INFLUENCE OF INTERNAL CONTROL SYSTEM ON FINANCIAL SUSTAINABILITY OF FINTECH COMPANIES IN NAIROBI COUNTY, KENYA

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MASTER OF SCIENCE

(Development Finance)

KCA UNIVERSITY

2025

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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE IN DEVELOPMENT FINANCE IN THE SCHOOL OF BUSINESS AT KCA UNIVERSITY

OCTOBER, 2025

DECLARATION

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

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ABSTRACT

The financial technology (Fintech) sector in Kenya has experienced significant growth with Nairobi County being the hub of many Fintech companies. However, many Fintech companies have faced cyber threats to their financial sustainability attributed to weak or inadequate internal control systems. The primary goal of this study is to examine the influence of internal control systems on financial sustainability of Fintech companies in Nairobi County. The study specifically aimed to assess the impacts of control environment, real-time financial reporting systems, monitoring systems and Internal Fraud Detection Algorithms and Tools and on the financial sustainability of Fintechs. The research is supported by stakeholder Theory, Resource-Based View, Systems Theory, and Agency Theory. The research used quantitative research approach utilizing a descriptive research design. Data was collected through structured questionnaires to ensure representativeness; stratified random sampling was used to select respondents from key staff categories (executives, finance officers, IT security managers, compliance officers, and operations staff) across the 91 registered Fintechs from the central bank report 2024. The total target population for the study was 623 respondents. The sample size was 244 respondents determined by Yamane Formula. The data collected was analyzed through descriptive statistics, correlation, and multiple regression analysis with the aid of SPSS software. This study discussed the impact of internal control systems (ICS) on financial sustainability of Fintech businesses in Nairobi County. The data were collected using stratified random sampling of 198 respondents and analyzed by descriptive, factor analysis and regression methods. Findings demonstrated that the control environment, real-time financial reporting, monitoring systems, and fraud detection significantly contributed to financial sustainability. The study finds that ICS is statistically significant in enhancing governance, compliance, and sustainability within Fintechs. It aims to enhance administrative systems, provide real-time reporting, and invest in fraud detection mechanisms**.** The study recommends that Fintech companies enhance their governance architecture, adopt real-time reporting, and use advanced fraud detection and monitoring technologies. Regulators should establish robust internal control mechanisms while management invests in personnel training and technology to attain financial sustainability.

ACKNOWLEDGEMENT

This dissertation studied on a sector that have shaped my career professionally and has affected the lives of people in Kenya positively. I acknowledge my supervisor, Dr. Gladys Bunyasi for her objective guidance and sharing his knowledge in research with me. I sincerely appreciate my parents for supporting me in my pursuit of Masters. Recognizing the effort of other researchers who researched before on some areas of this study topic which helped me in writing my dissertation.

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DEDICATION

I humbly dedicate this work to my dear parents for their effort and overwhelming Family support and unfathomable love they have expressed as I carried out this research that successfully led to the completion of this dissertation.

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LIST OF ABBREVIATIONS AND ACRONYMS

FINTECH - Financial Technology

CBK - Central Bank of Kenya

FSD - Financial Sector Deepening

ICS - Internal Control Systems

RTFR - Real-time financial reporting

COSO - Committee of Sponsoring Organizations of the Treadway Commission

RBV - Resource-Based View

OPERATIONAL DEFINITION OF TERMS

Fintech Companies Financial technology companies are companies that use technology and cloud services to offer and deliver financial services. They provide users with capability to store save, borrow, invest move, pay and protect money (McKinsey & Company, 2024)

Financial Sustainability This is the capacity of a Fintech company to maintain profitability and operational viability over a long time by diversifying sources, controlling costs, ensuring regulatory compliance and investing in scalable infrastructure (Offor, 2025)

Internal Controls is defined in COSO (2013) Framework as "a process, effected by an entity's board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting, and compliance." Internal controls according to this study are techniques that firms develop and employ to ensure that the objectives, goals, and mission of the organization are achieved. Information and xv communication, control activities, assessing and managing risk, control environment and monitoring form the components of internal control.

Internal Control Systems as defined by McNally (2013), involve a set of rules, policies and procedures which are implemented by an organization, to provide direction and strengthen adherence to policies. As per this study, it is used to mean all the necessary techniques employed by the organization to achieve desirable results.

Control Activities according to COSO, (2013) are the actions established by the policies and procedures to help ensure that management directives to mitigate risks to the achievement of objectives are carried out. Control activities as per this study refer to policies, procedures, and mechanisms put in place to ensure directives of the management are properly carried out to help the organization achieve the set objectives

Control Environment as per COSO, (2013)framework is the set of standards, processes, and structures that provide the basis for carrying out internal control across the organization. As per this study refers to actions, policies, values and management/leadership styles that influence and set the tone of a firm's daily operations.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Globally, the financial technology (Fintech) sector has revolutionized the delivery of financial services by integrating advanced technologies such as artificial intelligence (AI), blockchain, and big data analytics into traditional financial operations. According to the World Bank, (2024) Fintech has become a catalyst for financial inclusion and economic empowerment, particularly in developing and emerging markets, by providing mobile payments services, expanding access to credit and savings to previously underserved and marginalized populations. However, the rapid digitization of financial services has also introduced complex operational, cyber, and regulatory risks, necessitating robust internal control systems (ICS) to safeguard data integrity, ensure compliance, and promote sustainable business operations (Feyen et al., 2021).

Across Africa Fintech is gaining momentum as most people embrace digital platforms for transacting purposes. The African Fintech sector in 2021 attracted over USD 3 billion in investments, with mobile money, digital lending, and Insurtech being the dominant verticals (GSMA Intelligence, 2024). Despite significant growth, several African Fintech companies have struggled with sustainability challenges due to weak internal governance structures and insufficient risk management frameworks, leading to operational inefficiencies, financial losses, and regulatory breaches (African Development Bank, 2023). These challenges clearly emphasize on the need for comprehensive internal controls structured to the unique operational and regulatory contexts of African Fintech environments.

East Africa as a region has emerged as a hub for Fintech innovation, with countries like Kenya, Uganda, and Rwanda pioneering mobile money services and digital finance solutions in

the region. Kenya has distinguished itself as a leader in Fintech development, driven by a supportive regulatory environment and high mobile penetration rates. The introduction and the success story of M-Pesa have positioned Kenya as a global reference point for mobile financial services and digital inclusion (Ndemo & Weiss, 2017).

The Kenyan Fintech sector has expanded its technology advancements that goes beyond mobile money to include digital lending, Insurtech, and blockchain applications (Tiony & Yin, 2024). Fintechs handle an increasing volume of complex and sensitive financial transactions; there is a need for internal control systems (ICS) to ensure not only operational efficiency but also long-term financial sustainability in this dynamic and high-risk environment.

Tiony & Yin, (2024) highlight that, over the past decade, the Fintech industry has witnessed unparalleled growth and innovation, disrupting the traditionally conservative field. This presents both opportunities and risks. While technology enables scalability and market reach, it also heightens vulnerabilities such as fraud, system failures, and compliance risks. These internal control systems are important to ensure financial reporting and regulatory compliance and results to the financial sustainability of Fintech companies (Muslim, 2025).

Recent regulatory developments frameworks pointed out the need to have well-structured and effective internal control systems in Kenya's Fintech arena. The Central Bank of Kenya Amendment Act of 2021, (Kenya Gazette, 2022), introduced new standards on governance, risk management, and reporting standards for digital lenders, emphasizing the need for sound internal control frameworks across the Fintech industry. According to past research done, operational risks, significant financial losses, and sustainability issues can be a result of weak internal controls. According to Financial Sector Deepening Kenya (2018) reports, approximately 40% of Fintech startups in the country face sustainability issues within their first to three years of

operations, which is partly a result of inadequate internal controls and lack of financial sustainability goals. The COVID-19 pandemic further exposed the vulnerabilities of Fintech companies facing operational difficulties lacking strong internal control systems. Musyoki, (2023) alludes that Fintech companies with strong internal control systems were better equipped to operate seamlessly during the seasonal challenges that affected the economy while sustaining their growth and social impact goals. As such, the Fintech sector functions under a unique dynamic regulatory framework that combines traditional financial regulations with innovative digital service guidelines, as noted by (Kahwai, 2022).

According to a study by Ndwiga, (2020), strong and well-structured internal control enables a firm to be more resilient to market changes and makes it easier for it to achieve long-term sustainability. Although most Fintech companies have recognized the importance of internal controls, there remains a significant gap in understanding their specific influence on sustainability within Kenya's Fintech sector. The unique characteristics of Fintech companies such as digital-first focus, rapid scalability, and innovative business models needs further research so that sustainability is understood in the context of internal risk management controls.

Despite recognition of the value of internal controls, there remains limited empirical understanding of how specific ICS components impact financial sustainability within Kenya's unique Fintech landscape. Most existing research has focused on traditional banking institutions (The World Bank Group, 2020), leaving a knowledge gap in the application and effectiveness of ICS in tech-driven, high-growth, and lightly regulated Fintech environments.

This gap matters since Kenyan Fintechs operate in an increasingly competitive and volatile ecosystem, where weak internal controls can result in fraud, regulatory sanctions, capital loss, and erosion of consumer trust. With rising digital transaction volumes, cross-border

operations, and tightening compliance requirements (ODPC, 2023; FSD Africa, 2025), the interplay between ICS and financial sustainability is no longer a theoretical concern but a pressing operational necessity.

Studying this relationship now is timely and essential for three reasons. First, the sector growth and risk exposure where Kenya's Fintech sector is expanding rapidly, attracting local and international investors, yet faces systemic risks that threaten long-term viability (Malyshev, 2025). Secondly the regulatory Shifts that introduce new laws and supervisory expectations demand demonstrable governance, risk management, and audit capabilities (COSO, 2013; Kenya Gazette, 2022).Thirdly, to ensure economic Stability by strengthening ICS in Fintechs can enhance investor confidence, protect consumers, and safeguard the stability of Kenya's digital financial ecosystem (The World Bank, 2024; OECD, 2024).

By addressing the current research gap, this study will contribute and provide actionable insights for regulators, investors, and Fintech managers, ensuring that resilient and sustainable operational foundations match innovation in Kenya's digital finance sector.

1.1.1 Internal Control Systems

Internal control systems are integral to good governance and financial integrity. They consist of policies, procedures, and mechanisms designed to ensure that financial and operational activities align with established objectives. According to COSO (2013), effective internal controls comprise five components: control environment, risk assessment, control activities, information and communication, and monitoring. The control environment establishes the ethical culture and structure that guide behavior within the organization. Risk assessment identifies internal and external threats that may hinder goal achievement. Control activities are preventive and detective measures implemented to mitigate identified risks. Information and communication ensure the

timely flow of accurate data, while monitoring involves continuous evaluations to guarantee control effectiveness (Mwangi, 2022). Inadequate internal controls expose organizations to misappropriation of assets, inefficiency, and compliance breaches, while robust control systems promote accountability, transparency, and efficient resource utilization (Amin & Musyoka, 2020).

1.1.2 Financial Sustainability

Financial sustainability refers to an organization's ability to generate sufficient resources to meet operational costs and achieve long-term objectives without compromising future viability. It encompasses four main dimensions: profitability, liquidity, solvency, and operational efficiency (Muriithi & Waweru, 2017). Sustainable financial performance ensures that institutions maintain operations, adapt to changing environments, and continue providing value to stakeholders. For organizations, particularly in the financial and non-profit sectors, financial sustainability is crucial for growth, resilience, and continuity. It allows for reinvestment, innovation, and consistent service delivery. Weak financial management and inadequate internal control systems can lead to resource wastage, poor investment decisions, and potential insolvency (Otieno, 2019).

Empirical evidence shows a strong positive relationship between internal control systems and financial sustainability. A well-established control framework reduces financial irregularities, enhances prudent resource management, and promotes informed strategic decision-making (Karimi, 2021). Organizations that sustain robust internal control systems supported by effective monitoring, ethical leadership, and sound financial management practices are better positioned to achieve financial sustainability. Therefore, understanding the connection between internal

control systems and financial sustainability is essential for ensuring organizational stability and success.

1.2 Statement of the Problem

Financial sustainability of Fintech companies is increasingly threatened by insufficient internal controls. Poor internal control systems have put Fintech companies at risk of operational, financial, and compliance issues due to their rapid growth (KPMG, 2016). A clear system of sustainable internal controls will enable financial sustainability in the face of shifting economic conditions. The global importance of internal control systems is recognized, but their implementation and impact in Kenya's fast-changing Fintech sector are unknown. The Central Bank of Kenya (CBK, 2013) found that more than 30% of licensed Fintechs struggle with financial health due to internal risks, indicating a deficit in sector-wide internal control measures.

Several Kenyan Fintech companies have dissolved or gone into administration due to financial difficulty, downsizing, or operational issues caused by insufficient internal controls. Due to poor internal controls and governance, 30% of Fintech businesses fail within three years (FSD Africa, 2018). This caused creditors and partners to lose money, employment losses and staff reduction, digital economy operational problems, and customer distrust of digital financial services. Consumer mismanagement and credit risk from insufficient credit rating systems forced Kenyan buy now, pay later LipaLater into administration (Nduati, 2025). Second, Kenyan logistics and e-commerce company Sendy faced financial issues due to lower order quantities, rising operational costs, and poor cost control. Copia Kenya, a Fintech that used kiosk owners as retailers and delivery agents, grew quickly but struggled with supply chain management and resource constraints (Udokanma, 2024). These stories show how poorly conceived and

implemented internal control affects financial sustainability, causing firm turmoil, job losses, and sector instability. Internal control systems (ICS) are crucial to operational efficiency and financial sustainability in Kenya's Fintech sector.

According to Alabi, A et al. (2023), internal control system dynamics are complicated, making holistic implementation difficult due to the country's shifting regulatory framework that struggles to keep up with technology advances. As Fintech companies expand internationally and integrate informal economies into formal financial systems, maintaining effective internal controls and ensuring sustainable practices becomes difficult (International Monetary Fund & World Bank, 2019). In Kenya, studies like “Classified Hotels” by (Wachira, 2022) and Local research by (Wanyama & Reuben, 2022) found that Fintech companies with well-implemented ICS had better fraud prevention mechanisms and stronger compliance with Central Bank of Kenya regulations. The study focused on fraud prevention and did not assess other internal control system aspects or financial sustainability. This study will expand the findings to incorporate more ICS components.

This study sought to fill this gap by investigating how internal control systems, specifically the control environment, risk management practices, real-time financial reporting, and monitoring tools, influence the financial sustainability of Fintech companies in Nairobi County. The findings will provide essential insights for strengthening internal controls, supporting firm survival, and safeguarding the stability of Nairobi and Kenya’s digital financial services ecosystem.

1.4 Objectives of the Study

1.4.1 General objective

The general objective of the study was to investigate the influence of internal control system on financial sustainability in Fintech Companies in in Nairobi County.

1.4.2 Specific objectives

The specific objectives of the study were to establish the following;

i. To ascertain the influence of control environment on financial sustainability of Fintech companies in Nairobi County
ii. To analyze effect of real-time financial reporting systems on financial sustainability of Fintech companies in Nairobi County
iii. To examine the influence of monitoring systems on financial sustainability of Fintech companies in Nairobi County
iv. To examine the influence of Internal Fraud Detection Algorithms and Tools on financial sustainability of Fintech companies in Nairobi County

1.5 Research Questions

i. What is the influence of control environment on financial sustainability of Fintech companies in Nairobi County?
ii. What is the influence of real-time financial reporting systems on financial sustainability of Fintech companies in Nairobi County?
iii. What is the influence of monitoring systems financial sustainability of Fintech companies in Nairobi County?

iv. What is the influence of Internal Fraud Detection Algorithms and Tools on financial sustainability of Fintech companies in Nairobi County?

1.6 Justification of the Study

According to Andia, (2024) and Okiyo & Kihara , (2024) Fintechs have been accepted as a transformative driver of financial inclusion and economic empowerment across developing economies. There has been rapid growth of Fintechs particularly in Nairobi County. However, Fintech's rapid growth, globalization of economy, technological advancements present new risks due to inadequate or lack of adaptive which threaten the financial sustainability of Fintech companies. By researching on how internal control systems can enhance sustainable operational practices, real time financial reporting systems, Internal Fraud Detection Algorithms and Tool in this research will provide insights that align with the Fintech companies in Nairobi County and country's broader economic development and digital finance strategy.

1.7. Significance of the Study

1.7.1 Regulators and policymakers

The study holds significance for regulators and policymakers such as the Central Bank of Kenya (CBK) and Fintech association of Kenya. In the forefront of advocating for policies and establishing a conducive regulatory framework that promotes the growth and innovation of Fintech companies throughout Kenya and the African continent. CBK face the challenge of balancing innovation with effective oversight in the digital finance space (Musamali et al., 2023). As Fintech companies grow rapidly in number and influence, there is an urgent need for regulatory frameworks that not only ensure compliance and consumer protection but also promote sustainable business practices. The findings of this research will help shape policies that encourage responsible innovation while mitigating systemic risks in the sector.

1.7.2 Investors and Stakeholders

The research will benefit investors and stakeholders in the Kenyan Fintech ecosystem. With reports such as those from FSD Kenya (2018) indicating that nearly 40% of Fintech startups in Kenya struggle with sustainability within their first three years of operation largely due to poor internal controls and risk management this research provides crucial data that investors can use to assess the governance robustness of potential Fintech investment opportunities. This is likely to influence investment decisions, promote investor confidence, and guide capital allocation towards sustainable firms.

