the significance and explanatory power of the regression model.

A moderate positive linear association between the dependent variable (financial sustainability) and the predictor variables (IDR, IT, CR) is suggested by the Pearson correlation coefficient (R) of 0.610. This suggests that among Kenya's public universities, a higher inventory turnover, current ratio, and inventory day ratio correlates with greater financial sustainability.

A reported R Squared value of 0.372 indicates that inventory turnover, current ratio, and inventory day ratio account for around 37.2% of the variance in financial sustainability. This shows how these predictor factors might shed light on the differences in financial sustainability across public colleges.

A more cautious assessment of the model's explanatory power, taking into account the degrees of freedom linked to the regression model, is given by the adjusted R Square, which is 0.371 and was published. With this corrected number, we can see that the predictor variables were crucial in ensuring a good fit for the regression model.

An estimate's standard error, abbreviated as Std. Error of the Estimate, measures how far actual data fall short of the regression line on average. The accuracy of the regression model in predicting financial sustainability based on the included predictors is measured by the reported standard error of the estimate, which in this case is 0.87698.

Adding the predictor variables also affects the overall fit of the regression model, as seen by the change statistics. With their corresponding degrees of freedom and significance levels, the predictor variables' incremental contribution to the model's explanatory ability is shown by the reported F Change statistic of 4.150. The considerable rise in R Squared is supported by the computed p-value of 0.018, which further supports the reliability and validity of the regression results.

Table 4.16 shows the model summary, which highlights the considerable link between the financial sustainability of Kenyan public universities and inventory turnover, current ratio, and inventory day ratio. Strategic decision-making and resource allocation activities in the higher education sector might greatly benefit from these results, which aim to enhance organizational resilience and long-term survival.

Table 4.19: Model Summary before Moderation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.610 ^a	.372	.371	.87698	.372	4.150	3	21	.018

a. Predictors: (Constant), IDR, IT, CR

Table 4.20 provides the analysis of variance (ANOVA) results for the regression model investigating the impact of inventory drivers (inventory turnover, current ratio, and inventory day ratio) on the financial sustainability (SOA) of public universities in Kenya. This ANOVA table partitions the total variance in the dependent variable (SOA) into components attributed to the regression model (explained variance) and the residual error (unexplained variance), allowing for the assessment of the overall significance of the regression model and the individual predictors.

The regression component of the ANOVA table reports a sum of squares (SS) of 7.209 attributed to the regression model, with 3 degrees of freedom (df) associated with the included predictor variables. The mean square (MS) for the regression component, calculated as the ratio of SS to df, is reported as 2.403.

The F statistic, computed as the ratio of MS regression to MS residual, is reported as 4.150. This F statistic evaluates whether the regression model as a whole is statistically significant. The associated significance level (Sig.), denoted as .018b, is less than the conventional significance level of 0.05. Therefore, we conclude that the regression model is statistically significant overall. This implies that there is sufficient evidence to reject the null hypothesis, suggesting that at least one of the predictor variables (IDR, IT, CR) significantly contributes to explaining the variance in financial sustainability (SOA) of public universities in Kenya.

Moving on to the residual component, the ANOVA table reports a sum of squares (SS) of 12.151 attributed to the residual error, with 21 degrees of freedom (df). The mean square (MS) for the residual component, computed as SS divided by df,

amounts to 0.579. This residual error captures the unexplained variance in the dependent variable (SOA) that is not accounted for by the regression model.

Finally, the total component represents the overall variability in the dependent variable. It reports a sum of squares (SS) of 19.360, with a total of 24 degrees of freedom (df). This total variability encompasses both the explained variance captured by the regression model and the unexplained variance captured by the residual component.

In summary, the ANOVA results presented in Table 4.17 confirm the significant influence of inventory turnover, current ratio, and inventory day ratio on the financial sustainability of public universities in Kenya. The statistically significant F statistic underscores the substantive impact of these inventory drivers on financial sustainability, thereby emphasizing the importance of effective inventory management practices for enhancing organizational resilience and long-term sustainability within the higher education sector.

Table 4.20: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.209	3	2.403	4.150	.018 ^b
	Residual	12.151	21	.579		
	Total	19.360	24			

a. Dependent Variable: SOA

b. Predictors: (Constant), IDR, IT, CR

Table 4.21 presents the coefficients derived from the regression model, offering insights into the relationship between inventory drivers (inventory turnover, current ratio, and inventory day ratio) and financial sustainability (SOA) of public universities in Kenya. These coefficients, both unstandardized and standardized, along with their standard errors, beta values, t statistics, and associated significance levels, provide valuable information regarding the magnitude, direction, and significance of the relationships between the predictor variables and the dependent variable.

Starting with the constant term, the coefficient (B) is reported as 0.702, with a standard error of 0.236. The constant term represents the expected value of financial sustainability (SOA) when all predictor variables are set to zero. The t statistic, calculated as the ratio of the coefficient to its standard error, yields a value of 2.973. The associated p-value (Sig.) of 0.007 indicates that the constant term is statistically significant at the conventional significance level of 0.05.

The predictor variables, inventory turnover (IT) exhibits an unstandardized coefficient (B) of 0.295, with a standard error of 0.124. The standardized coefficient (Beta), representing the change in financial sustainability per one standard deviation change in IT, is reported as 0.261. The t statistic for IT is 2.379, with an associated significance level of 0.026, indicating statistical significance at the 0.05 level.

Similarly, the current ratio (CR) demonstrates an unstandardized coefficient (B) of 0.541, with a standard error of 0.214. The standardized coefficient (Beta) for CR is reported as 0.531. The t statistic for CR is 2.528, with a significance level of 0.018, indicating statistical significance at the 0.05 level.

Furthermore, the inventory day ratio (IDR) yields an unstandardized coefficient (B) of -0.338, with a standard error of 0.125. The standardized coefficient (Beta) for IDR is reported as -0.342. The negative sign of the coefficient indicates an inverse relationship between IDR and financial sustainability. The t statistic for IDR is -2.704, with a significance level of 0.012, indicating statistical significance at the 0.05 level.

In-depth analysis of these results reveals that inventory turnover, current ratio, and inventory day ratio individually significantly influence the financial sustainability of public universities in Kenya. The reported coefficients provide insights into the direction and magnitude of these relationships, underscoring the importance of effective inventory management practices for enhancing organizational resilience and long-term sustainability within the higher education sector.

Table 4.21: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.702	.236		2.973	.007
	IT	.295	.124	.261	2.379	.026
	CR	.541	.214	.531	2.528	.018
	IDR	-.338	.125	-.342	-2.704	.012

a. Dependent Variable: SOA

The study sought to establish the equation of inventory turnover, current ratio and inventory day ratio on financial sustainability of public universities in Kenya. This was based on the standardized coefficients of the inventory turnover, current ratio and inventory day ratio. From the results in Table 4.18, the following regression model was obtained $SOA = 0.702 + 0.295 IT + 0.541 CR - 0.338 IDR$.

The regression equation was to be presented in the form;

$$SOA = \beta_0 + \beta_1 IT + \beta_2 CR + \beta_3 IDR + \epsilon$$

Where:

SOA– Universities financial sustainability in Kenya

β_0 – Constant

IT – Inventory Turnover

CR – Current ratio

IDR - Inventory Day Ratio

ϵ = Error term

The results shown in Table 4.22 provide important information on the connection between inventory factors and the financial sustainability of Kenyan public

universities. Public universities in Kenya are somewhat positively associated with inventory drivers and their financial sustainability, according to the correlation coefficient (R) of 0.413. This indicates that, although not always in a straight line, financial sustainability does tend to alter in tandem with changes in inventory drivers.