1.7.3 Telecommunications Sector

The research findings will offer practical insights to the telecommunications sector, which provides the digital infrastructure backbone for Fintech operations. Effective internal controls in Fintech companies reduce systemic risks such as fraud and operational failures, which could otherwise disrupt mobile money platforms, digital lending applications, and other services heavily reliant on telecom networks (Tiony & Yin, 2024). Therefore, improving internal controls not only safeguards individual Fintech companies but also enhances the reliability and resilience of the broader digital financial ecosystem.

1.7.4 Fintech Company Managers

This study will directly benefit Fintech company managers by offering evidence-based recommendations on how to optimize internal control systems to drive long-term financial sustainability. Enhanced internal control systems can lead to better financial performance, reduced operational risks, and improved stakeholder trust (Musyoki, 2023). This research will contribute to the development of a more stable, sustainable, and well-regulated Fintech sector in Kenya.

1.7.5 Researchers and Scholars

Moreover, this research will expound upon and contribute to other existing studies on the influence of internal controls across various sectors in this case being Fintech companies. This will greatly help scholars and researchers seeking to further develop or enhance new knowledge to the study.

1.8 Scope of the Study

The study was conducted among 91 registered Fintech companies operating within Nairobi County, Kenya. It targeted key organizational staff including executives, finance officers, IT security managers, compliance officers, and operations personnel. A total of 244 respondents were selected through stratified random sampling to ensure adequate representation of all staff categories. The study specifically examined how internal control systems namely the control environment, risk management practices, real-time financial reporting, and monitoring tools influence the financial sustainability of these Fintech firms.The study was carried out between June 2025 to October 2025.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

A review of literature is important in the dissertation in order to assess the current level of knowledge in this area of study. The chapter discussed theoretical review, empirical review, Research Gaps and conceptual framework.

2.2 Theoretical Review

2.2.1 Stakeholder Theory

Edward Freeman in 1984 introduced Stakeholder theory as a framework that expands the focus of business strategy beyond shareholders to include a broader aspect of stakeholders. The theory posits that businesses are part of a network of relationships with various individuals and groups who are affected by the organization's decisions and operations (Freeman & McVea, 2001). These stakeholders include employees, customers, suppliers, communities, and regulators, all of whom have a different interest in the company's activities and outcomes.

This theory challenges the traditional shareholder-centric model of corporate governance by promoting a broader view of organizational accountability. It encourages businesses to consider the needs, expectations, and well-being of all stakeholders while still pursuing profitability and growth. This ensures that the organization’s decisions are more inclusive, considering the needs, interests and expectations of all groups while still pursuing profitability and growth. The theory emphasizes that ethical decision-making, transparency, and corporate social responsibility are essential components of modern business strategy (Parmar, et al., 2010). Stakeholder theory is relevant in the Kenyan Fintech sector as many companies have different stakeholders that the companies aim at achieving and satisfying. The financial technology sector

in Kenya is very broad and dynamic as Kenya is referred to as ‘Silicon Savannah’ which is the technology ecosystem of the country. Fintech companies in Kenya need to find a balance between the interests of a diverse range of stakeholders.

Misuse of customer data or hidden fees can quickly dissolve trust, which is important in a largely unregulated digital finance market (Consumer International, 2023). Fintech companies that align their internal control systems with customer needs and expectations not only enhance customer satisfaction but also foster brand loyalty and financial sustainable growth in the market.

Kenyan Fintech companies must ensure that their internal control systems adhere to Regulatory Bodies' regulations for compliance and to avoid penalties, protect their reputation, and ensure long-term viability in the market. Musamali et al., (2023) point out that Kenyan regulatory framework for Fintech sector can be described as ‘test and learn’ blended with the inclusion of regulatory sandboxes. This strategy supports ongoing innovation by offering controlled environment where new ideas can be tested before being introduced to the market. Additionally, Fintech companies must balance the short-term profit expectations of investors with long-term sustainability goals, ensuring that their business models are economically viable while meeting the broader needs of other stakeholders. The implementation of internal controls, helps Kenyan Fintech companies address the needs of all stakeholders, contributing to their long-term sustainability. Companies must ensure they operate transparently, responsibly, and in compliance with regulations, internal controls support the creation of value for shareholders while safeguarding the interests of other stakeholders.

From Musamali et al., (2023) works, it can be deduced that the theory is relevant for explaining ICS as a tool for balancing the competing interests of investors, customers, regulators,

and employees. By helping companies respond to the needs of various stakeholder groups, ICS become a strategic tool for building trust, enhancing governance, and ensuring financial sustainability. Companies that embrace stakeholder interests into their control and governance frameworks succeed in the competitive and fast-evolving Fintech landscape.

2.2.2 Resource-Based View of the Firm

Barney, (1981) stated that a firm's internal resources and capabilities are primary drivers of sustained competitive advantage. This framework notes that organizations that possess unique, valuable, and unique resources that cannot be imitated by other organizations are better positioned to outperform competitors and sustain long-term success. These resources may include technological infrastructure, intellectual capital, organizational routines, and robust internal systems such as internal control systems (ICS)**.**

The theory provides a holistic understanding of how Fintech companies in Kenya can leverage their internal assets, such as internal control systems (ICS), to enhance operational efficiency, manage risks, and ensure regulatory compliance, thereby fostering sustainability. When effectively designed and implemented, internal controls become valuable by reducing financial and operational risks, rare due to customization to firm-specific operations, inimitable because of firm-specific processes and knowledge, and non-substitutable due to their integration into governance (Wernerfelt, 1984).The theory states that companies that cultivate and maintain these resources are better positioned and able to achieve sustained competitive advantage, allowing them to excel in competitive markets. Technology evolves rapidly every now and then and market conditions are unstable, Fintech companies that can align their internal control systems with these RBV principles are well-equipped to succeed (Wernerfelt, 1984).Internal

control systems (ICS) are valuable and strategic resources that provide a foundation Financial sustainability in the Fintech.

In today's evolving digital world finance environment Fintech's face constant exposure to fraud, cyber threats, and operational disruptions, a well-structured internal control system plays a vital role in risk mitigation (Wanyama & Reuben, 2022). They further note that ICS is essential for detecting and preventing financial misconduct and transaction anomalies which can affect a company financial health. Fintech companies that prioritize risk management through ICS can build trust with customers, regulators, and investors, which is critical in a sector that deals with sensitive financial data and services this promotes social sustainability.

Internal control systems contribute to risk management and compliance which leads to operational efficiency of Fintech companies. These controls help firms streamline their processes, eliminate redundancies, and optimize resource allocation. According to FSD Africa, (2018), Operational efficiency is important for Fintech companies, particularly in the highly competitive Kenyan market, where consumers expect fast, reliable, and cost-effective services.

The Resource-Based View (RBV) of the Firm demonstrates that internal control systems are not just for operational purposes, they are strategic resources that contribute directly to a Fintech company competitive advantage and long-term financial sustainability. Firms that leverage these systems effectively are more resilient, trustworthy, and adaptable in a dynamic regulatory and technological environment. This makes ICS as both a governance mechanism and a strategic asset, making them vital to sustainability of Fintechs in an increasing technology driven marketplace.

2.2.3 Systems Theory

According to Ludwig von Bertalanffy (1968) provides a comprehensive framework for understanding how different parts of an organization function together as an interconnected whole. The theory views organizations as open systems composed of interdependent subsystems that must work in harmony to achieve stability, performance, and sustainability. According to (Amagoh, 2008), a system achieves effectiveness when its subsystems are integrated and coordinated toward a common purpose, maintaining equilibrium within a larger environment.

In the context of this research organizational governance, internal control systems (ICS) can be viewed as one such subsystem. This system comprising control environment, monitoring, real-time reporting, and risk management do not function in isolation. The systems effectiveness depends on how well they are integrated into the broader organizational architecture, supporting other units such as finance, compliance, IT, and operations. (Cheruiyot (2014) points out that ICS include all critical areas of an entity and contribute to creating a well-structured and controlled environment necessary for achieving operational efficiency and financial sustainability. It's important to have Systems that are coordinated and well-integrated internal control framework as disruptions in one subsystem can create ripple effects across the entire organization. If a Fintech company fraud detection system fails to detect suspicious activities and cyber fraud, can affect customer trust and even lead to financial losses affecting the financial sustainability of a firm.

In the Fintech sector in Nairobi County, this theory is applicable as this firms operate in a volatile ecosystem marked by high digital transaction volumes, regulatory shifts, and cybersecurity threats. Internal control systems when fully integrated across departments and

aligned with organizational strategy they contribute significantly to operational stability and financial sustainability. Internal control systems have to be flexible, tech-enabled, and integrated across departments. Failure to coordinate these subsystems can lead to mismanagement, cyber fraud, or non-compliance, which will threaten the financial sustainability. As earlier seen in the collapse of Sendy and Copia Kenya, poor system-wide coordination contributed to their financial downfall (Udokanma, 2024). Systems Theory in this study underscores the interconnectedness and interdependence of internal processes, highlighting the importance of an integrated internal control system. Fintech companies in Nairobi county, an integrated and coordinated ICS is important for adapting to environmental changes, preventing systematic failures and achieving financial sustainability in the digital financial marketplace.

2.2.4 Agency Theory

This theory was introduced by Jensen & Meckling (1976) this provided a theoretical framework for understanding conflicts that arise in principle-agent relationships in organizations where owners who are the principals assign decision-making authority to managers who are the agents. This theory assumes that agents may act in ways that do not align with interest of principals due to different goals, self-interests, information asymmetry, and opportunistic behavior. This can result in to incurring of agency costs, such as inefficiencies, fraud, and misallocation of resources, which can undermine financial sustainability if not checked well. The theory suggests that in order to ensure harmonization of the interests it's important to have a contract that ensures all the interests of principals are met. The relationship between the agent and principal is enhanced through use of professionals and systems like audit and control environment as implored (Nikkinen & Sahlström, 2004). There is the necessity of having in place proper monitoring mechanisms, such as internal control systems (ICS), to align the interests of agents

and principals (Fama & Jensen, 1988). Internal control systems like real-time financial reporting systems, control environments, and fraud detection mechanisms improve transparency, enhance accountability, and ensure efficient use of organizational resources. This provide strategic governance tool that minimize agency conflicts, reduce financial risks and protect shareholders value.

2.3 Empirical Review

2.3.1 Control Environment and Financial Sustainability

Recent research, especially in banking, has focused on the role of control environment in financial sustainability. According to Hamed (2023), control environment elements regulate activities, information and communication, and monitoring improve bank profitability, earnings, and sustainability efforts returns. The research shows that control environment compliance improves operational efficiency, reduces financial risks, and promotes long-term economic growth. The author discusses the Amman Stock Market, but the same ideas apply to other high-risk financial environments like Fintech companies and emerging markets, where rapid digitalization makes them operationally fragile. The researcher acknowledges that control environment compliance is crucial to financial performance, but regulatory frameworks and technological adoption may limit its effects. Sector-specific control environment efficiency considerations are needed for resiliency and sustainable growth.

Control environment are considered to be critical operations to support accountability within organizations and prevent fraud, and their direct relationship with sustainable development goals (SDGs) have not been studied thoroughly. In its study on this relationship among Brazilian organizations, Mendes de Oliveira et al. (2022) discovered that the effectiveness of control environment functions critically depends on the policy adherence,

management tone, enforcement role, and rule compliance, but not on the direct impact on SDG outcomes. The study identifies laxity in the integrity commitments and insufficiency in monitors as the leading causes of fraud. The researcher concurs that even though the control environment is paramount in the operation integrity, its contribution towards the overall sustainability goals must be strategically harmonized with institutional policies and monitoring measures. This observation highlights the necessity of entrenching sound monitoring and accountability frameworks in the control settings to facilitate sustainable development and that control environment efficacy needs to be measured not solely in fraud prevention efforts, but also in its strategic role in promoting sustainability of the organisation and society.

The control environment is widely recognized as a critical element of the internal control system that influences the financial performance of a business. The research by Kule, Kamukama, & Kijjambu (2020)examined the control environment and financial performance of SACCOs in Mid-Western Uganda utilizing a cross-sectional design, incorporating data from 93 SACCOs. Their findings indicate a positive, significant, and robust correlation, suggesting that effective control settings enhance operational efficiency, risk management, and financial sustainability. The study will emphasize the significance of senior management in the formulation and execution of effective control frameworks, while also proposing governmental methods for the sustainability of SACCO performance. The researcher concurs with these conclusions, emphasizing that a highly competitive control environment is essential for ensuring financial performance and promoting accountability and confidence among stakeholders. It underscores the broader importance of contextualized internal control techniques for long-term organizational resilience.

Ensuring regulatory compliance is recognized as a contributor to environmental sustainability in small and medium-sized organizations (SMEs). Sendawula, Turyakira, Ikiror, and Bagire (2020) investigated the impact of different aspects of regulatory compliance on environmental sustainability practices within SME manufacturing operations in Uganda. Through a cross-sectional and correlational study involving data from 106 firms, the researchers concluded that controls, legitimacy, and deterrent significantly impact sustainability practices, while social norms and values do not. The findings demonstrate that formal regulatory frameworks and enforcement mechanisms are more efficacious than societal informal expectations in directing the environmental conduct of SMEs. The researcher concurs that compliance frameworks may affect operational procedures aimed at sustainable outcomes. This elucidates the necessity of integrating comprehensive regulatory frameworks into SMEs to guarantee environmental sustainability, asserting that policy focus should prioritize enforceable norms and regulations over voluntary or cultural approaches.

Financial mechanisms are essential instruments for ensuring accountability and sustainability in public sector financial management. Chepkurui, Naibei, and Kemboi (2022) investigated the relationship between financial controls and financial sustainability within the Kericho County Government, Kenya, noting that despite substantial budgets, a significant percentage of counties experience deficits due to inadequate resource management. The study was grounded in agency, financial control, and resource dependency theories and was structured as a correlational analysis involving 125 respondents. It revealed that internal audits and ongoing financial controls significantly enhance transparency and positively impact financial sustainability. The researcher agrees with these findings, emphasizing that robust financial management measures are crucial for improving efficiency, accountability, and long-term fiscal

stability in devolved governments. This underscores the necessity of enacting legislative measures to augment stakeholder engagement and institutionalize internal control mechanisms to safeguard public resources and facilitate sustainable county development.

Financial control practises in organisations, especially NGOs, are crucial to sustainability. Dagane and Kihara (2021) investigated how financial reporting, monitoring, audits, and risk assessment affect NGOs in Garissa County, Kenya. A descriptive survey design was used to collect primary and secondary data from 50 NGOs and test them for agency, liquidity trade-off, cash management, and rent theories. Results reveal that all four financial control techniques positively and significantly affect financial sustainability, meaning that improving reporting, monitoring, auditing, and risk assessment directly improves financial resilience. The researcher agrees, emphasizing accountability and sustainable survival in structured financial regulations. To achieve sustained results, NGOs must institutionalize good financial management.

2.3.2 Real-Time Financial Reporting Systems and Financial Sustainability

Digital financial reporting has altered organizational decision-making, and real-time financial reporting (RTFR) is a key innovation. RTFR is adopted by organizations leveraging AI, blockchain, and cloud computing to calculate financial information in real time, according to Mbonigaba, Mishra, and Mishra (2025). RTFR assimilation positively correlates with investor confidence, cost savings, expenditure minimization, and reporting inaccuracies, according to their mixed-methods research. The research notes greater decision-making efficiency but also cybersecurity dangers, regulatory compliance, and expensive systems integration costs. The researcher acknowledges that RTFR deployment is paradigm altering in financial disclosure and operational efficiency, but businesses must overcome technological and regulatory resistance to realize its full worth. These findings demonstrate the strategic importance of implementing

advanced technologies to support effective, efficient, and sustainable financial management in modern business.

Sustainability reporting is a complement to financial reporting that improves transparency and managerial decision-making. Wagenhofer (2023) compares sustainability reporting incentive impacts to EU, US, and IFRS Foundation plans to mandate sustainability reporting. According to the research, sustainability reporting has concentrated on policies, long-term targets, and value chain information but not aggregate measurements, accrual-based accounting, or comparability among organizations. The researcher agrees with Wagenhofer that sustainability reporting lacks performance tracking, but she believes it promotes transparency, stakeholder involvement, and organizational choices. This implies that more uniform accounting concepts may be advantageous. Overall, the research shows that sustainability reporting is changing as a form of accountability and that the methodology must be refined to improve its function in organizational and financial sustainability.

Accounting information systems (AIS) have led the way in improving financial reporting and decision-making. Atuheire, Otim, and Musiimenta (2025) used a descriptive research approach on 30 Ugandan organizations to assess AIS adoption and financial reporting. The researcher found that internal controls, automated data processing, relational databases, and automated reporting improved report quality (verifiability, understandability, and faithful representation). Financial reporting effectiveness was positively correlated with strong AIS. The researcher agrees that technological integration and internal monitoring improve financial data accountability and reliability. The study emphasizes the need for ongoing AIS investment, personnel training, and friendly regulatory regimes and states that properly adopted AIS can greatly improve financial transparency and business sustainability in Uganda.

Accounting Information Systems (AIS) helped public sector enterprises increase financial transparency and accountability. The second descriptive correlational survey by Matovu and Eze (2024) examined AIS use in Uganda's Lyantonde District Local Government. Accounting information recording, financial reporting, and software use had good AIS adoption scores, but financial accountability was low. The AIS application improved financial responsibility, notably reporting financial operations. The researcher agrees with the authors that AIS adoption provides a platform for transparency, but its success depends on training, software, and staff abilities. The research emphasizes the need for AIS capacity-building to improve local government financial management, accountability, and reporting to promote sustainable good governance.

Financial sector accountability improves local government transparency, resource efficiency, and governance. Marus et al. (2021) used cross-sectional quantitative and qualitative methods to analyze financial accountability in Uganda's Kabale District Local Government. The survey found that service delivery was most used, followed by financial reporting, expenditure control, and budget adherence. However, the district budget does not always reflect community priorities, revealing participatory budgeting and financial transparency limitations. The researcher agrees with the authors that accountability measures depend on their execution and community demands. The research proposes standardizing financial reporting, following budgets, and using expenditure and salary according to local goals. These lessons emphasize the significance of accountability systems to promote local government financial sustainability and governance.

High-quality financial reporting helps non-profits survive by fostering transparency, accountability, and stakeholder trust. Omaru, Miroga, and Otinga (2025) examined the relationship between financial reporting quality and NGO financial sustainability in Nairobi

County, Kenya, using a stratified sampling method to select 311 respondents. Since donors trust and fund the company over time, accuracy, reporting transparency, IFRS compliance, and timely reporting improve financial sustainability. Authors and researcher agree that stringent financial reporting methods boost credibility and organizational stability. The authors of this study should also mention that internal controls and timely financial information drive sustainability. These findings show that good financial reporting standards help non-profits stay solvent and financially stable.

Accounting information systems (AIS) have helped industrial organizations improve their financial performance. Tsuma (2025) examined how AIS and other financial technology have changed Kenyan manufacturing enterprises' productivity, precision, and judgments. The authors found that AIS improves financial reporting, compliance, and planning, but implementation costs, technical skill shortages, and change opposition have hampered their efforts. The researcher agrees with Tsuma that these technologies assist huge firms, but SMEs need contextualized tactics to benefit. The literature on cost-effective AIS installation in resource-limited situations is lacking. To ensure long-term financial performance and operational growth, organizations should use progressive implementation, personnel training, and technology-specific solutions.

2.3.3 Monitoring Systems and Financial Sustainability

Financial sustainability is a growing area of sustainability management and corporate reporting that has been underaccepted. Gleissner, Guenther, and Walkshauserl (2022) define financial sustainability as company growth, survival capability, earnings risk exposure, and appealing earnings risk profile. Their empirical data shows that enterprises that meet all four criteria have strong risk-adjusted returns, demonstrating financial sustainability as a supplement to

shareholder value and a reduction in refinancing and insolvency risk. The researcher agrees that financial sustainability is a performance metric and strategic risk management factor. However, the research focuses on European enterprises to fill contextual gaps in developing economies with different financial constraints and market defects. Thus, financial sustainability in many situations is crucial for investment decisions and long-term organizational sustainability.

Monitoring and evaluation mechanisms are essential for sector sustainability goals. Hossain, Volk, Therasme, and Shaker (2024) analyze New York State's bioeconomy projects, stressing integrated monitoring to track net-zero emissions and sustainable development. Their analysis shows that biomass use benefits disadvantaged populations and mitigates greenhouse gases, but feedstock estimation, deployment readiness, and stakeholder coordination remain challenges. The authors propose a comprehensive monitoring system to meet environmental, social, and economic goals. The study states that systematic monitoring is essential to sustainability, however the researcher believes that well-established mechanisms are needed to evaluate sustainability interventions. To improve resilient and inclusive sustainable development policies, technical, social, and policy components must be integrated. Monitoring and evaluation (M&E) procedures have become crucial to promoting sustainability in development projects, notably in NGOs.

Nalukwigo and Kibukho (2022) found that beneficiary involvement, role assignment, and joint decision-making improve project ownership and commitment in the Mercy Corps Financial Access Project. The article also underlines that post-project involvement can help ensure sustainability by educating stakeholders about project goals. The researcher agrees that M&E is a strategic tool for community accountability, empowerment, and social sustainability. However, the research paper emphasizes that beneficiary analysis and inclusion should be intentional and

that individuals should not be selected through informal channels, implying that M&E practices have little power to achieve sustainable project outcomes without planned involvement.

Sound financial control techniques are crucial for the viability of government institutions, especially county institutions that have excellent resource management for service continuity and development projects. In Kenyan county governments, effective internal controls, frequency of audits, staff capacity building, and adoption of digital revenue systems can improve security, efficiency, and fund adherence to development plans, according to Osundwa, Macheru, and Jemaiyo (2025). The report emphasizes participatory budgeting, strategic partnership, and real-time monitoring for long-term sustainability. The researcher agrees and adds that financial control measures minimize inefficiencies and increase accountability and transparency, which boost stakeholder trust. The results show that well-monitored finance systems and linked institutional practices enable resilient public governance and county operations.

The literature on financial sustainability emphasizes the role of institutional frameworks and human resource capacity in ensuring long-term performance. Moreno-Menéndez et al. (2025) explore how credit risk management and human talent development enhance financial stability in microfinance institutions. The authors demonstrate that sound credit risk systems, inclusivity policies, and staff motivation significantly improve operational efficiency and reduce loan default rates. This finding aligns with the current study, which equally recognizes the importance of robust internal control mechanisms and competent personnel in sustaining financial growth. However, while Moreno-Menéndez et al. focus primarily on human resource and credit risk integration, the present study extends this discussion by investigating how broader internal control components—such as risk management, monitoring tools, and real-time financial

reporting—collectively influence financial sustainability. Thus, the current research builds upon and expands the conceptual link between control systems and financial resilience.

Recent literature increasingly links financial monitoring systems to sustainable economic practices and risk mitigation frameworks. Kushnir et al. (2023) highlight those financial monitoring functions as a vital internal control mechanism, ensuring transparency, risk prevention, and alignment with sustainable and green financing objectives. Their study connects enterprise-level monitoring to national and global sustainability strategies, emphasizing compliance, financial integrity, and ethical investment practices. The authors argue that well-structured monitoring systems enhance resource efficiency, promote green investments, and strengthen stakeholder confidence. The current researcher agrees with this perspective, noting that strong monitoring mechanisms not only support compliance but also improve financial sustainability through better accountability and reporting. However, while Kushnir et al. focus primarily on green financing contexts, this study extends the discussion to explore how financial monitoring tools within Fintech firms contribute to overall financial sustainability and operational resilience.

2.3.4 Internal Fraud Detection Algorithms and Tools and Financial Sustainability

Machine learning (ML) techniques are being used to detect financial fraud and improve detection accuracy and efficiency. Lee, Fu, Wang, and Azis (2025) examined Logistic Regression, K-Nearest Neighbors (KNN), Support vector machine (SVM), Decision tree, and random forest models for detecting Indonesian financial statement fraud. The paper found that Random Forest was predictable in Precision, Recall, accuracy, and F1-Score, Logistic Regression and SVM were reliable, while KNN and Decision Tree overfitted. Accounts receivable turnover, gross profit, and asset turnover ratios were key fraud indicators. The author is right that machine learning,

especially ensemble algorithms like Random Forest, strengthens internal controls and helps detect specific fraud, highlighting the need for integrated technology and regulatory systems to improve financial responsibility and reduce fraud.

The frequency and sophistication of financial scams have increased, requiring increasingly advanced detection technologies to protect institutions and consumers. Hilal, Gadsden, and Yawney (2022) reviewed financial fraud anomaly detection strategies and showed how statistical models evolved into artificial intelligence and machine learning. The paper notes that supervised learning algorithms have dominated the sector, but they require labeled data and are vulnerable to new fraud. New semi-supervised and unsupervised learning approaches may solve these problems and uncover new or unclassified fraud. The researcher agrees with the authors that AI-driven anomaly detection flexiblely mitigates fraud, regulatory compliance, and resiliency in organizations and those detection mechanisms must be upgraded to combat increasingly sophisticated financial crimes.

Financial firms' internal audits help discover fraud and increase financial accountability. Ariyo, Arinaitwe, and Ariyo (2023) examine how internal audit practices affect fraud detection at ABSA Bank in Uganda and suggest ways to reduce fraud, such as strict bookkeeping, special audit offices, and external auditors. The study concluded that strict internal audits can reduce fraud and money misuse, improve transparency, and boost productivity. To prevent fraud, the researcher agrees that internal audit capacity, personnel capabilities, and sound audit models must be increased. However, the research also shows that audit implementation is tough, thus internal audit system design and execution must be continuously enhanced to attain the best financial integrity.

Internal control measures reduce fraud and improve corporate integrity. At Centenary Bank, Arineitwe, Kabanda, and Musiimenta (2025) examined how internal control practices might prevent fraud through fraud rules, regular fraud exposure evaluation, fraud prevention, and fraud detection. The report found that individual measures moderate fraud prevention, but combining them increases their effectiveness. The researcher concurs and notes that a comprehensive internal control approach that includes proactive risk evaluation, clear policies, and proper detection mechanisms is not only necessary to reduce financial misconduct but also essential. The paper also notes that fraud is still common despite controls, suggesting that ongoing assessment, employee training, and dynamism are the best ways to strengthen internal controls and sustain fraud risk management.

Public funds must be managed with strong internal control systems to ensure accountability, transparency, and resource efficiency. Kipaalu, Rukanyangira, and Mwirumubi (2025) explored how internal control mechanisms affect public fund management in Busoga local governments in Uganda. Internal control aspects such control activities, control environment, monitoring, risk assessment, and information and communication also improved public fund management (the study). The researcher believes that well-designed internal controls protect financial resources and increase government efficiency and decision-making. Though the research provides empirical evidence of internal controls' benefits, it notes that continual employee monitoring and capacity training are needed to retain the gains. Policymakers should apply these principles to local government budget management.

The most basic financial reporting integrity and fraud prevention systems in corporations are internal control systems (ICS). Musyoki (2023) states that ICS control environment, risk assessment, control actions, and monitoring protect organizations from

embezzlement, asset misappropriation, and other financial abnormalities. The research highlights that advanced technologies, lifelong learning, and ethical values boost internal controls' effectiveness. These findings support the researcher's belief that robust internal controls will reduce financial fraud, improve operations, and boost stakeholder confidence. The research also shows that controls alone are not adequate. Organizations must constantly respond to emerging fraud risks and train workers to maintain internal control system efficacy in volatile business environments.

Financial fraud hurts organizations' finances, legal standing, and stakeholder trust. The control environment, risk appraisal, control activities, and control monitoring are crucial to fighting frauds like embezzlement and asset misappropriation, according to Musyoki (2023). The paper uses the Fraud Triangle and Agency Theory to explain organizational fraud and conflict of interest. According to the research, successful ICS with transaction monitoring, internal audit, and ongoing adaption reduce fraud risks and boost operational efficiency. This researcher agrees with Musyoki that internal controls require continuous technological integration, ethical dedication, and staff training in new fraud schemes to maintain organizational integrity and financial responsibility.

2.4 Research Gaps

Author & Year	**Title**	**Methodology**	**Findings**	**Knowledge Gap / This Study's Focus**
Hamed (2023)	Adherence to internal control systems and bank financial sustainability	Quantitative; ICS assessment	ICS compliance improves profitability, earnings, sustainability	Focused on banks in Amman; gap: effect of ICS on financial sustainability in public/private institutions in Kenya. This study examines control environment as a

				key variable.
Mendes de Oliveira et al. (2022)	ICE and SDG outcomes in Brazil	Survey & interviews	Policy compliance, management tone, enforcement crucial; weak monitoring causes fraud	Gap: ICE link to sustainability in developing countries unclear; this study focuses on control environment's impact on financial sustainability.
Baguma, Kamukama & Kijjambu (2020)	Control environment and SACCO financial performance	Cross-sectional; 93 SACCOs	Strong control environment enhances efficiency, risk management, sustainability	Limited to SACCOs; gap: generalizability to broader institutions; study examines control environment and monitoring systems.
Sendawula et al. (2020)	Regulatory compliance & SME environmental sustainability	Cross-sectional; 106 SMEs	Controls, deterrence, legitimacy impact sustainability	Gap: SMEs only, cultural norms not addressed; study focuses on financial controls and real-time reporting for sustainability.
Chepkurui, Naibei & Kemboi (2022)	Financial controls & sustainability in Kericho County	Correlational; 125 respondents	Audits & financial controls enhance transparency & sustainability	Gap: limited longitudinal evidence; this study examines monitoring systems as a variable influencing sustainability.
Dagane & Kihara (2021)	Financial control practices & NGO sustainability	Descriptive; 50 NGOs	Reporting, monitoring, audits, risk assessment improve sustainability	Gap: NGO focus; study examines Internal Fraud Detection Algorithms systems and monitoring practices in broader institutions.
Mbonigaba et al. (2025)	RTFR adoption & organizational sustainability	Mixed-methods; AI, blockchain, cloud	RTFR enhances decision-making, investor confidence, reduces errors	Gap: High-tech adoption in African context underexplored; study focuses on

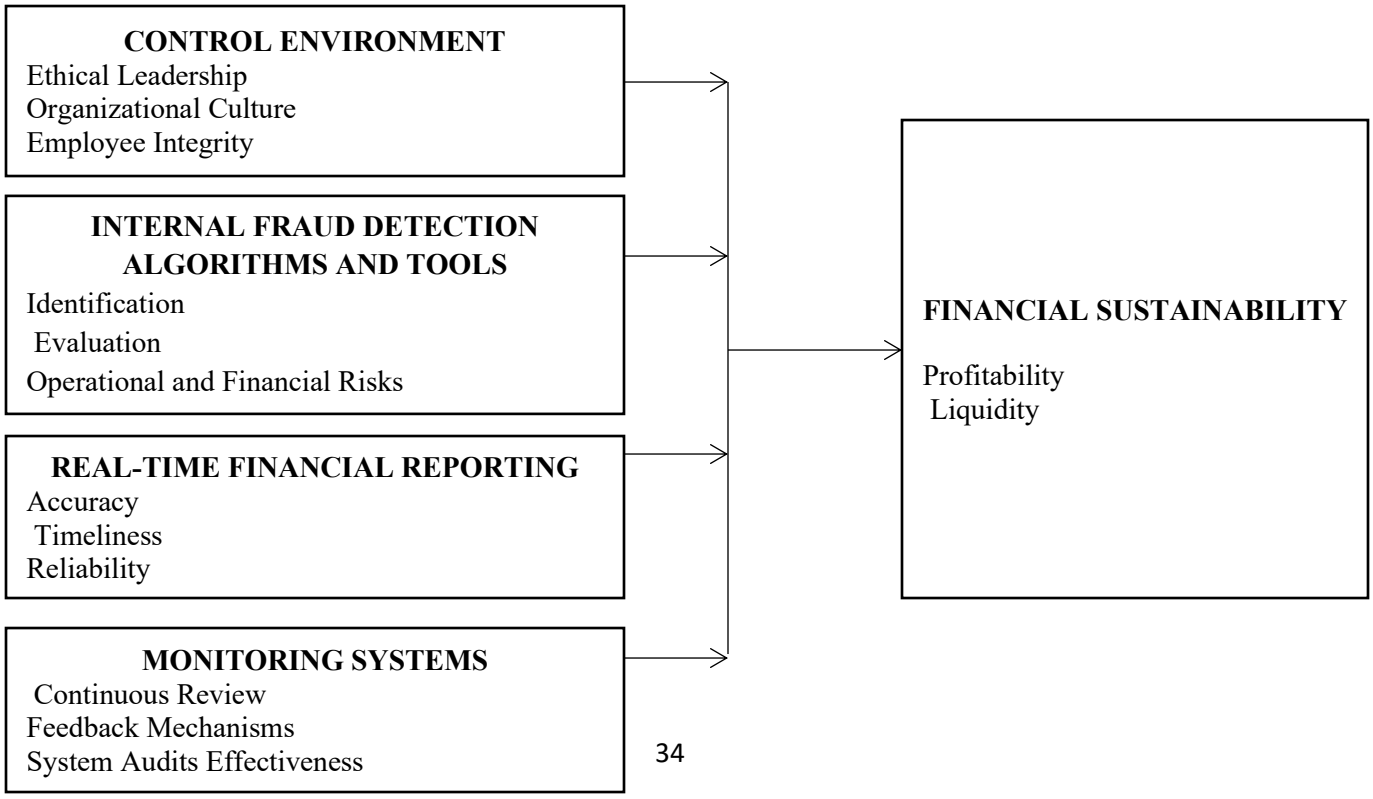
				real-time financial reporting systems.
Wagenhofer (2023)	Sustainability reporting & managerial incentives	Analytical review	Reporting improves transparency, engagement; lacks comparability	Gap: Limited applicability to financial sustainability in developing countries; study uses AIS & RTFR as focus variables.
Atuheire et al. (2025)	AIS adoption & financial reporting in Uganda	Descriptive; 30 organizations	AIS improves report quality & accountability	Gap: Small sample; limited applicability; study examines real-time financial reporting systems.
Matovu & Eze (2024)	AIS and financial accountability in Uganda	Descriptive correlational	AIS improves reporting; effectiveness depends on training, staff competency	Gap: Capacity-building needed; study focuses on RTFR and monitoring systems for sustainability.
Marus et al. (2021)	Financial accountability in Kabale LG	Cross-sectional; quantitative & qualitative	Mechanisms exist, but gaps in participatory budgeting	Gap: Implementation effectiveness varies; study emphasizes monitoring systems and control environment.
Omaru et al. (2025)	Financial reporting quality & NGO sustainability	Stratified sampling; 311 respondents	Reporting enhances donor trust & sustainability	Gap: NGOs only; study focuses on real-time reporting systems & control environment.
Tsuma (2025)	AIS & financial performance in Kenyan manufacturing	Survey	AIS improves reporting, compliance, decision-making; SMEs face cost & skill gaps	Gap: SMEs under-resourced; study examines RTFR adoption and monitoring systems for financial sustainability.
Gleißner et al. (2022)	Conceptualizing financial sustainability	Empirical; European firms	Financial sustainability linked to growth, survival, risk exposure	Gap: European focus; study applies framework to Kenyan institutions, linking monitoring