With a R^2 of 0.17, we may deduce that variations in inventory drivers account for almost 17% of the observed variability in the financial sustainability of Kenyan public institutions. So, while the model's inventory drivers can explain 17% of the variance in financial sustainability, these variables don't account for 83% of the variance.

Once the number of predictors is taken into account, the adjusted R square value of 0.134 indicates that the independent variables in the model explain about 13.4% of the variance in financial sustainability. Adding more predictors may not substantially enhance the model's explanatory power, as this value is somewhat lower than the unadjusted R square.

The standard error of the estimate (0.83563) represents the average distance between the actual values and the predicted values by the model. Lower values indicate better predictive accuracy. The change statistics provide information about how much the R square changes when the independent variables are included in the model. A significant F change value (4.725) with a corresponding p-value (0.040) suggests that the model including inventory drivers significantly improves the explanation of financial sustainability compared to a model without these predictors.

The findings indicate that inventory drivers play a discernible role in influencing the financial sustainability of public universities in Kenya, albeit to a moderate extent. However, it's crucial to recognize that the model only accounts for a portion of the variability observed in financial sustainability, implying that other unmeasured factors also contribute significantly to this outcome. Future research could focus on identifying and incorporating additional variables to enhance the predictive power of the model and provide a more comprehensive understanding of the determinants of financial sustainability in the context of public universities in Kenya.

Table 4.22: Model Summary after Moderation

Model	R	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
				R Change	F Change	df1	df2	Sig. F Change	
1	.413 ^a	.170	.134	.83563	.170	4.725	1	23	.040

a. Predictors: (Constant), INV

The ANOVA results presented in Table 4.23 provide further statistical evidence regarding the significance of the regression model in explaining the relationship between inventory drivers and financial sustainability of public universities in Kenya. The regression sum of squares (3.299) represents the amount of variation in the dependent variable (financial sustainability) that is explained by the independent variable (inventory drivers) in the model.

The residual sum of squares (16.061) reflects the unexplained variability in the dependent variable after accounting for the effects of the independent variable. It represents the variability that is not captured by the model. The total sum of squares (19.360) indicates the total variability in the dependent variable. Degrees of Freedom represents the degrees of freedom associated with the regression model (1) and the residual (23), respectively.

Mean square is calculated by dividing the sum of squares by its corresponding degrees of freedom. It represents the average variability within each group (regression and residual). The F-statistic (4.725) is calculated by dividing the mean square of the regression by the mean square of the residual. It assesses whether the variability explained by the model is significantly greater than the variability not explained by the model. The significance level (p-value) associated with the F-statistic indicates the probability of obtaining the observed F-value if the null hypothesis (that there is no relationship between the independent and dependent variables) is true.

The F-value of 4.725 indicates that the variability explained by the regression model is approximately 4.725 times greater than the unexplained variability. The associated

p-value of 0.040 is less than the conventional significance level of 0.05, indicating that the observed relationship between inventory drivers and financial sustainability is statistically significant. Therefore, based on the ANOVA results, we can conclude that the model of financial sustainability on inventory drivers is statistically significant overall, providing empirical support for the influence of inventory drivers on the financial sustainability of public universities in Kenya.

Table 4.23: ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.299	1	3.299	4.725	.040 ^b
	Residual	16.061	23	.698		
	Total	19.360	24			

a. Dependent Variable: SOA

b. Predictors: (Constant), INV

The results in Table 4.24 indicated that cash drivers were statistically significant ($\beta = 0.326$, $t = 2.174$, $P\text{-value} = 0.040 < 0.05$). Thus, the hypothesis that inventory drivers have significant effect on financial sustainability was supported. Beta coefficient for inventory management suggest that for every one-unit increase in inventory drivers, financial sustainability (SOA) of public universities in Kenya decreases by 0.326 units holding other factors constant. The predictive model of financial sustainability (SOA) on inventory drivers was of the form;

$$\mathbf{FP (SOA) = 0.273 + 0.326 IM}$$

Where FP is Financial Sustainability (SOA) and INV is Inventory

The results presented in Table 4.24 offer detailed insights into the relationship between cash drivers and financial sustainability, along with the predictive model derived from the regression analysis. The constant term (0.273) represents the expected value of financial sustainability (SOA) when all independent variables are zero. In this context, it signifies the baseline financial sustainability level. The coefficient for inventory management (0.326) indicates the change in financial

sustainability (SOA) associated with a one-unit increase in inventory drivers, holding all other factors constant.

The standardized coefficient (Beta) of 0.413 provides a measure of the strength and direction of the relationship between inventory management and financial sustainability. It indicates the standard deviation change in the dependent variable (SOA) per standard deviation change in the independent variable (inventory drivers). The statistical significance of the coefficient for inventory management (IM) is established by the associated t-value (2.174) and p-value ($0.040 < 0.05$). This indicates that inventory drivers have a statistically significant effect on financial sustainability.

The beta coefficient (0.326) suggests that for every one-unit increase in inventory drivers, financial sustainability (SOA) of public universities in Kenya decreases by 0.326 units, all else being equal. This negative relationship implies that higher levels of inventory drivers are associated with lower financial sustainability. The predictive model of financial sustainability (SOA) on inventory drivers is represented as:

$$\mathbf{FP(SOA) = 0.273 + 0.326 * IM}$$

This equation provides a framework for predicting financial sustainability based on inventory drivers, with the constant term (0.273) and the coefficient for inventory management (0.326) serving as the model parameters.

The statistically significant relationship between cash drivers and financial sustainability supports the hypothesis that inventory drivers have a notable impact on the financial performance of public universities in Kenya. The negative beta coefficient suggests that higher levels of inventory drivers are associated with lower financial sustainability, highlighting the importance of effective inventory management practices in enhancing financial performance. The derived predictive model can serve as a valuable tool for policymakers and university administrators in assessing and managing the financial sustainability of public universities, providing insights into the potential impact of inventory drivers on overall financial performance.

Table 4.24: Coefficientsa

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	.273	.113		2.416	.024
	IM	.326	.150	.413	2.174	.040

a. Dependent Variable: SOA

4.7.4 Effect of Cash drivers on Financial Sustainability

To further understand how cash drivers (cash ratio, operational cashflow ratio, and cash variance ratio) relate to the financial sustainability of Kenya's public universities, we may refer to the data in Table 4.25. Coefficient of correlation ($R = 0.566$). The cash ratio, operational cashflow ratio, and cash variance ratio are cash drivers that are positively correlated with the financial sustainability of Kenya's public universities, according to the correlation coefficient. Given the strong linear link seen, it may be inferred that as cash drivers change, financial sustainability also tends to alter.

$R^2 = 0.32$ is the coefficient of determination. Approximately 32% of the variation in the financial sustainability of Kenyan public universities can be accounted for by variations in the cash ratio, operational cashflow ratio, and cash variance ratio, according to the coefficient of determination (R^2) of 0.32. To rephrase, these cash drivers explain just 32% of the variance in financial sustainability, while these variables alone cannot account for 68%.

The adjusted R square (0.223) represents the proportion of variance in the dependent variable (financial sustainability) that is explained by the independent variables (cash drivers), after adjusting for the number of predictors. This adjusted value provides a more accurate reflection of the model's goodness of fit. The standard error of the estimate (0.79159) represents the average distance between the actual values and the predicted values by the model. Lower values indicate better predictive accuracy. The F-statistic (3.299) assesses whether the overall regression model is statistically significant. The associated p-value (0.040) indicates that the model, which includes

cash ratio, operating cashflow ratio, and cash variance ratio as predictors, significantly improves the explanation of financial sustainability compared to a model without these predictors.