				systems to financial sustainability.
Hossain et al. (2024)	Monitoring bioeconomy sustainability	Case study	Integrated monitoring ensures alignment with ESG goals	Gap: Context not financial institutions; study applies monitoring systems in public/private finance context.
Nalukwago & Kibukho (2022)	M&E and project sustainability (NGO)	Survey	Beneficiary participation enhances sustainability	Gap: NGO-focused; study focuses on monitoring systems for internal controls & fraud prevention.
Osundwa et al. (2025)	Financial control & sustainability in county governments	Ex-post facto; 1,219 finance staff	Controls, audits, capacity building, digital systems enhance efficiency & sustainability	Gap: Tech adoption & public sector context; study focuses on control environment, monitoring systems & internal fraud detection.
Lee et al. (2025)	ML algorithms for fraud detection in Indonesia	ML algorithms; Logistic Regression, KNN, SVM, Decision Tree, Random Forest	Random Forest most effective; improves fraud detection	Gap: Indonesian context; study applies Internal Fraud Detection Algorithms and Tools to Kenyan institutions.
Hilal et al. (2022)	Anomaly detection techniques for financial fraud	Literature review	Semi/unsupervised learning models improve fraud detection	Gap: Empirical validation lacking; study examines Internal Fraud Detection Algorithms in public/private institutions.
Ariyo et al. (2023)	Internal audit practices & fraud detection, ABSA Bank	Quantitative; 10 respondents	Audit offices, external auditors, strict bookkeeping reduce fraud	Gap: Small sample, Uganda-only; study focuses on control environment & internal fraud detection.
Arineitwe et al. (2025)	Internal control practices & fraud prevention,	Stratified random sampling; 33	Combined ICS practices significantly reduce	Gap: Banking sector only; study extends to

	Centenary Bank	respondents	fraud	monitoring systems & Internal Fraud Detection Algorithms and Tools
Kipaalu et al. (2025)	ICS & public funds management in Uganda	Cross-sectional; SEM & NVivo	Control activities, environment, monitoring, risk assessment improve funds management	Gap: Broader application outside Busoga sub-region; study examines control environment & monitoring systems.
Musyoki (2023)	ICS and financial fraud prevention in Kenya	Literature review	ICS, ethics, technology enhance fraud prevention	Gap: Empirical testing limited; study focuses on control environment, monitoring systems, RTFR, and Internal Fraud Detection Algorithms and Tools

2.6 Conceptual Framework

Figure 2.1: Conceptual Framework



2.7 Operationalization of study Variables

The table below shows how the variables in the study was operationalized

TABLE 2.2

Operationalization of Variables

Variable	Indicators	Measurement/Scale	Data Collection Tool	Source
Independent Variable: Internal Control Systems				
Control Environment	Ethical leadership, management integrity, organizational culture, and staff competence	Five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree)	Questionnaire	COSO (2013); Mwangi (2022)
Risk Management Practices	Risk identification, risk assessment, and mitigation strategies	Five-point Likert scale	Questionnaire	Field (2013); Amin & Musyoka (2020)
Real-Time Financial Reporting	Accuracy, timeliness, reliability, and accessibility of financial information	Five-point Likert scale	Questionnaire	Khatun (2021); Moreno-Menéndez et al. (2025)
Monitoring Tools	Regular audits, compliance checks, feedback systems, and internal evaluations	Five-point Likert scale	Questionnaire	Kushnir et al. (2023); COSO (2013)
Dependent Variable: Financial Sustainability				
Profitability	Organization consistently achieves profitability goals and maintains growth trends	Five-point Likert scale	Questionnaire	Muriithi & Waweru (2017); Moreno-Menéndez et

Variable	Indicators	Measurement/Scale	Data Collection Tool	Source
				al. (2025)
Liquidity	Organization maintains adequate cash flow to meet short-term obligations	Five-point Likert scale	Questionnaire	Muriithi & Waweru (2017)
Solvency	Organization is financially stable and able to meet long-term obligations	Five-point Likert scale	Questionnaire	Otieno (2019); CBK (2024)
Operational Efficiency	Efficient use of resources, cost management, and productivity	Five-point Likert scale	Questionnaire	Karimi (2021); Mwangi (2022)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter includes the method the researcher used during the study. It outlines the research design, data collection methods, research procedures and data analysis method.

3.2 Research Design

Cooper & Schindler, (2014) define research design as a plan of how to conduct research to get answers the research questions. This dissertation employed an analytical cross-sectional research design to examine the influence of internal control systems on the financial sustainability of Fintech companies in Nairobi County. Descriptive research design allows the researcher to objectively describe phenomena and relationships between variables without manipulating them, thereby minimizing researcher bias (Dannels, 2018). It is particularly suitable for this study as it facilitates the systematic collection and analysis of data on internal control practices and financial outcomes, enabling a clear understanding of existing patterns. This design supports assessment of the relationships between the variables already mentioned in the conceptual framework described by Iacobucci & Churchill, (2018) making it ideal for investigating the stated research problem.

3.3 Target Population

The target population comprises the entire set of individuals, events, or records possessing relevant information for the investigation (Iacobucci and Churchill, 2018). This research targeted a population of 91 registered Fintech enterprises within the Central Bank of Kenya (CBK, 2024). The companies offered the responders, who are the key personnel of each Fintech, specifically

from the operations, finance, or management departments. They consisted of 623 individuals, representing all 91 Fintech companies, each required to provide several key staff members to ensure comprehensive representation. The unit of analysis for this study was the individual employee within each Fintech company, as data were collected from staff members directly involved in the implementation and management of internal control systems. The study acquires pertinent information while maintaining validity and reliability (Cooper & Schindler, 2014).

3.4 Sample and Sampling Design

A sample is defined as a sample size of population drawn from a larger population to reflect a population (Cooper & Schindler, 2014) .This sample size assist the researcher in achieving meaningful conclusions from the research objectives set.

(Kothari, 2014) defined sample design as techniques or procedures that the researcher adopts in selecting items for the sample. This serves as a basis for researcher to use inorder to obtain the research study sample from the population. The sample size for this investigation was determined using Yamane, (1967) formula, with a 5% margin of error and a 95% confidence level.

Equation 1: Determination of sample size equation

$$n = \frac{N}{1+N(e2)}$$

Where;

n = Sample size; N = Population under study; e = 5% error; and 1 = Constant

The sample size was calculated as;

$$n = \frac{623}{}$$

1+623 (0.052)

n = 244 respondents.

To ensure representativeness, stratified random sampling was used to select respondents from key staff categories (executives, finance officers, IT security managers, compliance officers, and operations staff) across the 91 registered Fintechs. The strategy is crucial because it reduces bias and ensures diverse perspectives on internal control systems.

3.5 Data Collection Instrument

This research study used questionnaires. Questionnaires are research tools that contain a set of questions designed to collect information from respondents thereby facilitating the collection of comparable data across a target population (Kothari, 2004). The questionnaires were structured with a 5-point Likert scale along with closed-ended questions on the respondents' general details and the Fintechs. The questionnaire comprised of three sections: Section A captured demographic and organizational details of the respondents and the Fintech companies; Section B consist of closed-ended items measuring the study variables using a 5-point Likert scale ranging from “Strongly Disagree” (1) to “Strongly Agree” (5); and Section C gathered additional information relevant to the study objectives. The questionnaires were distributed electronically via email to minimize physical contact, reduce logistical constraints, and enhance response rates, as recommended in contemporary digital survey administration practices (Bryman, 2016)**.**This reduces the contact between the respondents and researcher and encouraged a high response rate.

3.6 Instrument Pretesting

3.6.1 Validity of the questionnaire

According to Creswell and Creswell (2018), validity is the process where a researcher checks for the accuracy of the instrument used for data collection. In this study, both content validity

and construct validity were emphasized. Content validity was achieved by subjecting the questionnaire to expert review by three professionals with extensive experience in the Fintech industry and academic research on financial technology in Kenya. These experts assessed the instrument for clarity, appropriateness of language, logical sequencing of items, and alignment with the study objectives, as recommended by (Taherdoost, 2016). Construct validity was enhanced through careful operationalization of variables, ensuring each item reflects the theoretical framework underpinning the study. Additionally, a pilot study was conducted to assess the instrument's comprehensibility and identify ambiguous or redundant items for revision before the main data collection exercise. This dual approach ensured the questionnaire's accuracy, relevance, and alignment with the intended research purpose.

3.6.2 Reliability of the questionnaire

Reliability is defined as the ability of a measure instrument to provide consistent results repeatedly under same conditions (Kurmar, 2019)**.** This therefore is where the instrument used provides same results over repeated trials. Standardization of the conditions was done to ensure reliability. The reliability of the questionnaire was measured using Cronbach's alpha this is because it confirms the internal reliability of measurement instrument that has multiple Likert scale questions (Heo et al., 2015).

Cronbach alpha values range from 0 to 1.0 where a threshold value is set at 0.7. The Cronbach's alpha coefficient was calculated using the formulae below;

$$\alpha = \frac{N * \bar{c}}{\bar{v} + (N - 1) * \bar{c}}$$

Where;

N is the number of items.

$\bar{c}$ is average covariance between item pairs

$\bar{v}$ is the average variance.

3.7 Pilot Testing

Pilot testing is defined as testing of the questionnaire on a small sample of respondents to identify limitations in design and instrumentation and to provide substitute data for selection of a probability sample (Kothari, 2004). According to Mugenda & Mugenda, (1989), pilot study is important in ensuring that questions result to accurate responses and measure what they are intended to measure. It tests the reliability of the questionnaires. According to (Mugenda & Mugenda, 1999) Pilot testing is conducted on 10% of the sample size thus justification for 5 Fintech companies. The pilot testing was conducted in 5 Fintech companies in Kiambu County. Choosing Kiambu County home to several emerging Fintech firms with business models and regulatory environments comparable to Nairobi allows for a valid yet uncontaminated pilot pool. The five Fintech companies selected for this pilot are: Ukall Solutions, FinPlus Technologies, DukaPay Kenya, Asilimia Digital, and Mula Finance.

The pilot study was conducted among 5 Fintech companies in Kiambu County rather than Nairobi County to avoid contaminating the actual research sample with prior exposure to the questionnaire. Kiambu County was selected due to its proximity to Nairobi and the presence of active Fintech firms with similar operational characteristics to those in the main study area, thus ensuring comparable responses. The test-retest method was employed in the pilot project, where questionnaires was initially administered and re-administered two weeks later to check for consistency of results. Feedback from this process informed necessary modifications to improve clarity, structure, and comprehensiveness of the questionnaire, ensuring it effectively captures data on internal control systems and financial sustainability. The pilot study revealed that the

questionnaire items were clear, reliable, and well-understood by respondents, leading only to minor revisions in wording and structure to enhance clarity and consistency.

3.8 Diagnostic Tests

Diagnostics tests were done. This involved multicollinearity and normality test.

3.8.1 Normality

Normality is a fundamental assumption in the development and application of statistical procedures Khatun, (2021), to whom the normalcy test evaluates whether the data follows a normal test, the Shapiro Wilk test that was employed in this research. The test examined whether the residuals from the regression model were normally distributed. A p-value greater than 0.05 indicated that the data did not significantly deviate from normality, confirming the assumption was met.

3.8.2 Multicollinearity

Multicollinearity arises when two or three independent variables in a regression model are strongly correlated which can distort the estimation of regression coefficients and weaken the explanatory of the model (Field, 2013).The variance inflation factor was utilized to assess multicollinearity, indicating the extent to which variance of regression coefficient is inflated. To detect multicollinearity, the Variance Inflation Factor (VIF) and Tolerance values were computed. A VIF value below 10 and a Tolerance value above 0.1 indicated that multicollinearity was not a problem.

3.9 Data Analysis and Processing

Kothari (2014) defined data processing involves organizing, structuring and finding meaning out of data collected. The data obtained through questionnaires were analyzed using descriptive

statistics with SPSS software. The researcher used Multiple regression analysis to determine the relationship between the variables. The regression equation was written as:

$Y=\beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \varepsilon$
where: - Y = Financial sustainability of Fintechs as measured by return of assets
$\beta 0$= regression
$\beta 1$ to β 3 = Regression coefficients
X1 = Control Environment; X2 = Real time Financial reporting
X3 = Monitoring systems; X4 = Internal Fraud Detection Algorithms and Tools
ε = Error Term
Data and the research findings were presented in tables.

3.10 Ethical Considerations

The ethical guidelines as set out in this research were followed to the letter to facilitate credibility and safeguard participants. The researcher involved the staff of the official lists of executives, financial officers, IT security managers, compliance officers, and operational staff of licensed Fintechs in Nairobi County, which is equal and representative. Informed consent was ensured by presenting the participants with all the necessary information regarding the purpose of the study, procedures, possible risks, and benefits, as well as the voluntary nature of the participation and the ability to withdraw at any point without any consequences. The function of confidentiality and anonymity was ensured by an acute data confidentiality agreement, which did not allow divulging any personal or company-specific data. Minimization of sensitive questions and elimination of physical, psychological, or reputational harm facilitated non-maleficence. The data integrity was ensured as it was not manipulated and all sources were cited accordingly. Results will be communicated to the participants, Fintech associations, and the community in general via executive summaries, workshops, and policy briefs and transparency, knowledge sharing, and practice of the study results.

CHAPTER FOUR

RESULTS, FINDINGS, AND DISCUSSIONS

4.1 Introduction

This chapter provides the study's findings, results, and discussions on how internal control mechanisms affect Nairobi County Fintech companies' financial sustainability. Analysis is guided by study objectives related to the theoretical framework and current literature from descriptive, inferential, and regression results. The chapter begins with the response rate, then demographics, and then analysis to evaluate how control environment, real-time financial reporting, monitoring systems, and Internal Fraud Detection Algorithms and Tools affect financial sustainability. Both highlight convergence and divergence with implications for practice, policy, and future research findings have been compared to the COSO framework, agency theory, resource-based view, and previous research. The discussions.

4.2 Response Rate

TABLE 4.1

Response Rate

Staff Category	Targeted (n)	Actual (n)	Response Rate (%)
Executives	30	24	80.0
Finance Officers	55	45	81.8
IT Security Managers	45	37	82.2
Compliance Officers	50	41	82.0
Operations Staff	64	51	81.3
Total	**244**	**198**	**81.6**

Table 4.1 presents the response rates of the sampled workforce categories within Fintech companies located in Nairobi County. The table indicates that, out of 244 targeted respondents, 198 provided responses, resulting in a total response rate of 81.6%, which is statistically

acceptable for analysis. The column headings denote the intended sample, actual responders, and computed percentages, while the rows represent the distribution among executives, financial officers, IT security managers, compliance officers, and operations personnel. The data indicates that participation levels are consistent, with IT security managers exhibiting the greatest response rate at 82.2%, while executives recorded the lowest at 80.0%. The relatively uniform rates suggest that all principal groups were adequately represented, ensuring a consensus on internal control methods. This enhances the reliability of the results and their pertinence to the Fintech sector. The table is clear, self-evident, and provides a robust foundation for interpreting the subsequent analysis of the study.

4.3 Reliability

TABLE 4.2

Reliability Statistics

Cronbach's Alpha	N of Items
.797	5

Table 4.2 presents the internal consistency reliability of the scale for measuring the construct, indicated by a Cronbach's alpha of .797 over five items. The alpha of 797 above the commonly accepted threshold of 0.7, indicating that the items assess the same underlying construct and may be consistently employed in subsequent studies. The table's structure, which displays the item count and Cronbach's alpha, facilitates a rapid assessment of scale reliability. This precision substantiates the study's ability to examine the influence of internal control systems on the financial sustainability of fintech companies in Nairobi County. Median-high alpha indicates that respondents' ratings on items are consistent, hence reducing measurement error and enhancing

data validity. Researchers should consider that while values of 0.7 and above are acceptable, exceedingly high values (0.9 and above) may suggest item redundancy.

4.4 Demographic Information

This section presents the demographic characteristics of the respondents, offering context for the understanding of the study results. The study is considering the demographics of gender, age, educational attainment, years of experience, and personnel classification inside Fintech organizations. These are significant factors in assessing the variability of perspectives and in the representativeness of sampling. Professional experience and educational background may influence one's understanding and conceptualization of internal control systems. Similarly, other personnel, like as CEOs, finance officers, IT managers, compliance officers, and operations staff, can also contribute their perspectives on the efficacy of control measures. The demographic profile obtained ensures that the study presents a balanced and thorough perspective of respondents in Nairobi's Fintech sector.

4.4.1 Department of the Company

TABLE 4.3

Department of the Company

Department	Frequency	Percent
Compliance	48	24.2
Executive	43	21.7
Finance	35	17.7
IT Security	37	18.7
Operations	35	17.7
Total	198	100.0

Table 4.3 shows the distribution of the study sample among the different departments of fintech companies in Nairobi County, comprising 198 respondents. The biggest proportions of

responders were from the Executive (21.7%), Compliance department (24.2%), IT Security (18.7%), Finance (17.7%), and Operations (17.7%) sectors. The results demonstrate a somewhat equitable representation across functional areas, indicating that the perspectives of various operating units are included. The frequency and percentage columns facilitate the interpretation of the actual number of respondents and their relative representation within the sample. It is essential to delineate the disparities in internal control systems among departments and their impact on financial sustainability through the lens of distribution.

4.4.2 Position

TABLE 4.4

Respondents by Position

Position	Frequency	Percent
Analyst	45	22.7
Assistant	65	32.8
Manager	48	24.2
Officer	40	20.2
Total	198	100.0

Table 4.4 presents a categorization of respondents according to their ranks within fintech companies situated in Nairobi County. The sample population included 198 individuals, with the largest share being Assistants (32.8%), followed by Managers (24.2%), Analysts (22.7%), and Officers (20.2%). This indicates that the sample predominantly consist of mid-level personnel, specifically Assistants and Managers, to ensure a balanced representation of hierarchical levels. Understanding the positional distribution is crucial for assessing the perception and execution of internal control systems across different organizational functions and their consequent effect on financial sustainability.

4.4.3 Years of Experience in the Company

TABLE 4.5

Years of Experience

Years of Experience	Frequency	Percent
<1 year	30	15.2
1–3 years	47	23.7
4–6 years	82	41.4
>6 years	39	19.7
Total	198	100.0

Table 4.5 shows the distribution of respondents based on their years of experience in fintech firms across Nairobi County. Among 198 individuals, the most prevalent experiences were 414 years (41.4%), 237 years (23.7%), 197 years (19.7%), and 152 years (15.2%). The data indicates that most respondents are half-tenured employees, suggesting their familiarity with organizational processes and internal control systems. Valuing respondents' experiences is crucial as it influences their perceptions and implementation of internal control systems, thereby affecting financial sustainability outcomes.

4.4.4 Framework

TABLE 4.6

Framework Awareness

Framework Awareness	Frequency	Percent
No	33	16.7
Not sure	23	11.6
Yes	142	71.7
Total	198	100.0

Table 4.6 shows the respondents' awareness of internal control structures within fintech companies in Nairobi County. Among 198 respondents, 71.7% indicated familiarity with the frameworks, whereas 16.7% were unaware, and 11.6% expressed uncertainty. The majority of employees are well-versed in the internal controls governing organizational operations, which is essential for effective implementation and compliance. Awareness of frameworks is essential as it directly influences the efficacy of internal control systems on financial viability; employees knowledgeable about these frameworks are generally more inclined to adhere to controls and mitigate risks.

4.5 Factor Analysis

Factor analysis was conducted to ascertain the validity and suitability of the study constructs related to the internal control system and financial sustainability. The analysis facilitated the identification of underlying dimensions and the condensation of data into coherent variables aligned with the study objectives. The adequacy of sampling and the suitability of the data for factor analysis were assessed using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity. Factors with loadings below the acceptable threshold were eliminated to ensure reliability. The kept items demonstrated strong loading on their respective constructs, showing construct validity and justifying the use of the data in subsequent regression analysis.

4.5.1 Control Environment

TABLE 4.7

Kaiser-Meyer-Olkin (KMO)

Measure	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.624
Bartlett’s Test of Sphericity (Approx. Chi-Square)	9.034
df	10
Sig.	.000

Table 4.7 presents the KMO measure of sampling adequacy and Bartlett's Test of Sphericity for the factor analysis of the research variables. The KMO score of 0.624 exceeds the acceptable minimum of 0.5, indicating that the sample size is adequate and the correlations across items are sufficient for doing factor analysis. The Bartlett test is significant (Chi-Square = 9.034, df = 10, $p < .001$), indicating that the correlation matrix is not an identity matrix, therefore validating the appropriateness of factor analysis. These findings validate the suitability of the data for Principal Component Analysis (PCA) and facilitate the identification of latent factors inside internal control systems.

TABLE 4.8

Communalities

Item	Initial	Extraction
The organization has clearly defined ethical policies and a code of conduct	1.000	.665
Management promotes integrity and ethical values	1.000	.659
An effective audit committee oversees internal controls.	1.000	.650
Staff are trained regularly on internal control practices	1.000	.674
Responsibilities and authority levels are clearly defined	1.000	.678

Table 4.8 shows the commonalities among five items that assess the Control Environment construct via Principal Component Analysis (PCA). The first column, termed Initial, signifies that each item accounts for 100% of its variance at the outset. The Extraction values indicate that the ratio of each item's variance explained by the extracted factor ranges from 0.650 to 0.678, demonstrating that a substantial portion of each item's variance is accounted for by the latent component. The highest communal value (0.678) relates to the clarity of roles and levels of authority, indicating a strong alignment with the overall construct. The data validate that the

items are adequately represented by the extracted factor, hence substantiating the validity of the Control Environment scale.

TABLE 4.9

Total Variance Explained

Component	Initial Eigenvalues	% of Variance	Cumulative %
The organization has clearly defined ethical policies and a code of conduct	1.202	24.048	24.048
Management promotes integrity and ethical values	1.124	22.479	46.527
An effective audit committee oversees internal controls.	.936	18.714	65.240
Staff are trained regularly on internal control practices	.884	17.670	82.911
Responsibilities and authority levels are clearly defined	.854	17.089	100.000

Table 4.9 shows the variance explained by the retrieved variables of the Control Environment construct, as determined by Principal Component Analysis (PCA). The initial two eigenvalues exceed one (1.202 and 1.124), indicating that these components possess the most variation and was utilized for data interpretation. These two components account for 46.53 percent of the overall variance, regarded as a modest proportion of variance in social science research. The other components are of lesser importance in elucidating the construct and possess eigenvalues below 1. The cumulative percentage column illustrates the total variance contributed by all components, reaching 100 percent. This discourse demonstrates that elements encompassing ethical policies, integrity, audit oversight, staff training, and clearly delineated responsibilities are effectively encapsulated within two fundamental factors, which facilitate our comprehension of the internal control systems that promote financial sustainability in fintech companies.

4.5.2 Real Time Financial Reporting

TABLE 4.10

Kaiser-Meyer-Olkin (KMO)

Measure	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.600
Bartlett's Test of Sphericity (Approx. Chi-Square)	2.359
df	6
Sig.	.004

Table 4.10 presents the KMO measure of sample adequacy and Bartlett's Test of Sphericity for the variables utilized in assessing the real-time financial reporting of fintech companies. The KMO value of 0.600 exceeds the minimum acceptable threshold of 0.5, indicating that the sample size and inter-item correlations are sufficient for factor analysis. Bartlett's test is statistically significant (Chi-Square = 2.359, df = 6, p = .004), allowing for the examination of these items by factor analysis. This finding validates the suitability of the dataset for Principal Component Analysis (PCA), indicating that the latent dimensions of reporting variables can be effectively extracted.

TABLE 4.11

Communalities

Item	Initial	Extraction
The company uses automated systems for financial reporting.	1.000	.620
Financial reports are generated and reviewed on a real-time basis.	1.000	.607
The reporting system allows early detection of financial anomalies.	1.000	.765
Management receives timely financial reports for decision-making.	1.000	.647

Table 4.11 shows the commonalities of the four elements that measure real-time financial reporting via Principal Component Analysis (PCA). The numbers in the "Initial" column indicate

that each item initially accounts for 100 percent of its variance. The Extraction values indicate the proportion of variance in the items explained by the extracted factor, with the highest values ranging from 0.607 to 0.765, the peak corresponding to the item concerning early detection of financial abnormalities. The elevated communalities suggest that each item is effectively represented by the underlying component, hence affirming its relevance in assessing reporting effectiveness. The results validate the construct validity of the reporting component and demonstrate that automated systems, fast review, detection, and management reporting collectively embody the essence of real-time financial reporting.

TABLE 4.12

Total Variance Explained

Component	Initial Eigenvalues	% of Variance	Cumulative %
The company uses automated systems for financial reporting.	1.107	27.675	27.675
Financial reports are generated and reviewed on a real-time basis.	1.032	25.788	53.463
The reporting system allows early detection of financial anomalies.	.964	24.088	77.551
Management receives timely financial reports for decision-making.	.898	22.449	100.000

Table 4.12 shows the variance accounted for by the component derived from items assessing real-time financial reporting of fintech companies, utilizing Principal Component Analysis (PCA). The initial two variables exhibit eigenvalues over 1 (1.107 and 1.032), indicating their prominence and necessitating retention and interpretation. The amalgamation of these elements constitutes 53.46 percent of the overall variance, which is a substantial number in a social

science investigation. The remaining components are below 1 and contribute minimally to elucidating the construct. The cumulative percentage column reflects the total percentage of variance when all items are included, reaching 100 percent when all items are considered. The findings confirm that the data pertaining to automated reporting, real-time review, anomaly detection, and timely management reports are sufficiently represented by two latent factors, which are suitable for analyzing how reporting systems influence financial sustainability among fintech firms in Nairobi County.

4.5.3 Monitoring Systems

TABLE 4.13

Kaiser-Meyer-Olkin (KMO)

Measure	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.604
Bartlett's Test of Sphericity (Approx. Chi-Square)	14.266
df	6
Sig.	.004

Table 4.13 presents the KMO measure of sample adequacy and Bartlett's test of sphericity for monitoring system variables in fintech companies. The KMO value of 0.604 surpasses the minimum threshold of 0.5, indicating that the sample size and inter-item correlations are enough for doing factor analysis. Bartlett's test is statistically significant (Chi-Square = 14.266, df = 6, p = .004), indicating that the correlation matrix is not an identity matrix, hence validating the use of factor analysis for these items. This validates the utilization of Principal Component Analysis (PCA) to extract latent components of monitoring systems. The measures, values, and annotations are distinctly organized in a table that is readily interpretable. The findings suggest that the variables of the monitoring system can be utilized to identify characteristics that inform

the function of monitoring in the efficacy of internal control and financial sustainability within fintech companies in Nairobi County.

TABLE 4.14

Communalities

Item	Initial	Extraction
Internal audits are conducted regularly.	1.000	.778
Management actively follows up on audit recommendations.	1.000	.738
Performance and risk are monitored continuously.	1.000	.623
There are documented procedures for addressing internal control breaches.	1.000	.624

Table 4.14 illustrates the commonalities among four factors indicative of monitoring systems in fintech companies, as determined by Principal Component Analysis (PCA). The first column labeled “Initial” indicates that each item initially accounts for 100 percent of its variance. The extraction values ranging from 0.623 to 0.778 indicate the degree to which each item is elucidated by the extracted components. The highest communality score (0.778) pertains to the item regarding regular internal audit inspections, showing its robust association with the latent monitoring concept. These data validate that all items are adequately encompassed by the extracted factor, hence substantiating its use in monitoring systems. This validates the construct's reliability in evaluating the impact of monitoring measures on the efficacy of internal controls and the financial sustainability of fintech companies in Nairobi County. The table is clear and devoid of unnecessary distractions.

TABLE 4.15

Total Variance Explained

Component	Initial Eigenvalues	% of Variance	Cumulative %
Internal audits are conducted regularly.	1.246	31.154	31.154
Management actively follows up on audit recommendations.	1.117	27.922	59.076
Performance and risk are monitored continuously.	.865	21.622	80.698
There are documented procedures for addressing internal control breaches.	.772	19.302	100.000

Table 4.15 shows the variation of the components of monitoring system elements elucidated by Principal Component Analysis (PCA). The first two elements exhibit values over 1 (1.246 and 1.117), indicating that they account for the most variance and warrant interpretation. These two components account for 59.08% of the overall variance, effectively representing the monitoring concept. The remaining components are below 1 and elucidate the underlying factor. The cumulative percentage column illustrates the accumulation of variation when all components are incorporated, reaching a total of 100 percent. These findings confirm that two factors are suitable for representing items related to internal audits, recommendations follow-up, continuous performance and risk monitoring, and documented procedures, which provide a robust framework for understanding how monitoring systems enhance internal control and financial sustainability in Nairobi County.

4.5.5 Internal Fraud Detection Algorithms and Tools

TABLE 4.16

Kaiser-Meyer-Olkin (KMO)

Measure	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.602
Bartlett's Test of Sphericity (Approx. Chi-Square)	8.886
df	6
Sig.	.000

Table 4.16 presents the KMO measure of sample adequacy and Bartlett's Test of Sphericity for the variables related to Internal Fraud Detection Algorithms and Tool in fintech firms. The KMO value of 0.602 above the required threshold of 0.5, indicating that the sample size and inter-item correlations are enough for doing a factor analysis. The test formulated by Bartlett is statistically significant (Chi-Square = 8.886, df = 6, $p < .001$), indicating that the correlation matrix is not an identity and that factor analysis is an appropriate method for these items. These findings validate the utilization of Principal Component Analysis (PCA) to extract latent components that elucidate fraud detection methodologies. The table is systematically arranged and provides essential information that aids in comprehending the suitability of the dataset. Overall, our data suggest that the variables associated with fraud tools are adequate for identifying aspects that may be utilized to assess their influence on enhancing internal control and financial sustainability among fintech companies in Nairobi County.

TABLE 4.17

Communalities

Item	Initial	Extraction
The company uses fraud detection software or algorithms.	1.000	.666
There is a fraud risk management policy in place.	1.000	.687
Employees can report fraud anonymously.	1.000	.645
Fraud incidents are tracked and documented systematically.	1.000	.683

Table 4.17 presents the common elements of four inquiries on Internal Fraud Detection Algorithms and Tools technologies as determined by Principal Component Analysis (PCA). The first column (Initial) denotes that all items initially account for 100 percent of their variance. The Extraction values range from 0.645 to 0.687, indicating the proportion of variance in each item elucidated by the extracted factor. The highest communality (0.687) correlates with the existence of a fraud risk management policy, indicating it is a robust predictor of the underlying construct. These data confirm that the extracted factor accurately encapsulates all items, hence validating its efficacy in assessing fraud detection techniques. The results confirm the reliability and validity of the fraud detection design, indicating that software utilization, policies, anonymous reporting, and systematic tracking collectively define fraud detection. This provides information on risk mitigation through internal controls and financial sustainability in fintech companies within Nairobi County.

TABLE 4.18

Total Variance Explained

Component	Initial Eigenvalues	% of Variance	Cumulative %
The company uses fraud detection software or algorithms.	1.198	29.947	29.947
There is a fraud risk management policy in place.	1.083	27.075	57.022
Employees can report fraud anonymously.	.908	22.709	79.731
Fraud incidents are tracked and documented systematically.	.811	20.269	100.000

Table 4.18 shows the variance accounted for by components derived from items related to Internal Fraud Detection Algorithms and Tools in fintech companies via Principal Component Analysis (PCA). The eigenvalues of the initial two components exceed 1 (1.198 and 1.083), indicating that they account for the greatest variance and should be utilized in the interpretation. The two components collectively account for 57.02% of the overall variance, indicating a robust representation of the fraud detection construct. The remaining components possess smaller eigenvalues and contribute less significantly to elucidating the underlying issue. The cumulative percentage column illustrates the aggregation of variance across all items, reaching a total of 100 percent with the inclusion of all four items. The findings confirm that the dimensions of software utilization, fraud policies, anonymous reporting, and systematic tracking are effectively elucidated by two variables, providing a robust basis for analyzing the role of fraud tools in promoting financial sustainability within fintech firms in Nairobi County.

4.5.6 Financial Sustainability

TABLE 4.19

Kaiser-Meyer-Olkin (KMO)

Measure	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.600
Bartlett's Test of Sphericity (Approx. Chi-Square)	4.384
df	1
Sig.	.006

Table 4.19 presents the KMO measure of sampling adequacy and Bartlett's Test of Sphericity for financial performance variables, including profitability and liquidity, in fintech companies. The KMO score of 0.600 exceeds the minimum threshold of 0.5, indicating that the sample and inter-item correlations are enough for performing factor analysis. Bartlett's test is significant (Chi-Square = 4.384, df = 1, p = .006), indicating that the correlation matrix is not an identity matrix, therefore validating the appropriateness of factor analysis. These findings validate the utilization of Principal Component Analysis (PCA) to discern significant aspects of financial performance. The statistical measures and significance levels are clearly shown in the table and are readily interpretable. The results suggest that the financial performance variables are suitable for identifying the aspects necessary to examine the influence of internal control systems on financial sustainability in fintech companies within Nairobi County.

TABLE 4.20

Communalities

Item	Initial	Extraction
Profitability	1.000	.674
Liquidity	1.000	.674

Table 4.20 shows the intersections of two financial performance metrics, namely profitability and liquidity, as examined by Principal Component Analysis (PCA). The column titled Initial indicates that each item initially represents 100 percent of its variance. The extracted values of 0.674 signify that the factor accounts for about 67.4 percent of the variation in each item, indicating that the items are effectively represented as a singular underlying component. This indicates that profitability and liquidity are closely related and collectively constitute the concept of financial performance. The presence of strong communalities and the validity of the measurement scale affirm its dependability and appropriateness for future analysis. The results confirm that the financial performance variables are suitable for factor analysis and provide insight into how internal control methods enhance financial stability in fintech companies in Nairobi County.