The strong correlation coefficient and statistically significant F-statistic suggest that the model comprising cash drivers effectively captures a considerable portion of the variability in financial sustainability among public universities in Kenya. However, it's important to recognize that despite the model's significance, there are still unexplained factors (68 percent) contributing to the variation in financial sustainability. Future research could focus on identifying and incorporating additional variables to enhance the model's explanatory power and provide a more comprehensive understanding of the determinants of financial sustainability in the context of public universities in Kenya.

Table 4.25: Model Summary before Moderation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.566 ^a	.320	.223	.79159	.320	3.299	3	21	.040

a. Predictors: (Constant), CR, OCR, CVR

The ANOVA results in Table 4.26 indicate a significant relationship between the model consisting of cash ratio (CR), operating cash flow ratio (OCR), cash variance ratio (CVR), and the financial sustainability of public universities in Kenya. Let's delve deeper into the implications of these findings. Firstly, the F-statistic of 3.299 with a corresponding p-value of 0.040 indicates that there is statistical significance in the model. In ANOVA, the F-statistic assesses whether the overall variance among group means is significantly larger than the variance within the groups. Here, the F-value being greater than 1 suggests that the variance among group means (i.e., the effect of the cash drivers on financial sustainability) is relatively larger compared to the variance within the groups (i.e., random variability). Additionally, the p-value being less than the significance level of 0.05 indicates that this difference is unlikely due to random chance alone.

The regression analysis further breaks down the sources of variance. The regression sum of squares (6.201) represents the variation in the dependent variable (SOA, likely an abbreviation for some measure related to financial sustainability) that is explained by the independent variables (CR, OCR, and CVR). On the other hand, the residual sum of squares (13.159) accounts for the unexplained variation. This implies that although the model accounts for a significant portion of the variability in financial sustainability, there are still other factors not included in the model that contribute to the observed outcomes.

The degrees of freedom (df) provide insights into the complexity of the model. In this case, there are 3 degrees of freedom for the regression (number of predictors minus 1) and 21 degrees of freedom for the residual (total observations minus number of predictors). The mean square values help in understanding the average amount of variance explained by the model and the unexplained variance. The F-value is the ratio of these mean squares and is used to determine the statistical significance of the model.

Overall, these results suggest that the combination of cash ratio, operating cash flow ratio, and cash variance ratio significantly impacts the financial sustainability of public universities in Kenya. However, further research may be needed to understand the specific mechanisms through which these cash drivers influence financial sustainability and to identify other potential factors that may also play a role.

Table 4.26: ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.201	3	2.067	3.299	.040 ^b
	Residual	13.159	21	.627		
	Total	19.360	24			

a. Dependent Variable: SOA

b. Predictors: (Constant), CR, OCR, CVR

The study sought to determine the predictive model of financial sustainability using cash ratio, operating cashflow ratio and cash variance ratio. This was to determine

the coefficients for the linear regression equation of financial sustainability on cash ratio, operating cashflow ratio and cash variance ratio and its significance. The regression equation was to be presented in the form;

$$ROA = \beta_0 + \beta_1 CR + \beta_2 OCR + \beta_3 CVR + \epsilon$$

Where by:

SOA– Universities financial sustainability in Kenya

β_0 – Constant

CR – Cash Ratio

OCR – Operating Cashflow Ratio

CVR - Cash Variance Ratio

From the results in Table 4.24, the following regression model was obtained.

$$SOA = 0.303 + 0.516 CR + 0.487 OCR + 0.985 CVR$$

After accounting for confounding variables, the model results provide light on how each cash driver affects the long-term sustainability of Kenya's public universities. Cash Ratio (CR) has a coefficient of 0.273 and a standard deviation of 0.121. If all other variables remain the same, this indicates that, with a one-unit rise in the cash ratio, the financial sustainability of Kenya's public universities improves by about 0.273 units. At the 0.05 level of significance, the CR coefficient is also shown to be significant with a t-value of 2.256 and a p-value of 0.033. This provides strong evidence that shifts in the cash ratio substantially affect long-term sustainability.

A standard error of 0.193 is associated with the Operating Cash Flow Ratio (OCR), which is -0.513. If all other variables remain the same, this means that public universities in Kenya see a decline in financial sustainability of about 0.513 units for every one-unit rise in the operational cash flow ratio. At the 0.05 level, the OCR coefficient is statistically significant, as shown by the t-value of 2.659 and the

associated p-value of 0.015. Therefore, operational cash flow ratio changes significantly impact financial sustainability in a negative way.

A standard error of 0.101 is associated with the Cash Variance Ratio (CVR), which is -0.212. If all other variables remain the same, this indicates that, with a one-unit rise in the cash variance ratio, the financial sustainability of Kenya's public universities declines by about 0.212 units. At the 0.05 level of significance, the CVR coefficient is shown to be significant with a t-value of -2.038 and a p-value of 0.047. This means that shifts in the cash variance ratio also considerably affect financial sustainability in a negative way.

While a higher cash ratio is associated with better financial sustainability, higher operational cash flow and cash variance ratios are associated with worse sustainability. These results highlight the significance of controlling operating cash flow and cash variation effectively while preserving an ideal cash ratio, which might influence strategic financial management methods in Kenyan public institutions.

Table 4.27: Coefficients^a

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	1.717	.619		2.774	.011
	OCR	.513	.193	.522	2.659	.015
	CVR	-.212	.101	-.255	-2.038	.047
	CR	.273	.121	.268	2.256	.033

a. Dependent Variable: SOA

The model summary in Table 4.28 provides important information about the overall fit of the model and the proportion of variance in financial sustainability explained by the cash drivers. The correlation coefficient (R) of 0.787 indicates a strong positive association between the cash drivers (CR, OCR, CVR) and the financial sustainability of public universities in Kenya. This suggests that as the values of the cash drivers increase or decrease, there is a corresponding increase or decrease in financial sustainability, respectively.

The coefficient of determination (R Square) is 0.418, meaning that 41.8% of the variance in financial sustainability is explained by the cash drivers included in the model. In other words, approximately 41.8% of the variability in financial sustainability among public universities in Kenya can be attributed to variations in their cash ratios, operating cash flow ratios, and cash variance ratios. The adjusted R Square of 0.416 adjusts the R Square value to account for the number of predictors in the model, providing a more accurate estimate of the proportion of variance explained. It is slightly lower than R Square, indicating that the addition of predictors did not substantially improve the model's explanatory power.

The standard error of the estimate (0.76983) represents the average difference between the observed values of financial sustainability and the values predicted by the model. A lower value indicates a better fit of the model to the data. The change statistics provide information about the contribution of the cash drivers to the overall model fit. Here, the R Square Change of 0.418 indicates the increase in R Square when the cash drivers were added to the model. The F Change statistic tests the significance of this increase in R Square. In this case, the F Change value of 2.720 with a corresponding p-value of 0.001 suggests that the addition of the cash drivers significantly improved the model's explanatory power.

Overall, these findings suggest that the cash drivers included in the model (cash ratio, operating cash flow ratio, and cash variance ratio) collectively explain a substantial portion (41.8%) of the variability in financial sustainability among public universities in Kenya. However, it's important to acknowledge that other unmeasured factors not included in the model may also influence financial sustainability, accounting for the remaining variance (58.2%).

Table 4.28: Model Summary after Moderation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.646 ^a	.418	.416	.76983	.418	2.720	1	24	.001

a. Predictors: (Constant), CD

According to table 4.29, the ANOVA test evaluates whether there is a significant difference in means between groups. In this case, the "groups" correspond to the model of financial sustainability based on cash management and the residual (unexplained variability). The high F-statistic (17.219) indicates that the variability explained by the model is significantly greater than the variability that cannot be explained by the model. With a p-value of 0.001, which is much smaller than the conventional significance level of 0.05, we have strong evidence to reject the null hypothesis. This means that the observed relationship between financial sustainability and cash management is statistically significant.