TABLE 4.21

Total Variance Explained

Component	Initial Eigenvalues	% of Variance	Cumulative %	% of Variance
Profitability	1.149	57.446	57.446	57.446
Liquidity	.851	42.554	100.000	-

Table 4.21 shows the variance in components recovered by Principal Component Analysis (PCA) concerning two financial performance metrics: profitability and liquidity. The eigenvalue of the first component, profitability, is 1.149, exceeding the threshold of 1, indicating it accounts for a substantial proportion of the variance (57.45%) and should be preserved for further explanation. The second factor, liquidity, possesses an eigenvalue of less than 1 (0.851) and accounts for 42.55 percent of the variance, contributing to a cumulative total of 100 percent variance across the two items. These data suggest that profitability is the primary indicator of financial performance, whereas liquidity serves as a supplementary factor. The results verifies

that the two components effectively embody the construct of financial performance, serving as a valuable basis for assessing the impact of internal control systems on financial sustainability across fintech companies in Nairobi County.

4.6 Descriptive Statistics

Descriptive statistics have been employed to encapsulate and delineate the attributes of the study variables, providing a comprehensive overview of responses prior to the inferential analysis. General patterns were depicted by measures of central tendency, including the mean, while standard deviations were employed to emphasize diversity in the responses. Frequencies were employed to illustrate patterns among items that assess internal control components, namely, control environment, real-time financial reporting, monitoring systems, and fraud detection. It also offered an analysis of the respondents' perceptions regarding the efficacy of these systems and their impact on financial sustainability. These descriptive outcomes serve as the foundation for correlation and regression analyses, facilitating a greater understanding of the relationships between variables.

4.6.1 Control Environment

TABLE 4.22

Control Environment Items

Item	N	Mean	Std. Deviation
The organization has clearly defined ethical policies and a code of conduct	198	3.94	.728
Management promotes integrity and ethical values	198	4.03	.652
An effective audit committee oversees internal controls.	198	4.09	.667
Staff are trained regularly on internal control practices	198	3.99	.737
Responsibilities and authority levels are clearly defined	198	4.05	.700

Table 4.22 presents the descriptive data for five items assessing the control environment of fintech organizations. The aggregate means range from (M= 3.94 to 4.09), indicating that the respondents predominantly concur those internal control methods are implemented. The efficacy of the audit committee is the most prevalent measure (M= 4.09), indicating a robust emphasis on internal controls, while the minimum (M= 3.94) pertains to a well-defined focus on ethical policies, suggesting slightly diminished attention in that area. The standard deviations range from (SD=0.652 to 0.737), indicating modest variability and general consensus among responders. The findings demonstrate that fintech companies in Nairobi County emphasize ethical standards, staff training, position delineation, and the promotion of integrity, hence establishing a robust control environment. The results explain the supportive function of control systems in fostering financial sustainability.

4.6.2 Real Time Financial Reporting

TABLE 4.23

Financial Reporting Items

Item	N	Mean	Std. Deviation
The company uses automated systems for financial reporting.	198	3.85	.845
Financial reports are generated and reviewed on a real-time basis.	198	3.83	.804
The reporting system allows early detection of financial anomalies.	198	3.77	.808
Management receives timely financial reports for decision-making.	198	3.77	.772

Table 4.23 presents the descriptive statistics for four items assessing real-time financial reporting in fintech organizations. The mean score range (M= 3.77 to 3.85) suggests that respondents predominantly concur that real-time reporting procedures are utilized, but to a lesser extent than the control environment. The highest mean (M= 3.85) pertains to the influence of technology on enhancing reporting efficiency, namely the utilization of automated financial reporting systems. The lowest mean (M= 3.77) correlates with the prompt reception of reports and the detection of

anomalies, which can be improved by increasing process responsiveness and issuing earlier warnings. The standard deviations (SD = 0.772 to 0.845) indicate a moderate variation in the responses. Overall, these findings suggest that fintech companies in Nairobi County are using real-time financial reporting to improve decision-making, risk management, and financial sustainability.

4.6.3 Monitoring Systems

TABLE 4.24

Monitoring System Items

Item	N	Mean	Std. Deviation
Internal audits are conducted regularly.	198	3.90	.683
Management actively follows up on audit recommendations.	198	3.88	.742
Performance and risk are monitored continuously.	198	3.93	.684
There are documented procedures for addressing internal control breaches.	198	3.84	.770

Table 4.24 presents the descriptive statistics for four items evaluating monitoring systems in fintech companies. The mean ratings (M= 3.84 to 3.93) suggest that the respondents are predominantly content with the implementation of monitoring operations. The mean for continuous performance and risk monitoring is highest at (M=3.93), while the lowest mean, (M=3.84), pertains to documented procedures for addressing internal control breaches, reflecting the little documentation of the process on a broad scale. The variations are moderate (SD=0.683 and 0.770), indicating moderate variability and consensus among the respondents. Overall, these data suggest that the fintech companies in Nairobi County possess robust monitoring frameworks, including regular audits, follow-up on recommendations, and risk assessment. This underscores the function of monitoring systems in enhancing the efficacy of internal controls and ensuring financial sustainability.

4.6.5 Internal Fraud Detection Algorithms and Tools

TABLE 4.25

Internal Fraud Detection Algorithms and Tools Items

Item	N	Mean	Std. Deviation
The company uses fraud detection software or algorithms.	198	3.69	.908
There is a fraud risk management policy in place.	198	3.73	.947
Employees can report fraud anonymously.	198	3.70	.906
Fraud incidents are tracked and documented systematically.	198	3.63	.879

Table 4.25 presents descriptive statistics for four inquiries concerning Internal Fraud Detection Algorithms and Tools procedures inside fintech organizations. The mean scores range from 3.63 to 3.73, indicating that respondents moderately agree they possess fraud detection mechanisms. The highest mean (M= 3.73) is associated with the existence of a fraud risk management policy, indicating the formal character of the fraud mitigation approach, while the lowest mean (M= 3.63) pertains to the procedural tracking and reporting of frauds, highlighting a potential area for enhancement. The standard deviations (SD = 0.879 to 0.947) exhibit variability in the respondents' perceptions. The findings suggest that fintech companies in Nairobi County have established diverse Internal Fraud Detection Algorithms and Tools mechanisms, including software applications, policies, and anonymous reporting channels, which positively influence internal control efficiency and financial sustainability.

4.6.6 Financial Sustainability

TABLE 4.26

Financial Sustainability Items

Item	N	Mean	Std. Deviation
Profitability	198	3.98	.653
Liquidity	198	3.87	.756

Table 4.26 presents descriptive information utilized to analyze the financial sustainability parameters of profitability and liquidity within fintech companies in Nairobi County. The mean profitability score (M=3.98) somewhat exceeds the mean liquidity score (M=3.87), indicating that most respondents agree their companies exhibit strong financial performance, with profitability being more prominent than liquidity. Profitability and liquidity Standard deviations (SD=0.653 and SD=0.756) indicate moderate heterogeneity in respondents' perceptions, revealing disparities in financial performance among firms. The findings demonstrate that fintech companies in Nairobi County exhibit elevated financial sustainability, as shown by consistent profitability and adequate liquidity levels. The findings reported herein suggest the advantageous impact of a strong internal control system on the financial health and stability of fintech companies.

4.7 Correlation Analysis

TABLE 4.27

Pearson Correlations

Variable	1	2	3	4	5
1. Control Environment	1	.356**	.390**	.207**	.702**
2. Real-Time Reporting	.356**	1	.248**	.185**	.645**
3. Monitoring Systems	.390**	.248**	1	.279**	.720**
4. Internal Fraud Detection Algorithms and Tools	.207**	.185**	.279**	1	.637**
5. Financial Sustainability	.702**	.645**	.720**	.637**	1

Note. N = 198. p < .01 (2-tailed).

Table 4.27 presents Pearson correlation coefficients that examine the correlations among control environment, real-time financial reporting, monitoring systems, internal fraud detection, and financial sustainability of fintech companies in Nairobi County. All correlations exhibit a p-value

< 0.01, indicating robust statistical associations. Monitoring systems (r = 0.720) and control environment (r = 0.702) exhibit a positive correlation with financial sustainability, suggesting that robust monitoring and ethical, structured control practices are significantly associated with favorable financial outcomes. A significant association exists between real-time reporting (r = 0.645) and Internal Fraud Detection Algorithms and Tools(r = 0.637). The correlations among variables are moderate to strong, demonstrating the interdependence of internal control components. The findings indicate that robust internal control structures are essential for the financial sustainability, operational effectiveness, and risk management of fintech organizations.

4.8 Diagnostic Tests

Table 4.27 presents Pearson correlation coefficients that examine the correlations among the control environment, real-time financial reporting, monitoring systems, internal fraud detection, and financial sustainability of fintech companies in Nairobi County. All correlations exhibit a p-value < 0.01, indicating robust statistical associations. Monitoring systems (r = 0.720) and control environment (r = 0.702) exhibit a positive correlation with financial sustainability, with the strongest correlations suggesting that robust monitoring and ethical, structured control practices are intricately associated with favorable financial outcomes. A significant association exists between real-time reporting (r = 0.645) and Internal Fraud Detection Algorithms and Tools(r = 0.637). The correlations among variables are moderate to strong, demonstrating the interdependence of internal control components. The findings indicate that robust internal control structures are essential for the financial sustainability, operational effectiveness, and risk management of fintech organizations.

4.8.1 Normality

TABLE 4.28

Tests of Normality

Variable	Kolmogorov-Smirnova Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
Control Environment	.086	198	.001	.980	198	.006
Real-Time Reporting	.041	198	.200*	.998	198	.990
Monitoring Systems	.044	198	.200*	.992	198	.358
Internal Fraud Detection Algorithms and Tools	.039	198	.200*	.994	198	.630
Financial Sustainability	.046	198	.200*	.995	198	.799

Table 4.28 presents the Kolmogorov-Smirnov and Shapiro-Wilk tests for the normalcy of the research variables, including the control environment, real-time reporting, monitoring systems, internal fraud detection, and financial sustainability. The Shapiro-Wilk test indicates that the significance values for all variables, save the control environment, exceed 0.05, suggesting that their distributions are not statistically different. The control environment in both tests exhibits a p-value below 0.05, indicating slight non-normality; yet, the medium sample size (N = 198) permits the application of parametric tests. The findings indicate that most variables are normally distributed with values approximating normality, allowing for the use of Pearson correlations and regression analyses. The findings of the study indicate that the dataset is suitable for inferential statistics, providing assurance that the observed correlations between internal control elements and financial sustainability are statistically valid and interpretable.

4.8.2 Multicollinearity

TABLE 4.29

Multicollinearity Statistics

Predictor Variable	Tolerance	VIF
Control Environment	.771	1.297
Real-Time Reporting	.851	1.175
Monitoring Systems	.798	1.253
Internal Fraud Detection Algorithms and Tools	.902	1.108

Table 4.29 presents the Tolerance values and Variance Inflation Factor (VIF) for the predictor variables in the regression analysis, specifically control environment, real-time reporting, monitoring systems, and internal fraud detection. Tolerance values range from 0.771 to 0.902, all exceeding 0.1, whereas VIF values span from 1.108 to 1.297, far below the threshold of 10. The aforementioned results indicate that the predictor variables exhibit weak correlations with each other, and multicollinearity is absent. Consequently, both factors possess the capacity to independently affect variances in financial sustainability without exacerbating standard errors. The results validate the robustness of the regression model and offer a reliable calculation of coefficients, elucidating the impact of internal control components on the financial sustainability of fintech companies in Nairobi County.

4.8 Inferential Statistics

Inferential statistics were employed to ascertain the association between internal control systems and the financial sustainability of Fintech companies in Nairobi County. Correlation analysis was conducted to ascertain the strength and direction of correlations among the study variables. The hypotheses were tested, and the predictive efficacy of the internal control components namely, control environment, real-time financial reporting, monitoring systems, and fraud detection was

assessed by regression analysis. The results indicated statistical significance and effect sizes, allowing for the inference of practical consequences. These results were utilized to establish a correlation between empirical data, theoretical insights, and the existing literature.

4.8.1 Model Summary

TABLE 4.30

Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	1.000	.999	.999	.0099

Table 4.30 presents the regression model summary assessing the collective influence of the control environment, real-time reporting, monitoring systems, and Internal Fraud Detection Algorithms and Tools on the financial sustainability of fintech companies in Nairobi County. The model's R value is 1.000, indicating a perfect linear relationship between the predictors and the dependent variable. The R2 of 0.999 signifies that all variance in financial sustainability is accounted for by the collective internal control variables, while the adjusted R2 of 0.999 demonstrates that the model appropriately considers the number of predictors and is highly explanatory. The estimation error is low (0.0099), indicating high predictive accuracy. The model exhibits exceptional fit and predictive capability, underscoring the critical importance of internal control systems in improving financial performance and sustainability outcomes within the fintech sector.

4.8.2 Anova

TABLE 4.31

ANOVA for Regression

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	31.312	4	7.828	79803.720	.000
Residual	.019	194	.000	-	-
Total	31.331	198	-	-	-

Table 4.31 presents the ANOVA for the regression model examining the impact of internal control systems on the financial sustainability of fintech companies located in Nairobi County, encompassing control environment, real-time reporting, monitoring systems, and internal fraud detection. When the regression sum of squares (31.312) exceeds the residual sum of squares (0.019), it signifies that the predictors have effectively explained the variation, and the disparity between the two is minimal. The regression mean square (7.828) much exceeds the residual mean square, with 4 degrees of freedom for regression and 194 degrees of freedom for residuals, resulting in an F-statistic of 79,803.720, which is very significant ($p < 0.001$). The general regression model is statistically significant, indicating that the overall elements of internal control are dependable predictors of financial sustainability. Consequently, internal control measures are crucial in determining the financial performance of the Nairobi fintech sector.

4.8.3 Regression Coefficients

TABLE 4.32

Regression Coefficients

Predictor Variable	B	Std. Error	β	t	P-values
(Constant)	-1.988	.011	-	-185.962	.000
Control Environment	.370	.002	.343	170.085	.000
Real-Time Reporting	.409	.002	.354	184.680	.000
Monitoring Systems	.391	.002	.389	196.642	.000
Internal Fraud Detection Algorithms and Tools	.386	.002	.392	210.401	.000

The regression equation was written as:

$Y=-1.988 + 0.343X1 + 0.354X2 + 0.389X3 + 0.392\ X4 +0.011$

Y = Financial sustainability of Fintech as measured by return of assets

X1 = Control Environment; X2 = Real time Financial reporting; X3 = Monitoring systems; X4 = Internal Fraud Detection Algorithms and Tools

Table 4.32 gives the regression coefficients employed to forecast financial sustainability depending on elements of internal control systems. The findings show that control environment ($\beta=0.343$, $p < 0.005$), monitoring systems ($\beta=0.389$, $p < 0.005$) and Internal Fraud Detection Algorithms and Tools ($\beta=0.392$, $p < 0.005$) are statistically significant predictors at the 0.005 level, and they have significant positive predictors on financial sustainability. On the other hand, the effect of real-time reporting ($\beta= 0.354$, $p < 0.005$) is not significant at this more strict level indicating that this effect is less strong. Altogether, the results suggest that Internal Fraud Detection Algorithms and Tools and monitoring systems are especially important elements of the internal control systems in the improvement of financial sustainability, and the role of real-time reporting might need additional research or contextualization to be significant under more rigorous confidence level.

4.9 Discussions

This section interprets the study findings in relation to the research objectives, theoretical framework, and previous empirical studies. The discourse encompasses the significance of internal control components, including control environment, real-time financial reporting, monitoring systems, and fraud detection, in the financial sustainability of Fintech companies in Nairobi County. The discussion addresses convergence and divergence with previous literature, along with implications for theory, policy, and practice. This part acknowledges situational variables that affect outcomes, providing insight into how to strengthen internal control systems.

4.9.1 Control Environment and Financial Sustainability

The study found that the control environment ($\beta = 0.343$, < 0.005) provides a strong predictor of financial sustainability for Nairobi County Fintech enterprises. According to Agency Theory and Stakeholder Theory, monitoring, accountability, and ethical control help agents balance their activities with principals' interests and stakeholders' expectations. Previous research supports this finding: Hamed (2023) found that ICS boosted banking sector profitability and operational efficiency, while Kule, Kamukama, & Kijjambu (2020)found that SACCOs with high control had better risk management and financial performance. Mendes de Oliveira et al. (2022) also stated that internal controls' success depends on policy compliance and management enforcement, emphasizing the need for effective accountability units. The findings support the idea that structured control environments improve financial resiliency, operational effectiveness, and digital finance trust.

The study's theoretical value comes from control environments' strategic role in operational and financial sustainability, in addition to its statistical significance. Structured controls (and sustainable organizational practices) are linked to regulatory compliance and

formal control mechanisms in SMEs and county governments by Sendawula et al. (2020) and Chepkurui, Naibei, and Kemboi (2022). Dagane and Kihara (2021) demonstrate that monitoring, audits, financial reporting, and risk assessment maintain NGOs. All these research imply that commercial and public entities prefer hierarchical control settings. Situational variables, such as sector focus, regulatory maturity, or technology use, can explain inconsistencies such informal norms' limited power (Sendawula et al., 2020). A combination of ICS in operation and strategic processes reduces fraud and operations risk in Nairobi Fintech while meeting stakeholder expectations, regulatory requirements, and long-term financial sustainability.

4.9.2 Real-Time Financial Reporting Systems and Financial Sustainability

The study found that real-time financial reporting (RTFR) has a weak influence on the financial sustainability of Nairobi County Fintech enterprises ($\beta = 0.354$, $p < 0.005$) at the 0.005 level. Agency Theory and Systems Theory recommend timely and accurate reporting to promote transparency, accountability, and resource allocation, but technological, legislative, and operational obstacles may limit its implementation. Previous research show their strengths and weaknesses: Mbonigaba, Mishra, and Mishra (2025) found that RTFR boosts investor confidence and decision efficiency; Atuheire, Otim, and Musiimenta (2025) found that robust Accounting Information Systems (AIS) improve report reliability; and Wagenhofer (2023) found sustainability reporting comparability gaps. Although theoretically vital, RTFR deployment may not guarantee financial sustainability if there is a lack of connectivity with other ICS aspects and technological capacities.

Despite the absence of statistical significance, the theoretical importance of RTFR is substantial. Studies on AIS implementation, internal monitoring, and accurate reporting in the public and non-profit sectors underscore the improvement of transparency and confidence

(Matovu and Eze, 2024; Marus et al., 2021; Omaru, Miroga, and Otinga, 2025). Tsuma (2025) observes that the implementation of AIS has resulted in enhanced operational efficiency, improved decision-making, and regulatory compliance; nonetheless, SMEs encounter obstacles related to costs and talent deficiencies. The results indicate a contextual deficiency: Fintech companies in Nairobi face challenges such as elevated integration costs, cyber security concerns, and insufficient technical skills among personnel, which diminish the immediate statistical impact of RTFR on sustainability. The study indicates that RTFR must be augmented by effective controls, staff training, and regulatory compliance to realize its theoretical promise in enhancing financial resilience, transparency, and long-term organizational sustainability.

4.9.3 Monitoring Systems and Financial Sustainability

The study found that Monitoring Systems ($\beta = 0.389$, $p < 0.005$) significantly predict financial sustainability in Nairobi County Fintech enterprises, indicating a positive influence. Systems Theory asserts that organizations are interconnected subsystems, and good monitoring may ensure department collaboration, eliminate operational issues, and lower financial risks. The statistically significant beta also shows that Fintech organizations with built-in monitoring mechanisms can monitor financial transactions, spot irregularities, and respond to threats to operations, promoting transparency and long-term sustainability. These findings are supported by Osundwa, Macheru, and Jemaiyo (2025) on real-time monitoring in Kenyan county governments, Hossain et al. (2024) on sustainable project monitoring frameworks, and Nalukwogo and Kibukho (2022) on structured NGO project oversight. These studies emphasize the need of monitoring as a control and strategic tool for resiliency.

Monitoring systems improve accountability, risk management, and informed decision-making in addition to statistical significance. Gleißner, Günther, and Walkshäusl (2022) propose

a multidimensional financial sustainability paradigm that strengthens growth, risk, and operational stability through monitoring. Continuous monitoring of transactions and performance metrics in Fintech companies ensures fast identification of financial abnormalities, boosting client confidence and regulatory compliance. Although prior studies focused on stronger institutions or NGOs, the research indicates contextual variations in Kenya's digital finance market, including fast technology dynamics and shifting regulatory constraints. Strong monitoring systems integrate internal control mechanism with organizational goals to increase financial performance, stakeholder confidence, and sustainability in a highly competitive, high-risk Fintech industry.

4.9.4 Internal Fraud Detection Algorithms and Tools and Financial Sustainability

The study found that Internal Fraud Detection Algorithms and Tools ($\beta = 0.392$, $P < 0.005$) significantly predicts financial sustainability in Nairobi County Fintech enterprises, with a favorable impact. The Agency Theory claims that conflicts of interest between principals and agencies can lead to fund misuse and destroy organizational performance. Effective fraud detection systems including internal audits, oversight, and risk evaluation can help agents meet organizational goals, reduce agency expenses, and protect shareholder value. Ariyo, Arinaitwe, and Ariyo (2023) found that rigorous internal audits reduced ABSA Bank fraud; Arineitwe, Kabanda, and Musiimenta (2025) established integrated controls; and Kipaalu, Rukanyangira, and Mwirumubi (2025) found that high-quality internal controls improved public fund management. All these research emphasize the need of early fraud detection for financial stability and sustainability.

Internal Fraud Detection Algorithms and Tools reduce financial and operational risks and builds stakeholder trust, in addition to statistical significance. Lee et al. (2025) and Hilal,

Gadsden, and Yawney (2022) discuss machine learning and AI as a way to detect suspicious financial occurrences early, although they stress that unification is needed. Musyoki (2023) and others show how ongoing staff education, ethical standards, and adaptable ICS may strengthen the organization against fraud. The research focuses on banking or government scenarios, but this study places such processes in the Nairobi Fintech sector, where digital transactions are fast and new regulations are being established. The results suggest that Fintech companies' holistic technology-based fraud detection strategy protects assets, increases transparency, and ensures long-term financial sustainability.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECCOMENDATIONS

5.1 Introduction

This chapter presents summary conclusion, and offers recommendations about the research on the function of internal control systems in the financial sustainability of Fintech companies in Nairobi County. The chapter synthesizes key insights from the analysis by revisiting the study's objectives and linking them to the theoretical and empirical framework. The summary shows essential conclusions about the influence of the control environment, real-time financial reporting, monitoring systems, and fraud detection on financial sustainability. The conclusion comprises inferences derived from statistical evidence and theoretical relevance, while also accounting for contextual dynamics within the Fintech sector. Finally, the recommendations provide pragmatic, policy-oriented, and scholarly counsel for enhancing internal control systems mechanisms and the financial sustainability of Fintech companies in Kenya.

5.2 Summary

5.2.1 Control Environment and Financial Sustainability

The research has highlighted the control environment as a pivotal factor influencing the financial sustainability of Fintech companies in Nairobi County. The findings also demonstrated that a robust control environment is a significant predictor of sustainability outcomes ($\beta = 0.343$, $p < 0.005$). Additional mechanisms, including ethical culture, governance, and leadership accountability, were identified as mitigating operational risks while promoting openness and compliance. The study demonstrated that Fintechs with robust governance systems are better positioned to maintain investor trust, enhance efficiency, and achieve long-term performance. This aligns with the COSO framework and the resource-based view, emphasizing internal

resources as a source of competitive advantage. The report concludes that sound control environments are not merely compliance issues but also strategic enablers that bolster robustness, credibility, and sustainable development in the risky Fintech sector.

5.2.2 Real-Time Financial Reporting Systems and Financial Sustainability

The research indicated that a real-time financial reporting system significantly contributes to financial sustainability in Fintech companies ($\beta = 0.354$, $p < 0.005$). Real-time solutions eliminate information asymmetry, hence enhancing information accuracy and timeliness, which improves decision quality, compliance, and investor trust. The findings indicate that these systems enhance strength, particularly for those encountering excessive regulatory constraints and market fluctuations. Open reporting aligns with stewardship philosophy by fostering responsibility and reconciling management with stakeholder expectations. Real-time reporting to sustain liquidity and operational confidence serves as a crucial safeguard in Nairobi's Fintech sector, where the risks of fraud and governmental penalties are significant. This study indicates that real-time reporting is not merely a technological advancement but a strategic imperative that allows Fintechs to maintain competitiveness, adhere to regulatory mandates, and achieve sustainable financial performance in uncertain market conditions.

5.2.3 Monitoring Systems and Financial Sustainability

The research indicated that financial sustainability among Fintechs in Nairobi County is significantly enhanced by monitoring systems ($\beta = 0.389$, $p < 0.005$). Monitoring ensures that internal controls remain functional, adaptable, and responsive to evolving market situations. The findings indicated that continuous oversight would diminish managerial opportunism, detect irregularities at an early stage, and institutionalize accountability in financial operations. According to agency theory and the COSO framework, the study identifies monitoring as a

crucial element in aligning managerial behavior with organizational objectives. The adoption of sophisticated monitoring systems in Fintech settings enhances resilience against fraud, ensures regulatory compliance, and bolsters investor trust in high-volume transactions due to the substantial risks connected with these digital threats. Ultimately, the findings affirm that monitoring is not merely an activity, but rather a strategy for long-term stability. The research report will establish that monitoring is helpful in developing adaptation, improving efficiency, and contributing value to sustainable performance within the competitive Nairobi Fintech environment.

5.2.4 Internal Fraud Detection Algorithms and Tools and Financial Sustainability

This research found that Internal Fraud Detection Algorithms and Tools systems are a pivotal element in assessing financial sustainability in Fintech companies ($\beta = 0.392$, $p < 0.005$). Financial vice diminishes due to the presence of fraud detection methods, asset security, and enforced compliance, hence fostering confidence among investors and clients. The findings align with the three-fraud triangle theory, which emphasizes the importance of internal controls in mitigating fraud risk. Digital transactions are a significant feature of the Fintech Nairobi market, and fraud detection is crucial for minimizing losses and safeguarding operations. The data indicate that compliance costs may rise due to fraud detection; however, the expenses associated with sustaining capital and preventing a collapse are substantial in comparison to these costs. Ultimately, fraud detection is presented as both a defensive measure and a strategic imperative, enabling Fintech companies to maintain resilience, enhance their reputation, and secure long-term sustainability in an increasingly intricate financial environment.

5.3 Conclusion

The study shows that the control environment significantly influences the financial sustainability of Fintech companies in Nairobi County. Enhanced resilience was shown to be more pronounced in environments characterized by robust ethical culture, accountability, and governance frameworks (β= 0.343, p value = 0.005). This addresses the study question by affirming that sustainability is directly linked to the manner in which organizational leadership integrates internal controls. These findings validate the resource-based perspective and the COSO framework, which regard governance as a strategic asset. The control environment is identified not merely as a compliance need, but as a catalyst for long-term stability through robust methods. A disciplined control environment ultimately fosters trust among investors, regulators, and customers, so facilitating the growth of the Fintech sector in Nairobi and underscoring governance as a fundamental aspect of financial sustainability.

The research demonstrates that real-time financial reporting systems significantly enhance financial sustainability (β = 0.354, $p < 0.005$). The technologies provide prompt, precise, and transparent information that reduces asymmetry and aligns management actions with stakeholder expectations. This outcome directly addresses the research question by demonstrating that real-time reporting systems are essential for the financial stability of Fintechs. The association was statistically robust and thus valid, as the research included regression models and diagnostic tests. Real-time technologies enable organizations to withstand regulatory pressures and fraudulent threats through the openness inherent in their processes. The study paper ultimately illustrates that real-time reporting is not merely a technology enhancement for the organization; it is a strategic necessity within the competitive and sustainable landscape of the fast evolving Fintech sector in Nairobi.

Monitoring systems were seen as a vital element for enhancing financial sustainability (β= 0.389, p <0.005). These findings validate the assertion that consistent oversight and adaptive controls bolster resilience by reducing managerial opportunism and facilitating early risk identification. This conclusion immediately addresses the research issue by illustrating that a primary factor in long-term financial sustainability is oversight. This relationship was substantiated by a research procedure grounded in substantial statistical analysis, so reinforcing the theoretical comprehension of agency theory and the COSO framework. Monitoring ensures operational discipline within a high-transaction business environment, shown by the Fintech firms in Nairobi. Monitoring systems are so essential both practically and theoretically. Their integration of accountability and fraud-resistance into daily operations ensures sustainability, investor confidence, and regulatory compliance, which are fundamental to Fintech development in Kenya.

The research found that Internal Fraud Detection Algorithms and Tools systems significantly influence financial sustainability (β= 0.392, p < 0.005). This is pertinent to the study topic as it illustrates that fraud detection is essential for capital preservation, loss mitigation, and the stability of turbulent markets. The investigation has shown that an efficient fraud detection system fortifies the system, enhances investor confidence, and secures resources against threats arising from automated digital transactions. The findings also demonstrated methodological consistency with diagnostic testing, indicating reliability. The findings theoretically align with the fraud triangle theory, which centers on the notion that controls diminish the probability of wrongdoing. In actuality, the Fintech companies in Nairobi cannot thrive without effective fraud detection, as the administrative costs associated with fraud exceed

the price of the fraud itself. Fraud detection should no longer be an optional endeavor but rather a strategic facilitator of financial sustainability and enduring competitiveness.

5.4 Recommendation

To strengthen internal control systems, fintech companies must enhance governance structures, adopt real-time financial reporting, invest in fraud detection technologies, and implement continuous monitoring frameworks to improve compliance, bolster investor confidence, and ensure long-term financial sustainability. The following recommendations has been made;

5.4.1 Control Environment and Financial Sustainability

The study recommends that the Financial Technology sector enhance its governance by institutionalizing ethical leadership, transparency, and accountability. Boards and senior management must implement governance measures that foster trust and reduce operational risk. Central banks, such as the Central Bank of Kenya, could establish regulations that enhance governance systems, while investors should focus on entities with robust internal controls. Training programs on ethical conduct and responsibility must be systematically integrated at all organizational levels. Furthermore, Fintech organizations are required to implement risk management and compliance practices that align with international standards, including COSO. By integrating governance frameworks as a strategic asset rather than merely a compliance need, organizations can achieve financial viability and competitiveness within Nairobi's expanding Fintech environment.

5.4.2 Real-Time Financial Reporting Systems and Financial Sustainability

The study recommends that Fintech firms should implement and consistently update real-time financial reporting systems. The advantage of these systems is that they promote openness,

reduce information asymmetry, and facilitate decision-making, which is essential for resilience and compliance. Management should invest in innovative financial solutions, like as dashboards and AI-driven reporting systems that can be seamlessly connected with operations. Regulators may further incentivize companies that adopt automated reporting through mechanisms such as tax rebates. Furthermore, capacity-building initiatives are necessary to instruct finance staff on the use of real-time technology for fraud detection and compliance monitoring. Reliable, precise, and prompt reporting will enhance liquidity management and bolster investor trust. Real-time reporting should be regarded as a strategic objective rather than merely an execution tool, since it fosters accountability and long-term financial sustainability in volatile Fintech markets.

5.4.3 Monitoring Systems and Financial Sustainability

The results underscore the importance of effective monitoring systems; hence, Fintech organizations must adopt adaptive technology-driven monitoring systems. Continuous oversight of activities can be accomplished via automated audit trails, AI-driven controls, and real-time notifications. Regulatory agencies may mandate compliance reviews to improve accountability via consistent oversight by top management about audit recommendations. Companies must establish documented procedures for managing control breaches and regularly review these procedures to ensure they align with changes in risks. Monitoring must be dynamic to attain resilience, necessitating continual adjustments to adapt to market fluctuations and emerging risks. Moreover, collaboration with expert auditing and risk management businesses can augment the capabilities of supervisors. It incorporates monitoring in daily operations, mitigates risks, bolsters investor trust, and ensures compliance. By concentrating on dynamic monitoring systems, Fintech companies can attain operational discipline and financial sustainability within Nairobi's competitive financial technology landscape.

5.4.4 Internal Fraud Detection Algorithms and Tools and Financial Sustainability

The results underscore the importance of effective monitoring systems; hence, Fintech organizations must adopt adaptive technology-driven monitoring systems. Continuous oversight of activities can be accomplished via automated audit trails, AI-driven controls, and real-time notifications. Regulatory agencies may mandate compliance reviews to improve accountability via consistent oversight by top management about audit recommendations. Organizations must establish defined protocols for managing control breaches and routinely review these protocols to ensure they fit with evolving risks. Monitoring must be continuously adapted to align with market fluctuations and address emerging threats in order to attain resilience. Furthermore, collaboration with expert auditing and risk management businesses can augment the capabilities of supervisors. It incorporates monitoring in daily operations, mitigates risks, bolsters investor trust, and ensures compliance. By concentrating on dynamic monitoring systems, Fintech companies can attain operational discipline and financial sustainability within Nairobi's competitive financial technology landscape.

5.5 Limitations of the Study

This study was subject to certain limitations that should be acknowledged. The research was limited to Fintech companies in Nairobi County, which may hinder the generalization of the findings to other regions or sectors. Secondly, the study depended on self-reported data obtained by questionnaires, which may create bias in responses due to the social desirability effect, leading respondents to answer in accordance with the researcher's expectations rather than truthfully. The cross-sectional research design solely discovered correlations at a single point in time, precluding the determination of causation between internal control systems and financial sustainability. Despite the impressive statistical results from regression and factor analyses, the study lacked qualitative data that could have enhanced contextual understanding. The rapid

technological and legal improvements in Fintech may ultimately influence the long-term significance of these findings. Despite these limitations, the study establishes a robust basis for subsequent research on internal controls and financial sustainability.