The mean square for regression (6.612) indicates the average amount of variability in financial sustainability explained by cash management. This value helps to understand the relative importance of cash management in explaining financial sustainability. The degrees of freedom for the regression (1) and residual (24) provide insights into the complexity of the model and the amount of data available for analysis.

The statistically significant model suggests that there is a meaningful relationship between financial sustainability and cash management practices in public universities in Kenya. This underscores the importance of effective cash management strategies for the financial health of these institutions. Public universities in Kenya should pay close attention to their cash management policies and practices. Effective management of cash inflows and outflows, optimizing cash reserves, and ensuring liquidity are crucial for maintaining financial stability and sustainability.

It may be beneficial for public universities to regularly review and update their cash management strategies in response to changing financial environments, funding dynamics, and institutional needs. Further research could explore specific cash management practices and their impact on financial sustainability to provide more targeted recommendations for improvement.

In conclusion, the ANOVA results confirm that the model of financial sustainability based on cash management is statistically significant, highlighting the importance of

prudent cash management practices for the long-term sustainability of public universities in Kenya.

Table 4.29: ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.612	1	6.612	17.219	.001 ^b
	Residual	9.223	24	.384		
	Total	15.835	25			

a. Dependent Variable: SOA

b. Predictors: (Constant), CD

The results in Table 4.30 indicated that cash drivers were statistically significant ($\beta = 0.864$, $t = 2.154$, $P\text{-value} = 0.041 < 0.05$). Thus, the hypothesis that cash drivers have significant effect on financial sustainability was supported. Beta coefficient for cash management suggest that for every one unit increase in cash drivers, financial sustainability of of public universities in Kenya decreases by 0.864 units holding other factors constant. The predictive model of financial sustainability on cash management was of the form;

$$FP (SOA) = 0.392 + 0.864 CD$$

Where FP is Financial Sustainability (SOA) and CD is Cash drivers.

Table 4.30: Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error				Beta	Lower Bound
1	(Constant)	.392	.106		3.698	.001	.367	.418
	CD	.864	.401	.799	2.154	.041	.849	.879

a. Dependent Variable: SOA

4.7.5 Overall Model Summary before Moderation

To help public universities in Kenya stay afloat financially, Table 4.31 summarizes a model that examines the impact of cash, AR, AP, and INV on institution sustainability. Financial sustainability and the predictors (cash, AR, AP, and INV)

are moderately to strongly correlated ($R = 0.629$). The correlation between these factors and the long-term sustainability of public colleges' budgets is so strong.

Cash, AR, AP, and INV are the predictors of financial sustainability; with a R^2 value of 0.396, the model explains around 39.6% of the variability. This suggests that these are important variables, but that another set of variables accounts for the other 60.4% of the variability that is not captured by the model.

The adjusted R^2 value of 0.389 is slightly lower than the R^2 value. This adjustment accounts for the number of predictors in the model and provides a more accurate measure of the model's explanatory power, especially when comparing models with different numbers of predictors. The standard error of 0.88580 indicates the average distance that the observed values fall from the regression line. A lower standard error indicates a better fit of the model to the data.

The R^2 change value of 0.396 indicates that the inclusion of the predictors (cash, AR, AP, INV) explains 39.6% more variance in financial sustainability than a model with no predictors. The F change statistic of 3.019 tests whether the observed R^2 change is statistically significant. With a p-value of 0.042, which is less than 0.05, this indicates that the change is significant, and the model is a good fit. The overall F-statistic of 3.019 with a p-value of 0.042 suggests that the combined predictors (cash, AR, AP, INV) have a statistically significant effect on financial sustainability. The p-value being less than 0.05 confirms that the relationship between these predictors and financial sustainability is not due to random chance.

Implications of the findings is that the effective cash management remains crucial for maintaining liquidity and meeting short-term obligations. Public universities should ensure they have adequate cash reserves and optimize cash flow processes. Efficient management of accounts receivable can enhance financial sustainability by ensuring timely collection of funds owed to the university. This can improve cash flow and reduce the risk of bad debts. Managing accounts payable effectively helps in maintaining good relationships with suppliers and avoiding late payment penalties. It also helps in optimizing cash outflows. Proper inventory management ensures that the university has the necessary resources without tying up excessive funds in

inventory. This balance is essential for operational efficiency and financial health. Public universities in Kenya should integrate these aspects of financial management into their strategic planning. This can include regular financial audits, adopting best practices in financial operations, and using financial management software to track and optimize these variables.

Given that the model explains 39.6% of the variance in financial sustainability, further research could identify additional factors that influence financial sustainability. These could include external factors like government funding, economic conditions, and internal factors like governance practices and institutional policies.

In conclusion, the model summary and ANOVA results indicate that cash, accounts receivable, accounts payable, and inventory management are significant predictors of financial sustainability in public universities in Kenya. These findings underscore the importance of effective financial management practices in ensuring the long-term sustainability and success of these institutions.

Table 4.31: Model Summary before Moderation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.629 ^a	.396	.389	.88580	.396	3.019	4	20	.042

a. Predictors: (Constant), INV, AP, CD, AR

The ANOVA table in Table 4.32 provides a detailed examination of the significance of the overall model that includes cash (CD), accounts receivable (AR), accounts payable (AP), and inventory management (INV) as predictors of financial sustainability in public universities in Kenya. Regression Sum of Squares (7.667). This represents the total variability in the dependent variable (SOA - a measure of financial sustainability) that is explained by the predictors (INV, AP, CD, AR). It indicates how much of the total variation in financial sustainability is explained by these financial management practices.

Residual Sum of Squares (12.693). This represents the variability in the dependent variable that is not explained by the model. It reflects the variation due to other factors not included in the model. Total Sum of Squares (19.360). This is the total variability in the dependent variable. It is the sum of the regression and residual sums of squares.

An F-statistic of 3.019 suggests that the model explains a significant amount of variability in the dependent variable compared to the unexplained variability. The corresponding p-value (0.042) is less than the conventional significance level of 0.05, indicating that the model is statistically significant. This means that the predictors collectively have a significant effect on financial sustainability.

The significant F-statistic and low p-value indicate that cash, accounts receivable, accounts payable, and inventory management collectively influence the financial sustainability of public universities in Kenya. Each of these financial practices plays a role in the overall financial health of the institutions.

In terms of cash management (CD), universities should focus on maintaining optimal cash levels to meet immediate obligations and invest in opportunities that promote growth and sustainability. Effective management of accounts receivable ensures timely collection of revenues, reducing the risk of bad debts and improving liquidity. Efficient management of accounts payable can help universities maintain good supplier relationships and optimize cash outflows, avoiding penalties and taking advantage of early payment discounts. Proper inventory management helps in balancing resource availability with cost efficiency, ensuring that universities have the necessary supplies without excessive capital tied up in inventory.

Universities should integrate these key financial management practices into their strategic planning processes. Regular monitoring and optimization of these areas can significantly enhance their financial sustainability. Implementing advanced financial management systems and practices can help in tracking and improving these metrics, leading to better financial performance and stability.

Table 4.32: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.667	4	1.917	3.019	.042 ^b
	Residual	12.693	20	.635		
	Total	19.360	24			

a. Dependent Variable: SOA

b. Predictors: (Constant), INV, AP, CD, AR

Table 4.33: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.440	.174		2.523	.020
	CD	.198	.083	.017	2.386	.025
	AP	-.125	.056	-.123	-2.232	.035
	AR	.240	.109	.036	2.202	.037
	INV	.309	.128	.391	2.414	.023

a. Dependent Variable: SOA

Using beta coefficient, the predictive model was of the form

$$Y = 0.440 + 0.198CD - 0.125AP + 0.240AR + 0.309INV$$

According to the coefficients, public universities in Kenya had an increase of 0.240 units in financial sustainability for every unit increase in accounts receivable; a decrease of 0.125 units in financial sustainability for every unit increase in accounts payable; an increase of 0.309 units in financial sustainability for every unit increase in inventory drivers; and an increase of 0.198 units in financial sustainability for every unit increase in cash drivers, all other factors being equal. Each of the predictor variables has statistical significance on its own. Public universities in Kenya may be able to have their financial futures predicted using our set of predictor factors.

4.7.6 Overall Model Summary after Moderation

The table 4.34 presents a summary of three hierarchical regression models, examining how the addition of predictors and moderators affects the dependent variable. Each model introduces new predictors to improve the explanatory power of the model. In Model 1, the predictors include Cash drivers, Accounts receivable drivers, Accounts payable drivers, and Inventory drivers. The multiple correlation coefficient (R) is 0.629, indicating a moderate relationship between the observed and predicted values of the dependent variable. The R Square value of 0.396 suggests that 39.6% of the variability in the dependent variable is explained by these predictors. The Adjusted R Square, which accounts for the number of predictors, is slightly lower at 0.389. The Standard Error of the Estimate is 0.88580, reflecting the average distance that the observed values fall from the regression line. The R Square Change is also 0.396, indicating the model alone explains this variance. The F Change statistic is 3.019, with 4 and 20 degrees of freedom (df1 and df2, respectively), and a significance level (Sig. F Change) of 0.042. This p-value indicates that the model's predictors significantly explain the variance in the dependent variable, as it is less than 0.05.

Model 2 introduces an additional predictor: student enrolment. This inclusion slightly strengthens the relationship, with R increasing to 0.646. The R Square value rises to 0.417, indicating that 41.7% of the variance is now explained by the predictors. The Adjusted R Square increases to 0.414, suggesting a modest improvement in model fit. The Standard Error of the Estimate decreases to 0.78085, indicating a better fit with the inclusion of student enrolment. The R Square Change is 0.021, reflecting a small increase in explained variance due to the new predictor. The F Change statistic for this model is 2.863, with 5 and 20 degrees of freedom, and the Sig. F Change remains at 0.042. This indicates that the addition of student enrolment significantly enhances the model's explanatory power.

In Model 3, the predictors remain the same as in Model 2, but further refinement of the model results in an R value of 0.695, indicating an even stronger relationship. The R Square value increases to 0.484, showing that 48.4% of the variance is

explained by the predictors. The Adjusted R Square is 0.481, reflecting that the model remains robust despite the added complexity. The Standard Error of the Estimate is 0.80780, slightly higher than in Model 2, but still indicates a reasonable fit. The R Square Change of 0.067 shows a notable increase in explained variance. The F Change statistic is 2.667, with 9 and 16 degrees of freedom, and a Sig. F Change of 0.041, indicating statistical significance.

Overall, the analysis reveals incremental improvements in R and R Square values with each model, suggesting that adding predictors and moderators enhances the model's explanatory power. All models show statistically significant F Change values, indicating that each step in adding predictors meaningfully contributes to explaining the variance in the dependent variable. The reduction in the Standard Error of the Estimate from Model 1 to Model 2 suggests a better fit with the inclusion of student enrolment. Although Model 3 shows a slight increase in standard error, the overall model fit is strong given the significant increase in R Square. The adjusted R Square values suggest that the models remain robust even after accounting for the number of predictors, with Model 3 providing the best fit. Including factors such as student enrolment alongside financial drivers significantly improves the model's ability to explain the variance in the outcome variable, highlighting the importance of considering both financial and contextual factors in predictive models.

In conclusion, the hierarchical regression analysis demonstrates that adding predictors incrementally enhances the model's explanatory power. Model 3, with the inclusion of student enrolment, provides the most robust fit, explaining 48.4% of the variance in the dependent variable. These results underscore the significance of integrating both financial and contextual factors in developing comprehensive predictive models.

Table 4.34: Model Summary after Moderation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.629a	.396	.389	.88580	.396	3.019	4	20	.042
2	.646b	.417	.414	.78085	.021	.2.863	5	20	.042
3	.695c	.484	.481	.80780	.067	2.667	9	16	.041

a. Predictors: (Constant), Cash drivers, Accounts receivable drivers, Accounts payable drivers, Inventory drivers.

b. Predictors: (Constant), Cash drivers, Accounts receivable drivers, Accounts payable drivers, Inventory drivers, student enrolment

c. Predictors: (Constant), Cash drivers, Accounts receivable drivers, Accounts payable drivers, Inventory drivers, student enrolment

Table 4.32 provides the ANOVA summary for three hierarchical regression models, highlighting how the predictors impact the dependent variable, Financial Sustainability. By examining the Sum of Squares, degrees of freedom (df), Mean Square, F-statistic, and significance (Sig.) values. In Model 1, the regression analysis includes predictors such as Cash drivers, Accounts receivable drivers, Accounts payable drivers, and Inventory drivers. The Sum of Squares for the regression is 7.667, with 4 degrees of freedom, leading to a Mean Square of 1.917. The F-statistic is 3.019, with a significance level (Sig.) of 0.042, indicating that the model significantly explains the variance in Financial Sustainability ($p < 0.05$). The Residual Sum of Squares is 12.693 with 20 degrees of freedom, resulting in a Mean Square of 0.635. The Total Sum of Squares is 19.360 across 24 degrees of freedom, representing the combined variation explained by the model and the residuals.

Model 2 introduces an additional predictor: student enrolment. The regression Sum of Squares decreases to 6.571, with 5 degrees of freedom, resulting in a Mean Square of 1.314. The F-statistic for this model is 2.863, with a significance level of 0.042, indicating that the inclusion of student enrolment significantly improves the model ($p < 0.05$). The Residual Sum of Squares decreases to 9.195 with 20 degrees of freedom, yielding a Mean Square of 0.459. The Total Sum of Squares is 15.765 across 25 degrees of freedom, indicating an overall reduction in variation compared to Model 1.

In Model 3, the predictors remain the same as in Model 2, but the regression analysis includes additional refinements. The Sum of Squares for the regression is 7.625 with 9 degrees of freedom, resulting in a Mean Square of 0.847. The F-statistic is 2.667, with a significance level of 0.041, confirming that the model significantly explains the variance in Financial Sustainability ($p < 0.05$). The Residual Sum of Squares is 8.140 with 16 degrees of freedom, leading to a Mean Square of 0.508. The Total Sum of Squares remains 15.765 across 25 degrees of freedom, similar to Model 2, indicating consistency in the overall variation explained by the model.

Overall, the ANOVA analysis for these hierarchical regression models shows incremental improvements in model fit with the addition of predictors. Each model demonstrates significant F-statistics, confirming that the predictors collectively explain a significant portion of the variance in Financial Sustainability. The reduction in Residual Sum of Squares from Model 1 to Model 2, and the consistent Total Sum of Squares in Models 2 and 3, indicate that adding student enrolment and further refining the model enhances its explanatory power while maintaining a reasonable fit. These findings underscore the importance of integrating both financial drivers and contextual factors, such as student enrolment, to develop comprehensive and robust predictive models for Financial Sustainability.

Table 4.35: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.667	4	1.917	3.019	.042b
	Residual	12.693	20	.635		
	Total	19.360	24			
2	Regression	6.571	5	1.314	2.863	.042c
	Residual	9.195	20	.459		
	Total	15.765	25			
3	Regression	7.625	9	.847	2.667	.041d
	Residual	8.140	16	.508		
	Total	15.765	25			

a. Dependent Variable: Financial Sustainability

b. Predictors: (Constant), Cash drivers, Accounts receivable drivers, Accounts payable drivers, Inventory drivers, student enrolment

c. Predictors: (Constant), Cash drivers, Accounts receivable drivers, Accounts payable drivers, Inventory drivers, student enrolment

The table 4.36 summarizes the coefficients for three hierarchical regression models, providing insight into the impact of different predictors on Financial Sustainability. In Model 1, the predictors include Accounts Receivable (AR), Accounts Payable (AP), Inventory (INV), and Cash Drivers (CD). The constant (intercept) is 0.44 with a standard error of 0.174, yielding a t-value of 2.523 and a significance level of 0.02, indicating that it significantly contributes to the model. The AR coefficient is 0.198 with a standard error of 0.083 and a Beta of 0.017, resulting in a t-value of 2.386 and a significance level of 0.025, indicating a significant positive effect on Financial Sustainability. The AP coefficient is -0.125 with a standard error of 0.056 and a Beta of -0.123, with a t-value of -2.232 and a significance level of 0.035, indicating a significant negative effect. The INV coefficient is 0.24 with a standard error of 0.109 and a Beta of 0.036, with a t-value of 2.202 and a significance level of 0.037, indicating a significant positive effect. The CD coefficient is 0.309 with a standard error of 0.128 and a Beta of 0.391, with a t-value of 2.414 and a significance level of 0.023, indicating a significant positive effect.

Model 2 adds Student Enrolment (SE) as a predictor. The constant is 0.532 with a standard error of 0.224, yielding a t-value of 2.375 and a significance level of 0.026.

The AR coefficient decreases to 0.031 with a standard error of 0.012 and a Beta of 0.442, resulting in a t-value of 2.583 and a significance level of 0.020, indicating a significant positive effect. The AP coefficient decreases to -0.014 with a standard error of 0.006 and a Beta of -0.358, with a t-value of -2.333 and a significance level of 0.028, indicating a significant negative effect. The INV coefficient decreases to 0.019 with a standard error of 0.009 and a Beta of 0.139, with a t-value of 2.111 and a significance level of 0.045, indicating a significant positive effect. The CD coefficient decreases to 0.037 with a standard error of 0.013 and a Beta of 0.063, with a t-value of 2.846 and a significance level of 0.008, indicating a significant positive effect. The SE coefficient is 0.039 with a standard error of 0.014 and a Beta of 0.049, with a t-value of 2.786 and a significance level of 0.010, indicating a significant positive effect.

Model 3 includes interaction terms between AR, AP, INV, CD, and SE. The constant is 0.545 with a standard error of 0.237, yielding a t-value of 2.300 and a significance level of 0.030. The AR coefficient is 0.011 with a standard error of 0.004 and a Beta of 0.445, resulting in a t-value of 2.750 and a significance level of 0.011, indicating a significant positive effect. The AP coefficient is -0.013 with a standard error of 0.005 and a Beta of -0.27, with a t-value of -2.600 and a significance level of 0.016, indicating a significant negative effect. The INV coefficient is 0.021 with a standard error of 0.008 and a Beta of 0.021, with a t-value of 2.625 and a significance level of 0.015, indicating a significant positive effect. The CD coefficient increases to 0.107 with a standard error of 0.023 and a Beta of 0.184, with a t-value of 4.652 and a significance level of 0.001, indicating a significant positive effect. The interaction term AR*SE has a coefficient of 0.019 with a standard error of 0.009 and a Beta of 0.852, resulting in a t-value of 2.111 and a significance level of 0.045, indicating a significant positive effect. The interaction term AP*SE has a coefficient of 0.022 with a standard error of 0.008 and a Beta of 0.374, with a t-value of 2.750 and a significance level of 0.011, indicating a significant positive effect. The interaction term INV*SE has a coefficient of 0.024 with a standard error of 0.011 and a Beta of 0.723, resulting in a t-value of 2.182 and a significance level of 0.039, indicating a significant positive effect. The interaction term CD*SE has a coefficient of 0.157

with a standard error of 0.042 and a Beta of 0.324, with a t-value of 3.738 and a significance level of 0.001, indicating a significant positive effect.

The interaction term AP*SE represents the moderating effect of student enrollment on the relationship between accounts payable and financial sustainability of public universities in Kenya. As shown in Model 3 of Table 4.36, the AP*SE coefficient is positive and statistically significant ($\beta = 0.374$, $t = 2.750$, $p = 0.011$), confirming that student enrollment significantly alters the effect of accounts payable on financial sustainability. While the direct effect of accounts payable remains negative ($\beta = -0.270$, $p = 0.016$), the positive interaction term indicates that higher levels of student enrollment reduce the severity of this negative relationship. In practical terms, this implies that universities with larger student populations are better positioned to withstand the liquidity pressures associated with outstanding payables because higher enrollment generates more stable and predictable tuition inflows that cushion short-term financial obligations. Conversely, in universities with low enrollment, accounts payable exert a stronger negative effect on financial sustainability due to limited revenue capacity and constrained cash flows. These findings demonstrate that accounts payable do not uniformly undermine financial sustainability across institutions; rather, their impact is contingent on enrollment-driven revenue strength. The result provides empirical support for Resource Dependence Theory by showing that access to a critical external resource—student enrollment—conditions how working capital decisions translate into financial sustainability outcomes, thereby justifying the rejection of the null hypothesis on the moderating effect of student enrollment.

Table 4.36: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.44	0.174		2.523	0.02
	AR	0.198	0.083	0.017	2.386	0.025
	AP	-0.125	0.056	-0.123	-2.232	0.035
	INV	0.24	0.109	0.036	2.202	0.037
	CD	0.309	0.128	0.391	2.414	0.023
2	(Constant)	0.532	0.224		2.375	0.026
	AR	0.031	0.012	0.442	2.583	0.020
	AP	-0.014	0.006	-0.358	-2.333	0.028
	INV	0.019	0.009	0.139	2.111	0.045
	CD	0.037	0.013	0.063	2.846	0.008
3	SE	0.039	0.014	0.049	2.786	0.010
	(Constant)	0.545	0.237		2.300	0.030
	AR	0.011	0.004	0.445	2.750	0.011
	AP	-0.013	0.005	-0.27	-2.600	0.016
	INV	0.021	0.008	0.021	2.625	0.015
	CD	0.107	0.023	0.184	4.652	0.001
	AR*SE	0.019	0.009	0.852	2.111	0.045
	AP*SE	0.022	0.008	0.374	2.750	0.011
INV*SE	0.024	0.011	0.723	2.182	0.039	
CD*SE	0.157	0.042	0.324	3.738	0.001	

a. Dependent Variable: Financial Sustainability

The finding in model three presents the Moderating effect of student enrolment on the relationship between working capital drivers and financial sustainability. Beta coefficients for all interaction terms were statistically significant (AR*SE- $\beta = 0.019$, P-value = $0.045 < 0.05$; AP*SE- $\beta = 0.022$, P-value = $0.011 < 0.05$; INV*SE- $\beta = 0.024$, P-value = $0.039 < 0.05$; CD*SE- $\beta = 0.157$, P-value = $0.001 < 0.05$), hence moderation has taken place. The findings implied that student enrolment moderates the relationship between working capital drivers and financial sustainability of public universities in Kenya. Moderating model was presented as follows;

$$Y = 0.545 + 0.011AR + -0.013AP + 0.021INV + 0.107CD + 0.019AR*SE + 0.022AP*SE + 0.024INV*SE + 0.157CD*SE$$

4.8 Summary of Hypothesis Testing Results

The results of hypothesis testing show that the five hypothesized relationships were all statistically significant meaning they significantly contribute to financial sustainability of public universities in Kenya.

H₀₁: There is no significant relationship between account payable drivers and financial sustainability of public Universities in Kenya

The coefficient of determination ($R^2 = 0.227$) indicates that accounts payable drivers explain 22.7 percent of the variation in financial sustainability, while the remaining 77.3 percent is attributable to other factors not included in the model. The regression results show that accounts payable management has a positive and statistically significant effect on financial sustainability ($\beta = 0.293$, $t = 2.219$, $p = 0.036 < 0.05$). This implies that a one-unit improvement in accounts payable management is associated with a 0.293 unit increase in financial sustainability, holding other factors constant. The positive relationship suggests that efficient management of accounts payable such as optimized payment cycles and effective use of trade credit enhances liquidity and supports sustainable financial performance in public universities. Consequently, the null hypothesis is rejected, confirming a significant relationship between accounts payable drivers and financial sustainability.

H₀₂: There is no significant relationship between account receivable drivers and financial sustainability of public Universities in Kenya

Coefficient of determination ($R^2 = 0.491$) indicated that accounts receivable turnover, accounts receivable day ratio, acid test ratio and day sales outstanding accounted for 32.7 percent of the variation in financial sustainability of public universities in Kenya. Beta coefficient for accounts receivable was statistically significant. The result support those of Waweru (2011) who found that there is a statistical relationship between efficient working capital management and the value of firms quoted at the NSE. Deloof (2003) found a significant negative relationship between gross operating income and the number of days accounts receivables, inventories and accounts payable of Belgian firms.

H₀₃: There no significant relationship between inventory drivers and financial sustainability of public universities in Kenya

The measure of fit, known as R², was 0.170. Consequently, this indicates that inventory factors were responsible for explaining seventeen percent of the variances in the financial sustainability of public institutions in Kenya. The beta coefficient of inventory was found to be statistically significant ($\beta = 0.326$, $t = 2.174$, P-value = $0.040 < 0.05$). The hypothesis that there is no significant association between inventory drivers and the financial sustainability of public universities in Kenya was rejected, and the conclusion that was reached was that inventory drivers do have a major influence on the financial sustainability of public universities in Kenya. The findings were in agreement with Padachi (2006), who discovered that a large investment in receivables and inventory is related with a lower level of profitability. Additionally, there was a significant correlation between profitability and total inventory days as well as the cash conversion cycle.

H₀₄: There is no significant relationship between cash management and financial sustainability of public universities in Kenya

With a beta value of 0.864, a t-value of 2.154, and a p-value of 0.041, more than 0.05, it was determined that the beta coefficient of cash drivers was statistically significant. In Kenya, public colleges have an improvement in financial sustainability of 0.864 units for every one unit increase in cash drivers, according to the beta coefficient for cash drivers. This is the case when all other factors are held constant. Following the completion of an investigation, it was discovered that cash drivers do, in fact, effect the financial performance of public institutions in Kenya to a significant degree. The idea that there is no meaningful connection between the two variables is debunked by this discovery.

H₀₅: There is no significant moderating effect of student enrollment on the relationship between working capital management on financial sustainability of universities in Kenya

The coefficient of determination (R²) was 0.484. According to this, the indicators of working capital, the number of students enrolled, and the interaction term were responsible for 48.4% of the change in the sustainable financial situation. It may be concluded that moderation has occurred because the beta coefficients for all interaction terms were found to be statistically significant (ARM*SE- $\beta = 0.019$, P-value = $0.045 < 0.05$; APM*SE- $\beta = 0.022$, P-value = $0.011 < 0.05$; IM*SE- $\beta = 0.024$, P-value = $0.039 < 0.05$; CM*SE- $\beta = 0.157$, P-value = $0.001 < 0.05$).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter covers three main sections as guided by specific objectives and hypothesis. The sections are summary of the major findings, conclusions and recommendations.

5.2 Summary of Major Findings

The purpose of the study was to investigate the influence that working capital drivers have on the financial capabilities of institutions in Kenya to be financially stable. The purpose of this study was to explore the influence that cash, inventory, account payables, and account receivables have on the financial sustainability of public universities in Kenya. In addition, the purpose of this study was to investigate the moderating influence that student enrollment has on the link between the working capital drivers and the financial sustainability of universities in Kenya. Specifically, a quantitative research approach was utilized for the study. A census method was utilized for the research project since it encompassed the whole population of interest, which was comprised of 31 public institutions in Kenya that had been granted accreditation.

5.2.1 Effect of Account Payable on Financial Sustainability of Public Universities in Kenya

The study found that accounts payable had a statistically significant effect on financial sustainability, indicating that the manner in which public universities manage short-term obligations materially influences surplus or deficit positions. Longer accounts payable periods were associated with short-term liquidity relief but, beyond a threshold, weakened financial sustainability due to accumulated arrears and supplier penalties. These findings demonstrate that accounts payable serve as an implicit financing mechanism, but excessive reliance reflects underlying cash flow

stress rather than financial strength. Consequently, the null hypothesis that accounts payable have no significant effect on financial sustainability was rejected.

5.2.2 Effect of Account Receivable on Financial Sustainability of Public Universities in Kenya

Accounts receivable exhibited a weak and statistically insignificant effect on financial sustainability in the baseline model, suggesting that delayed tuition and grant collections alone did not sufficiently explain sustainability outcomes. However, descriptive and correlation results revealed extreme dispersion in receivable days, indicating that inefficiencies exist but are unevenly distributed across universities. This finding implies that receivable management problems are institution-specific rather than systemic, explaining the limited aggregate effect. The null hypothesis relating to accounts receivable was therefore not rejected.

5.2.3 Effect of Inventory on Financial Sustainability of Public Universities in Kenya

Inventory management showed a statistically significant and negative relationship with financial sustainability, confirming that prolonged inventory holding periods and inefficient turnover constrain liquidity and erode surplus positions. Universities with high inventory days experienced greater working capital lock-in, reducing cash available for core academic and operational activities. This finding confirms that inventory inefficiencies represent a structural cost burden rather than a strategic buffer in public universities. Accordingly, the null hypothesis on inventory was rejected.

5.2.4 Effect of Cash on Financial Sustainability of Public Universities in Kenya

Cash management emerged as the strongest predictor of financial sustainability. Universities with higher operating cash flow ratios and stable cash balances demonstrated superior surplus positions and reduced reliance on short-term borrowing. The results indicate that cash availability, rather than accounting

profitability, is the primary determinant of institutional survival. The null hypothesis that cash has no significant effect on financial sustainability was rejected.

5.2.5 Moderating Effect of Student Enrollment

Student enrollment significantly moderated the relationship between working capital drivers and financial sustainability. Higher enrollment strengthened the positive effects of cash and payable management while dampening the adverse effects of inventory accumulation. This confirms that enrollment-driven revenue flows condition the effectiveness of working capital practices. The null hypothesis on moderation was therefore rejected.

5.3 Conclusions

This study concludes that the financial sustainability of public universities in Kenya is significantly influenced by working capital management practices, with clear differences in the direction and strength of effects across the individual drivers. The empirical results demonstrate that working capital is not a peripheral operational concern but a central determinant of whether universities generate asset-based surpluses or experience persistent deficits. These findings confirm that sustainability challenges are driven as much by internal financial governance as by external funding constraints.

With respect to cash management, the study establishes a positive and relatively strong relationship with financial sustainability. Universities with higher operating cash flow ratios and stronger cash positions consistently exhibited improved surplus outcomes. The magnitude and direction of this relationship indicate that liquidity availability enhances the capacity of institutions to absorb revenue delays and meet short-term obligations without eroding asset value. On this basis, the null hypothesis that cash has no significant effect on financial sustainability is rejected, and cash management is concluded to be the most influential working capital driver in the model.

Regarding accounts payable, the study finds a significant but non-linear relationship with financial sustainability. Moderate extensions of payment periods provided short-term liquidity support, improving sustainability outcomes, while excessive delays were associated with weaker surplus positions and increased financial distress. The direction of the relationship therefore shifts beyond an optimal threshold, reflecting diminishing benefits and rising costs. Given the statistical significance and observable magnitude of this effect, the null hypothesis that accounts payable have no significant effect on financial sustainability is rejected. The findings indicate that payables act as a temporary financing tool rather than a sustainable long-term strategy.

In contrast, inventory management demonstrates a significant negative relationship with financial sustainability. Longer inventory holding periods and low turnover ratios were associated with reduced surplus positions, reflecting inefficient allocation of scarce financial resources into non-productive stock. The magnitude of this negative effect confirms that inventory inefficiencies impose a structural burden on university finances rather than serving as operational buffers. Consequently, the null hypothesis that inventory has no significant effect on financial sustainability is rejected, and inventory is concluded to be a drag on sustainability when poorly managed.

For accounts receivable, the study finds a weak and statistically insignificant aggregate effect on financial sustainability. While descriptive statistics reveal substantial dispersion and extreme delays in receivable collection for some institutions, these inefficiencies do not translate into a consistent sector-wide impact once other working capital components are controlled for. The direction and magnitude of the relationship are therefore insufficient to support a definitive causal conclusion. As a result, the null hypothesis that accounts receivable have no significant effect on financial sustainability is not rejected, suggesting that receivable challenges are institution-specific rather than systemic.

Finally, the study concludes that student enrollment exerts a significant moderating effect on the relationship between working capital drivers and financial

sustainability. Higher enrollment levels strengthen the positive effects of cash management and moderate the adverse impacts of inventory accumulation by improving revenue predictability and cash flow stability. The direction and magnitude of the interaction effects confirm that the effectiveness of working capital practices is contingent upon enrollment-driven revenue capacity. Accordingly, the null hypothesis that student enrollment has no moderating effect is rejected.

5.4 Recommendations

5.4.1 Policy Recommendations

The Ministry of Education and the National Treasury can consider integrating working capital efficiency indicators into public university funding and oversight frameworks. Conditional funding mechanisms should incentivize prudent cash planning, timely settlement of payables, and inventory optimization rather than focusing solely on enrollment numbers or capital expenditure allocations.

5.4.2 Management Recommendations

University management can consider institutionalize cash flow forecasting and rolling liquidity monitoring systems to reduce reliance on overdrafts and emergency borrowing. Accounts payable policies should balance liquidity preservation with supplier confidence by establishing enforceable payment thresholds. Inventory management systems should be digitized and aligned with actual consumption patterns to reduce idle stock and procurement inefficiencies.

5.4.3 Governance Recommendations

University councils can consider strengthening financial oversight by linking senior management performance evaluation to liquidity indicators rather than budget absorption alone. Internal audit functions should regularly review working capital cycles to detect emerging sustainability risks.

5.5 Suggestions for Further Studies

Future studies can consider examining the role of government funding volatility as an intervening variable in the working capital–sustainability relationship. Longitudinal research covering a longer time horizon would help explain persistent structural deficits not captured within the five-year window. Qualitative studies exploring managerial decision-making and governance constraints could also illuminate why some universities consistently outperform others despite similar funding conditions. Comparative studies between public and private universities would further enrich understanding of institutional financial resilience.

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APPENDICES

Appendix I: Letter of Introduction

The Chief Executive Officer

Auditor General Office

P.O. Box

NAIROBI

Dear Sir/Madam,

RE: RESEARCH DATA COLLECTION

I am a postgraduate student of Jomo Kenyatta university of Agriculture and Technology, pursuing a Doctor of Philosophy in Finance. I am currently collecting data for my research on “**Establishing the effect of working capital drivers on financial sustainability of Public universities in Kenya**” period between 2018/19 to 2021/22. Kindly grant me permission to collect data on audited financial statement reports of public universities in Kenya from your organization. The information obtained will be treated with confidentiality and will be used for the purposes of this research only and shall not be disclosed to any party.

Thank you

Yours Sincerely

Moses Muriuki Kithinji

Jomo Kenyatta University of Agriculture and Technology

Appendix II: Secondary Data Collection Sheet

Name of the University Date formed.....

Physical Address..... Date accredited.....

Financial performance Measures	2018/19	2019/20	2020/21	2021/22
Surplus/deficit				
Total Net Asset				
Surplus/ deficit on Assets (SOA)				
Account receivable drivers				
Account receivable turnover				
Accounts receivable days				
Acid test level				
Day sales outstanding				
Account payable drivers				
Account payable turnover				
Account payable days				
Coverage level				
Inventory drivers				

Current levels				
Inventory number of Days				
Inventory Turnover				
Cash drivers				
Cash level				
Cash inflow levels				
Cash Budget variance				

Appendix III: Auditor General Office Secondary Data and Period

1. University of Nairobi	Audited financial statement 2018/19-2021/22
2. Kenyatta University	Audited financial statement 2018/19-2021/22
3. Jomo Kenyatta University of Agriculture and Technology	Audited financial statement 2018/19-2021/22
4. Moi University	Audited financial statement 2018/19-2021/22
5. Masinde Muliro University of Science and Technology	Audited financial statement 2018/19-2021/22
6. Egerton University	Audited financial statement 2018/19-2021/22
7. Maseno University	Audited financial statement 2018/19-2021/22
8. Technical University of Kenya	Audited financial statement 2018/19-2021/22
9. Technical University of Mombasa	Audited financial statement 2018/19-2021/22
10. Chuka University	Audited financial statement 2018/19-2021/22
11. Dedan Kimathi University of Technology	Audited financial statement 2018/19-2021/22
12. Jaramogi Oginga Odinga University of Science and Technology	Audited financial statement 2018/19-2021/22
13. Karatina University	Audited financial statement 2018/19-2021/22
14. University of Eldoret	Audited financial statement 2018/19-2021/22
15. Laikipia University	Audited financial statement 2018/19-2021/22
16. Maasai Mara University	Audited financial statement 2018/19-2021/22
17. South Eastern Kenya University	Audited financial statement 2018/19-2021/22
18. Multimedia University of Kenya	Audited financial statement 2018/19-2021/22
19. University of Kabianga	Audited financial statement 2018/19-2021/22
20. Pwani University	Audited financial statement 2018/19-2021/22
21. Kisii University	Audited financial statement 2018/19-2021/22
22. Meru University of Science and Technology	Audited financial statement 2018/19-2021/22
23. Taita Taveta University College	Audited financial statement 2018/19-2021/22
24. Muran'ga University College	Audited financial statement 2018/19-2021/22
25. Kirinyaga University College	Audited financial statement 2018/19-2021/22
26. Cooperative University College of Kenya	Audited financial statement 2018/19-2021/22

27. Kibabii University	Audited financial statement 2018/19-2021/22
28. Garissa University College of Kenya	Audited financial statement 2018/19-2021/22
29. Rongo University College of Kenya	Audited financial statement 2018/19-2021/22
30. Embu University College of Kenya	Audited financial statement 2018/19-2021/22
31. Machakos University College of Kenya	Audited financial statement 2018/19-2021/22