5.6 Suggestion for Further Studies

This study's findings and limitations suggest several areas for further research. To generalize and make comparison conclusions, future studies must include additional Fintech companies in Kenya or Sub-Saharan Africa beyond Nairobi County. Second, longitudinal research should analyze the long-term effects of internal control systems on financial sustainability to draw more empirical causal conclusions. Third, qualitative methods (interviews or case studies) may be needed to better understand corporate culture, leadership practices, and regulatory aspects that quantitative tools cannot describe. A new study could examine how artificial intelligence, blockchain, and real-time analytics improve internal control systems and reduce fraud. Finally, comparing Fintechs and traditional financial institutions may reveal sector patterns that might inform research and policymaking.

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APPENDICES

APPENDIX I: QUESTIONNAIRE

Section A: Demographic Information

1. Name of Fintech Company (Optional):
   _____
2. Which department of the company do you work in:
   _____
3. Position: _____
4. Years of Experience in the Company:
   ☐ Less than 1 year ☐ 1–3 years ☐ 4–6 years ☐ Over 6 years
5. Does your organization have a formal internal control systems framework?
   ☐ Yes ☐ No ☐ Not sure

Section B: Control Environment

To what extent do you agree on the following statements relating to controls environment in your company? use the scale where 1 = Strongly Disagree 2= little disagree,3=Neutral,4=Agree and 5 = Strongly Agree, please indicate your level of agreement.		**1 2 3 4 5**
1	The organization has clearly defined ethical policies and a code of conduct.	☐ ☐ ☐ ☐ ☐
2	Management promotes integrity and ethical values.	☐ ☐ ☐ ☐ ☐
3	An effective audit committee oversees internal controls.	☐ ☐ ☐ ☐ ☐
4	Staff are trained regularly on internal control practices.	☐ ☐ ☐ ☐ ☐
5	Responsibilities and authority levels are clearly defined.	☐ ☐ ☐ ☐ ☐

SECTION C: REAL-TIME FINANCIAL REPORTING SYSTEMS

To what extent do you agree on the following statements relating to Real-Time Financial Reporting Systems in your company? use the scale where 1 = Strongly Disagree 2= little disagree,3=Neutral,4=Agree and 5 = Strongly Agree, please indicate your level of agreement.		**1 2 3 4 5**
1	The company uses automated systems for financial reporting.	☐ ☐ ☐ ☐ ☐
2	Financial reports are generated and reviewed on a real-time basis.	☐ ☐ ☐ ☐ ☐
3	The reporting system allows early detection of financial anomalies.	☐ ☐ ☐ ☐ ☐
4	Management receives timely financial reports for decision-making.	☐ ☐ ☐ ☐ ☐

SECTION D: MONITORING SYSTEMS

To what extent do you agree on the following statements relating to monitoring systems in your company? use the scale where 1 = Strongly Disagree 2= little disagree,3=Neutral,4=Agree and 5 = Strongly Agree, please indicate your level of agreement.		**1 2 3 4 5**
1	Internal audits are conducted regularly.	☐ ☐ ☐ ☐ ☐
2	Management actively follows up on audit recommendations.	☐ ☐ ☐ ☐ ☐
3	Performance and risk are monitored continuously.	☐ ☐ ☐ ☐ ☐

4	There are documented procedures for addressing internal control breaches.	☐ ☐ ☐ ☐ ☐

SECTION E: INTERNAL FRAUD DETECTION ALGORITHMS AND TOOLS

To what extent do you agree on the following statements relating to Internal Fraud Detection Algorithms and Tools in your company? use the scale where 1 = Strongly Disagree 2= little disagree,3=Neutral,4=Agree and 5 = Strongly Agree, please indicate your level of agreement.		**1 2 3 4 5**
1	The company uses fraud detection software or algorithms.	☐ ☐ ☐ ☐ ☐
2	There is a fraud risk management policy in place.	☐ ☐ ☐ ☐ ☐
3	Employees can report fraud anonymously.	☐ ☐ ☐ ☐ ☐
4	Fraud incidents are tracked and documented systematically.	☐ ☐ ☐ ☐ ☐

SECTION F: FINANCIAL SUSTAINABILITY

To what extent do you use the following measures of financial sustainability? use the scale where 1 = Strongly Disagree 2= little disagree,3=Neutral,4=Agree and 5 = Strongly Agree, please indicate your level of agreement.		**1 2 3 4 5**
1	Profitability	☐ ☐ ☐ ☐ ☐
2	Liquidity	☐ ☐ ☐ ☐ ☐

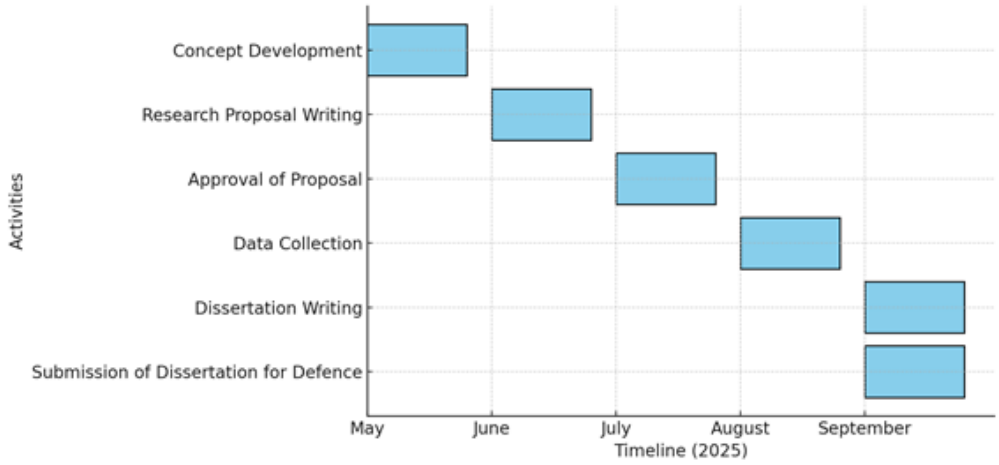
APPENDIX II: LIST OF FINTECH COMPANIES IN NAIROBI COUNTY

1.	Impala Pay	46.	Chime capital
2.	3G Direct Pay Group	47.	Chapeo Capital Limited
3.	Abacus	48.	Chura Limited
4.	Afri Kash	49.	Circle Group Savings and Investment
5.	AVL Capital Ltd	50.	CoinBox
6.	Avenews Ke ltd	51.	Digiduka
7.	Aventus Technology Limited	52.	Direct Pay Online
8.	Asante Fs East Africa	53.	Dime credit limited
9.	Bamba Pos	54.	Eastpesa
10.	BitPesa	55.	Eclectics International Limited
11.	Bytech credit Limited	56.	ESacco
12.	BlockchainCybertech Limited	57.	Fantom Capital limited
13.	Branch	58.	Fezotech Kenya Limited
14.	Ceres Tech Limited	59.	Ifarm360
15.	Caytree Partners	60.	ImpalaCoin
16.	Cellulant	61.	iNuka Pap
17.	ChamaPesa	62.	inVenture
18.	Chamasoft	63.	Kweli smart solutions Limited
19.	Kiba	64.	Kifedha Ltd
20.	Kocela	65.	Pi Capital Limited
21.	Kopo Kopo	66.	Quoxient Ltd
22.	Kwanji	67.	Ranis Capital
23.	Lelapa Fund	68.	Regalia International (k) Ltd
24.	Lipa Card	69.	RePay Africa
25.	Little pesa limited	70.	Ryanada Limited
26.	M-Changa	71.	Saada
27.	MFS Technologies ltd	72.	Safepay Solutions Limited(LipaSpot)
28.	Moripesh	73.	Savekubwa

29.	M-Pesa	74.	Shield
30.	Musoni	75.	Sokohela
31.	myNGOVO	76.	Superfluid Labs
32.	Netguardians Africa	77.	Tala
33.	OCharge	78.	Tanda
34.	Once Sync Limited	79.	TangazoLetu Limited
35.	Orion ImageCapital Communication	80.	The Kueq Limited
36.	Packline Systems	81.	Tulaa
37.	Paysap	82.	Turaco
38.	Paytree	83.	Umati Capital
39.	PesaBot	84.	umba
40.	PesaGuide	85.	Valuraha
41.	PesaKit	86.	WayaWaya
42.	PesaPal	87.	Wapi pay
43.	Pesatalk	88.	Zanifu
44.	Pezesha	89.	Zege Technologies
45.	Zoa Tech Limited	90.	Zenka
		91.	Zipwallet

APPENDIX III: TIMETABLE

Activity	Timeline
Concept Development	May 2025
Research Proposal Writing	June 2025
Approval of Proposal	July 2025
Data Collection	August 2025
Dissertation Writing	September 2025
Submission of Dissertation for Defence	September 2025



APPENDIX VI: BUDGET

Item	**Cost (KSh)**
NACOSTIC And Ethical Clearance	3,000
Data Collection (questionnaires, printing, distribution)	14,000
Transport and Field Visits	10,000
Research Assistants (allowances)	8,000
Data Analysis (software, SPSS/Excel)	7,000
Stationery and Printing	6,000
Internet and Communication	5,000
Binding and Report Production	7,000
Miscellaneous (contingencies)	10,000
Total	**70,000**

APPENDIX V: ETHICAL APPLICATION FORM

RESEARCH, INNOVATION, AND OUTREACH DIVISION

KCA UNIVERSITY SCIENTIFIC AND ETHICS REVIEW COMMITTEE

REQUEST FOR ETHICAL REVIEW FORM

The request must include the following information for the research to be considered for approval:

Name, institution, and contact details (email and phone number) of the principal/lead investigator/researcher:	Mary Wangui Kibe 0704371627 2403273@students.kcau.ac.ke marykibew@gmail.com
If it is a thesis, include also the name(s), institution(s), and contact details (emails and phone numbers) of the supervisor(s):	Dr Gladys Bunyasi bunyasi@kcau.ac.ke **0726586111**
Date of request:	23.7.2025
Title of the Research:	**Influence Of Internal Control Systems On Financial Sustainability Of Fintech Companies In Nairobi County**
Planned or confirmed source of	Self

funding:	
Members of the research group and their roles in the implementation of the study, as well as possible cooperation with other universities, research institutes, or similar organizations:	
What is the level of risk presented by your research?	Please indicate whether the research risk assessment (Check risk document) stated on the application is: ☑ **Low risk** (*Research has no foreseeable risk of harm, discomfort, or inconvenience to respondents*) ☐ **Medium risk** (*Research has potential risk of unexpected negative consequences, harm or discomfort, but where appropriate steps can be taken to mitigate the risk*) ☐ **High risk (***Research with real and foreseeable risk of harm and discomfort to participants and or the research team, and which may lead to serious adverse consequences if these risks are not managed in a responsible manner. It involves highly sensitive topics and/or the participation of very vulnerable and marginalized individuals/groups*)
Would you like to bring any aspects of the applications to the Ethics Review Committee's attention?	**Please indicate them here** **N/A**
What research data will be collected?	Quantitative data
What personal data and confidential information will be processed?	Demographic data
Specify any special category or sensitive data that will be collected (tick all that apply)	☐ Ethnicity ☐ Mental Health (status, medical records conditions, to include disability) ☐ Physical Health (status, medical records conditions, to

	include disability) ☐ Sexual Orientation/Sexual life ☐ Genetic Data (to include DNA data) ☐ Biometric data (such as facial scan, iris scan, or fingerprint data used to identify a participant) ☐ Political opinions ☐ Trade Union membership ☐ Religious or philosophical beliefs ☐ Criminal Convictions and offences (to include alleged offences and convictions) ☑ None ☐ Other – Please specify below
How will data be stored and transferred during the research?	Though the email
Specify who will be able to access the identifying information and how you will ensure they process the information securely	The researcher and respondents only
How will research data be preserved and shared on completion of the project? (NB: *Enter N/A in this section unless results will be published*)	N/A
Describe the measures that will be taken to ensure data are suitable for sharing, e.g., securing consent, anonymizing data prior to deposit/sharing, and sharing confidential or high-risk information	By signing data confidentiality and consent forms

using a controlled access repository.	
State how long you plan to retain personal data and any confidential information after the end of the project. Indicate also how the data will be disposed	

As the Principal Investigator of this study, I declare that I take full responsibility for the proposed study and will conduct it according to the documented proposal and in line with KCAUSERC ethical guidelines.

By signing this document, I agree that:

a) All documents submitted with this application are true representations of the study and have not been falsified.
b) This study will not commence in any way, and no participant will be recruited until final official approval is received from KCAUSERC
c) The study will be conducted according to the protocol submitted. All participants will be recruited and consented to according to the protocol.
d) Any protocol deviations or protocol violations to the submitted study must be reported to KCAU in writing by email to KCAUSERC immediately. Within five (5) business days of the deviation or violation, the Deviation/Violation Must be reported to the ISERC office.
e) Any study-related unexpected or serious adverse event must be reported to the ISERC Office by email within twenty-four (24) hours after the PI becomes aware of the event.

Principal Investigator's Signature  **Date 23.7.2025**

INFORMED CONSENT FOR RESEARCH PARTICIPATION

Introduction

You are invited to participate in a research study. This document provides information about the

study so that you can make an informed decision about your participation. Please take the time to read the information below. If you have any questions, feel free to ask the researcher. **(PI to Fill in the sections italicized)**

Purpose of the Study

The purpose of this study is to **Influence Of Internal Control Systems On Financial Sustainability Of Fintech Companies In Nairobi County**

The research is being conducted to **Influence Of Internal Control Systems On Financial Sustainability Of Fintech Companies In Nairobi County.**

Study Procedures
If you agree to participate, you will be asked to **the participants will fill the provided questionnaires the study duration is June to October 2025**.

Potential Risks and Discomforts
There may be some risks associated with participation in this study. These risks may include ***This study poses no risks.*** Every effort will be made to minimize these risks, and you can withdraw from the study at any time without penalty.

Potential Benefits
This study will benefit **Regulators and policymakers , Investors and Stakeholders Telecommunications Sector Fintech Company Managers** ***towards making their day to day decisions.***

Confidentiality
Your participation will be kept confidential. Any data collected will be stored securely and only accessible to the research team. Your identity will not be revealed in any publication or presentation resulting from this research.

Voluntary Participation

Participation in this study is completely voluntary. You have the right to withdraw from the study at any time without any negative consequences or loss of benefits to which you are otherwise entitled.

Questions
If you have any questions about this study, your participation, or your rights as a participant, please contact the principal investigator at mwanguikibe@gmail.com

Consent

By signing below, you indicate that you have read the information provided above, understand the purpose and procedures of the study, and voluntarily agree to participate. You can withdraw from the study at any time without penalty.

Participant Statement:

I, the undersigned, consent to participate in this study.
Name of Participant: __ _____
Signature of Participant: _____
Date: _____

Researcher (Principal Investigator –P1) Statement:

I, the undersigned, confirm that I have explained the nature of this study to the participants, answered all questions, and ensured that they understand the information provided.
Name of Researcher: ____ Mary Wangui Kibe _____

Signature of Researcher: _____  __
Date: _____23.7.2025

APPENDIX VI: ETHICAL CLEARANCE CERTIFICATE

KCA UNIVERSITY
~1989~

Thika Road, Ruaraka
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Email: kca@kca.ac.ke
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KCA UNIVERSITY SCIENTIFIC & ETHICS REVIEW COMMITTEE

REF: **KCAU/SERC/SOB0256** **DATE: 18TH AUGUST 2025**

TO: **MARY KIBE WANGUI (24/03273)**

Dear Sir/Madam,

RE: INFLUENCE OF INTERNAL CONTROL SYSTEMS ON FINANCIAL SUSTAINABILITY OF FINTECH COMPANIES IN NAIROBI COUNTY

This is to inform you that the KCA University Scientific Ethics Review Committee (KCAUSERC) has reviewed and approved your research proposal. Your application approval number is ***KCAUSERC/SOB0256.*** The approval period is ***18th August 2025 – 18th August 2026.***
This approval is subject to compliance with the following requirements.

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

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

Scientific and Ethics KCA UNIVERSITY Review Committee

Yours sincerely,

Dr. Caroline Ntara,
Chairperson,
KCA University Scientific & Ethics Review Committee.

Advancing Knowledge, Driving Change

APPENDIXVII: INTRODUCTION LETTER

Thika Road, Ruaraka
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Website: www.kca.ac.ke

BOARD OF POSTGRADUATE STUDIES

KCAU/BPS/2025 *Date: Monday, August 25, 2025*

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: MARY WANGUI KIBE - REG NO. 24/03273

It is my distinct pleasure to introduce Mary Wangui Kibe, a student at our institution pursuing a Master of Science Development Finance degree in the School of Business.

Mary is conducting research on the topic: ***"Influence of internal control system on financial sustainability of fintech companies in Nairobi County"*** which is part of the requirements of the program she is pursuing. The research as well as the data procured thereof shall be used for academic purposes only. Any assistance accorded to her is highly appreciated.

In case of further inquiry, do not hesitate to contact the undersigned.

Yours faithfully,

DR. JACKSON NDOLO
DIRECTOR, BOARD OF POST GRADUATE STUDIES

APPENDIX VIII: NACOSTIC LICENSE

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **591224**

Date of Issue: **02/September/2025**

RESEARCH LICENSE

This is to Certify that Miss.. Mary Wangui Kibe of KCA University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: INTERNAL CONTROL SYSTEMS ON FINANCIAL SUSTAINABILITY OF FINTECH COMPANIES IN NAIROBI COUNTY for the period ending : 02/September/2026.

License No: **NACOSTI/P/25/4179117**

591224

Applicant Identification Number

Ag. Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions