

**FINANCIAL TECHNOLOGY, FUND SIZE AND PERFORMANCE OF UNIT  
TRUST FUNDS IN KENYA**

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**Thesis Submitted in Partial Fulfillment of the Requirements for the Award of the  
Degree of Doctor of Philosophy in Business Administration (Finance Option) of  
Masinde Muliro University of Science and Technology.**

November, 2025

**DECLARATION**

This Thesis is my own original work and it has not been submitted in any other University for award of a degree.

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## **DEDICATION**

I dedicate this Thesis first to the almighty God for His sufficient grace, then to my dear parents; my dad Mr. Okwoma Eboyi and Late Mum Mrs. Okwoma Keziah for their continued moral support and prayers throughout my studies, and lastly to my readers and end users.

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## ABSTRACT

The Kenyan Unit Trust Funds play an integral role in economic development therefore its financial performance becomes a very critical indicator of investment efficiency and market stability in Kenya. The emergence of financial technology (FinTech) has revolutionized the global financial landscape by enhancing efficiency, inclusivity, and accessibility. However, its effect unit trust funds in Kenya remains underexplored and insufficiently documented and understood. This study was motivated by the increasing digital transformation and the need to understand how FinTech applications and fund size interact to jointly influence fund performance within Kenyan Unit Trust Funds. The study examined the effect of Fintech integration on financial performance of unit trust funds, focusing on the moderating role of fund size. Four FinTech constructs; digital payments, digital deposits, digital portfolio management, and digital risk management were used as predictors of performance. Theoretically, the study was grounded on the Technology Acceptance Model, Financial Intermediation Theory, Profit Maximization Theory, and the Capital Asset Pricing Model. Mixed-methods design of descriptive and panel designs was employed, integrating primary data from fund managers with secondary data from audited reports of licensed UTFs. Primary data were collected through questionnaires administered to fund managers, while secondary data were extracted from audited fund reports and regulatory filings. Analysis was conducted using SPSS for descriptive statistics and STATA for panel estimations, with Return on Assets (ROA) as the main performance indicator. The estimation model passed key diagnostic tests for normality, multicollinearity, stationarity, autocorrelation, and heteroskedasticity model fit test. Hypotheses were tested a 5% significance level, Findings revealed that FinTech significantly enhances fund performance of UTFs. Primary data:  $Y=0.053+0.279X_1+0.220X_2+0.287X_3+0.230X_4$ , with all p-values <0.05. at 95% CI while secondary data  $Y = -4.01971 + 0.040847X_1 + 0.018446X_2 + 0.16416X_3 + 0.051229X_4$  with all P-values < 0.05 at 95% CI. Fund size significantly moderated the relationship between digital portfolio management and fund performance, indicating that larger funds derive greater benefits from FinTech use in business models and strategies. The study concludes that fintech adoption improves operational efficiency, portfolio optimization and risk control. The study extends the Technology Acceptance Model (TAM) to an institutional investment context, offering new insights into technology-performance dynamics within fund management. Practically, it guides fund managers on leveraging FinTech tools for enhanced operational efficiency and performance, while providing regulators with evidence to design policies that support digital transformation in the capital market. The Government of Kenya draws insights on enhancing digital blue print agenda, vision 2030 and financial inclusivity.

Keywords: Financial technology, fund size, financial performance and Unit Trust Funds.

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## **ABBREVIATIONS**

<b>AAGR</b>	:	Average Annual Growth Rate
<b>ADF</b>	:	Augmented Dickey Fuller Test
<b>AI</b>	:	Artificial Intelligence
<b>AGR</b>	:	Annual Growth Rate
<b>AMC</b>	:	Asset Management Companies
<b>ANOVA</b>	:	Analysis of Variance
<b>AUM</b>	:	Assets under Management
<b>ATM</b>	:	Automated Teller Machine
<b>CAR</b>	:	Compounded Annual Rate
<b>CAGR</b>	:	Compounded Annual Growth Rate
<b>CEO</b>	:	Chief Executive Officer
<b>CAPM</b>	:	Capital Asset Pricing Model
<b>CI</b>		Confidence Interval
<b>CIC</b>	:	Co-operative Insurance Company
<b>CIS</b>	:	Collective Investment Scheme
<b>CLRM</b>	:	Classical Linear Regression Model
<b>CMA</b>	:	Capital Market Authority
<b>EIMA</b>	:	Egypt Investment Management Association.
<b>EPS</b>	:	Earnings Per Share
<b>ETF</b>	:	Equity Traded Funds
<b>FinTech</b>	:	Financial Technology

<b>FSD</b>		Financial Sector Deepening Kenya
<b>ICI</b>	:	Investment Company Institute
<b>ICEA</b>	:	Insurance Company of East Africa
<b>IIFA</b>	:	International Investment Finance Association
<b>IoT</b>	:	Internet of Things
<b>KPMG</b>	:	Klynveld Peat Marwick Goerdeler
<b>LDR</b>	:	Loan to Deposit Ratio
<b>MANOVA</b>	:	Multivariate Analysis of Variance
<b>MF</b>	:	Unit Funds
<b>MFT</b>	:	Mutual Fund Theory
<b>MUFAP</b>	:	Unit Fund Association of Pakistan
<b>NAV</b>	:	Net Assets Value
<b>NSE-ASI</b>	:	Nairobi Stock Exchange All Shares Index
<b>NCBA</b>	:	National Commercial Bank of Africa
<b>NSE</b>	:	Nairobi Securities Exchange
<b>OLS</b>	:	Ordinary Least Squares
<b>OECD</b>	:	Organisation for Economic Co-operation and Development
<b>PWC</b>	:	PriceWaterCoopers
<b>RTA</b>	:	Registrar and Transfer Agents
<b>ROA</b>		Return on Assets
<b>ROI</b>	:	Return on Investment
<b>SACCO</b>	:	Savings and credit Cooperative Organization

<b>S.D</b>		Standard deviation
<b>SME</b>	:	Small and Micro Enterprises
<b>SEBI</b>	:	Securities and Exchange Board of India
<b>SEC</b>	:	Security Exchange Company
<b>TAM</b>	:	Technology Acceptance Theory
<b>TOC</b>		Table of contents
<b>UK</b>	:	United Kingdom
<b>USA</b>	:	United States of America
<b>USD</b>	:	United States Dollar
<b>UTI</b>	:	Unit Trust of India
<b>UTF</b>	:	Unit Trust Fund
<b>VIF</b>	:	Variance Inflation Factor

## OPERATIONAL DEFINITIONS OF TERMS

- Balanced Fund** : A type of Unit fund that invests in both debt and equity securities.
- Bond fund** : A type of Unit fund that invests predominantly in debt securities.
- Equity Fund** : A Unit fund that invests predominantly in equity securities.
- Financial Technology** : The use of digital tools and platforms by Unit Trust Funds to perform business processes more efficiently
- Financial Performance of Unit Trust funds** : The overall financial wellbeing of Unit Trust Funds for a specified period, Expressed as Return on Asset.
- Fund** : Refers to the Investment options like bond fund, equity fund, balanced fund and money market fund.
- Fund size** : The value of assets under management for the Unit funds.
- Jensen Index** : An index that compares the performance of Unit funds with the benchmarks.
- Market Index** : The performance measurement parameter for Unit Trust Funds against market performance.
- Money Market Fund** : A Fund that Invests mainly in Short term investments.

- NSE-ASI** : A market capitalization weighted index that represents the performance of Unit funds listed on Nairobi Stock Exchange.
- NSE 20SI** : A market capitalization-weighted index that tracks the performance of the top 20 stocks listed on the Nairobi Securities Exchange (NSE) in Kenya, provides a benchmark for investors to measure the performance of their portfolios.
- NSE 25SI** : A market capitalization-weighted index that tracks the performance of the top 25stocks listed on the Nairobi Securities Exchange (NSE) in Kenya. The index is designed to represent the overall performance of the Kenyan stock market and is considered a key benchmark for investors looking to invest.
- Neo Bank** : A digital financial company that offers banking services virtually.
- Portfolio** : Combined holdings of stocks, bonds, or other securities and assets in the Unit fund.
- Systematic Risk** : The undiversified uncertainty faced by Unit funds and the overall financial market Performance.
- Unit Trust Fund** : A collective investment scheme that pools money from multiple investors and invests in a diversified portfolio of financial assets such as bonds, equities, money market instruments and treasury bills.



# CHAPTER ONE

## INTRODUCTION

### 1.1 Background information

The financial performance of Unit Trust Funds remains a critical indicator of investment efficiency, financial stability, and investor confidence within capital markets (Markowitz, 1952; Sharpe, 1964). Unit Trust Funds play an essential role in mobilizing savings and channeling them into productive investments, thereby enhancing capital formation and economic growth (Muriithi & Muturi, 2018). However, in many emerging markets, including Kenya, the performance of Unit Trust Funds has remained inconsistent, constrained by operational inefficiencies, limited innovation, and high management costs (CMA, 2023). As investors increasingly demand transparency, agility, and better returns, the sector faces mounting pressure to enhance performance and competitiveness.

Unit Trust Funds (UTFs) are collective investment schemes that pool resources from multiple investors to invest in a diversified portfolio of securities such as equities, bonds, money market instruments, and other assets. According to report by the Financial Sector Deepening Kenya, (2022), in Kenya, these funds have become an increasingly significant component of the financial system, offering retail and institutional investors a professionally managed investment avenue with lower risk exposure compared to direct investment in capital markets

The Kenyan Unit Trust Industry has evolved considerably since its inception in the early 1990s, gaining momentum after the enactment of the Capital Markets Authority (CMA)

Act (Cap 485A), which provided the legal and regulatory framework for collective investment schemes. Over the years, policy reforms and the development of the Capital Markets (Collective Investment Schemes) Regulations of 2001 have enhanced governance, transparency, and investor protection in the sector. Unit trust funds in Kenya are typically categorized into Money Market funds, equity funds, balanced funds, bond funds, and specialized funds. Money market funds remain the most dominant category due to their stability, liquidity, and relatively predictable returns. Equity and balanced funds cater to investors seeking long-term capital appreciation, while bond funds are preferred for income stability and reduced market volatility.

In terms of Market growth and Trends, reports by the Capital Markets Authority (CMA, 2024), states that the Kenya's unit trust industry has experienced substantial growth in assets under management (AUM), driven by increased investor awareness, financial inclusion initiatives, and technological innovations in fund distribution and management. (Makina, 2019). According to Capital Markets Authority (CMA) Quarterly Statistical Bulletins, by December 2024, there were over 30 licensed collective investment scheme managers, managing funds worth more than Ksh 250 billion, compared to less than Ksh 50 billion a decade ago. This growth has been supported by, increased mobile and digital platforms enabling easier onboarding and redemption. Expansion of retail participation, facilitated by lower minimum investment thresholds, Integration with fintech solutions such as digital wallets, payment gateways, and automated investment platforms that simplify access and improve transparency and rising investor awareness.

Additionally, increased adoption of financial technology (FinTech) platforms for online onboarding, digital payments, and portfolio access and the expansion of product variety, including money market funds, equity funds, balanced funds, and fixed income funds, catering to different risk appetites. The supportive regulatory reforms and CMA investor education programs contributing to the growth in AUM.

Concerning the regulatory and Institutional Framework, the Capital Markets Authority serves as the principal regulator, ensuring compliance with investment guidelines, disclosure standards, and risk management practices. The Collective Investment Schemes (CIS) framework requires fund managers to appoint trustees and custodians, ensuring separation of roles and protecting investor assets. Additionally, fund performance reporting has been strengthened through periodic disclosures and standardized reporting templates. These regulatory improvements have enhanced investor confidence and contributed to the sector's steady expansion.

A report by FSD (2023), states that Unit Trust Funds in Kenya represent a dynamic and rapidly evolving segment of the financial system. Their growth is attributed to a supportive regulatory framework, expanding fintech adoption, and increased investor participation. The sector's sustainability depends on continuous innovation, stronger risk management, and enhanced investor education. Fintech has become a critical driver of efficiency and inclusivity in the financial sector generally.

The governance of UTFs is designed to ensure investor protection, transparency, and professional fund management. Each fund typically involves four principal parties (Fund managers, Trustee, custodian, and auditor). Fund Manager is Licensed by the CMA to manage investments and make portfolio decisions in line with the fund's objectives and trust deed. Trustee is usually a bank or financial institution approved by the CMA, responsible for safeguarding investors' assets, ensuring compliance with the trust deed and regulations. The custodian holds the fund's securities and cash, effecting transactions as instructed by the manager and approved by the trustee. Lastly the auditor conducts independent audits of the fund's financial statements to enhance transparency and accountability.

This governance framework creates checks and balances among the parties, ensuring that fund managers act in the best interest of investors and that assets are properly safeguarded. The growth and governance of unit trust funds align with Kenya's Vision 2030 goals of deepening financial markets and promoting inclusive economic growth. UTFs provide an efficient channel for mobilizing savings and directing capital into productive investment sectors, thus playing a vital role in the national development agenda.

The unit trust funds are of economic significance as they play a growing role in Kenya's financial system and economy by mobilizing domestic savings from both retail and institutional investors, providing investment diversification opportunities, especially for small investors who might lack the capital or expertise to invest directly in securities. Also enhancing capital market development by channeling funds to government securities market. They support financial inclusion through digital distribution channels that make

investment accessible to a wider population. Lastly they contribute to economic stability by offering alternative savings and investment instruments, thereby deepening financial intermediation.

In America, Unit Trust Funds are performing above board, and the utilization of FinTech in the sector is considered the main cause for the exponential growth (Aicha, 2023). The Mordor report, (2023) attributes the impressive performance of American funds to high uptake of FinTech, evidenced by increased Fintech startups from 5,868 in 2018 to 11,651 firms in 2023. The overall adoption rate increased by 38% between 2020 and 2022. There was a high growth in fund size (USD25.7 trillion) AUM with more than 10,000 funds due to the use of digital deposit platforms that allowed remote transactions.

In wealth management, modern technologies like AI, Internet of Things, and Robo advisors are used in data analysis (Ghosn, 2025). Machine learning is utilized to offer financial advisory services, make investment decisions, manage risks, and build optimal portfolios for optimal returns (Aicha, 2023). Information is shared digitally, eliminating information asymmetry and solving market imperfections to enhance fund growth. The digitization of the payments, deposits, asset management, and risk management spectrum is the key to the meteoric rise in the Unit fund industry in recent years (Kumar &Ali, 2020).

The Unit Trust fund sector in China introduced Fintech in its operations by the year 2012 and thereafter consistently reported improved performance in terms of expanded fund size (Ahlem et al, 2021). According to Hong et al (2023), there was a rise in the number of funds managed by FinTech from 2012 to 2013 by 60%. By the year 2018, Fintech firms

had grown to 115 in number resulting in an exponential growth occasioned by the management of portfolios remotely using digital apps, digital deposits using e-wallets, and enhanced risk management by use of high-level technology to monitor risks.

According to Li, et al (2023), the Unit Trust Funds with Fintech platforms in China report a steady growth in net income, for example in the year 2015, 20% of income was from fintech firms, 22% in 2016, 35% in 2017, and 42% in 2018. In 2021, the total assets grew to more than USD3.53T representing a growth rate of 99.4% in fund size, and in 2022 the AUM grew to USD 3.85trillion. This is attributed to the use of AI and Robots in portfolio management, risk management, and digital deposit platforms (Zhang, 2024). According to Chitavi, Cohen, and Hagist, (2021), China holds the lion's share of the global fintech market at 46% as at 2018 sales, approximately \$25.5 billion, thus the largest global market. The Mordor Report (2023) forecasts a compounded annual growth rate of 3.2% over the next 5 years due to the high-level technology employed in China Unit Trust funds.

Financial performance in the Indian Unit Trust funds has shown impressive trends since its inception in 1963, and by 1993, AUM was Rs. 47,000. According to Sankarareman, Ragothaman, and Ruparel, (2020), Unit funds using FinTech are reporting more growth than traditional funds. Between 2016 and 2017, fintech firms outperformed market expectations giving a positive return. The Indian Unit fund sector accounts for 53.60% of total gross value added (USD39.9Bn), which is more than half compared to all the other sectors. The utilization of technology through AI in fund management, risk management, and digital transactions allows for the active participation of investors in the management of their wealth hence building investor confidence (IIFA, 2024).

The Indonesia market has shown an upward trajectory since its inception, where Fintech was introduced in 2017. In the year 2020, the sectors' contribution to the GDP was at 3%. According to Satya and Wulaningrum (2022), by 2021, the number of investors had grown to 7.4M single investors representing a rise of 569% with an AUM of 5.096B from 2017, 73.99% of investors managing investments using digital platforms. Most of the clientele are young investors, accessing financial services digitally at the rate of 83.16%. According to World Bank Global Economic Prospects, (2019), on aggregate, the AUM grew at 4.4%, in 2018, and was expected to grow by 5.2% in 2019 and 5.4% in 2020 (KPMG, 2018). These growth prospects were based on the technological trends in the sector.

In Morocco and Tunisia, financial technology is being embraced in business operations with impressive growth trends (Moroccan Capital Markets Authority, 2023). According to Cai et al, (2021), the financial performance of Unit funds in Ghana is steadily growing though still on a small scale. However, investors have been enabled technologically to invest as low as 1 dollar using digital platforms. This is expanding the market to remote areas and growing the fund size (Kwesi, 2023).

A steady growth in fund size is being witnessed in Nigeria due to the use of digital platforms to create awareness among clientele in remote areas (Igbinosa, 2019). The Nigerian fund size was 181.35B Naira in 2014 and when the sector opened its doors to financial technology which encouraged digital deposits remotely, the fund grew to 750.37B naira by June 2019, representing a growth rate of more than 410% (SEC, 2020). The performance of unit funds is influenced by management practices and market

dynamics. Udofa et al (2024) found that the perfume unit trust funds in Nigeria largely depends on fund composition and efficiency in management.

In Kenya, the unit trust (or collective investment scheme) industry is relatively young compared with mature markets and has gone through distinct phases of regulatory establishment, early fund launches, and more recent rapid growth. The legal and regulatory foundation was laid by the Capital Markets Authority (CMA) via the Capital Markets (Collective Investment Schemes) Regulations, 2001, which empowered the regulator to license and supervise collective investment schemes (CIS) including unit trusts. (CMA, 2021). The first unit trust scheme in Kenya was registered in 2002, marking the formal launch of the industry. (Maiyo, 2006; IJEBMR, 2018)

In the early years the number of funds was very limited, and money-market funds dominated given their relatively low risk and liquidity appeal. By 31 March 2017 there were 17 schemes operating with assets of about USD 558 million, of which money-market funds represented roughly 77.6 % of AUM (CMA, 2021). As the industry matured, new sub-fund types emerged (balanced funds, equity funds, fixed-income funds, special funds, Shariah-compliant funds), and the number of investors and size of assets under management (AUM) grew significantly. For instance, as of December 2024 the number of licensed collective investment schemes had reached 55, and AUM was reported at KSh 389.2 billion. (Muiruri, 2024, December 10, p.1). Moreover, as of Q1 2025 the industry's AUM had climbed to approximately KSh 496.2 billion, representing a year-on-year increase of about 120.2 % and a three-year compound annual growth rate (CAGR) of 52.2 %. (Cytonn Research, 2025)

This growth is important in illustrating that the expanding scale and diversification of unit trusts provide the contextual background for the fintech variables used in the study (digital payments, digital deposits, digital portfolio management, and digital risk management). The steady growth in funds since 2002 to now helps interpret the effect of fintech adoption in a dynamic environment. Retail-investor access is enhanced by the low minimum entry requirements and increasing investor numbers (1.4 million investors by December 2024) suggest that digital-enabled access through mobile payments, online onboarding and e-subscriptions play a significant role in bringing new retail flows. (CMA, 2024). Product diversification & fund size has led to growth in categories. The fund categories come with different dynamics, for example the historically dominant money-market funds may have different dynamics (lower risk, less equity exposure) compared to newer equity or balanced funds, and fintech adoption might yield differing performance effects across these fund types.

The study puts into consideration the data period since the industry has grown quickly in recent years, to capture recent fintech adoption periods from 2014 to 2023 to help align measurement of digital constructs with meaningful change in the industry context. The Kenyan sector has grown from a handful of schemes dominated by money-market funds to a diversified landscape with increased number of licenses, billions of shillings in AUM, and retail investor flows measured in the millions (FSD, 2022). This evolution provides a useful backdrop for your investigation of how fintech variables (digital payments, digital deposits, etc.) interact with fund size and performance of mutual funds in Kenya.

The Kenyan Unit fund sector plays an integral role in economic development and the realization of Vision 2030 on financial stability which aims at raising savings and

investments from 17% to 30% (Ndanu & Gatauwa, 2023). According to FSD, Kenya 2023 report, the sector contributed to the GDP at the rate of 4.6% in 2023 which is quite modest. According to the Kenya Finance Sector Stability Report (2020), the financial performance of Unit funds in Kenya has been unattractive raising concerns that erode investor confidence.

### **1.1.1 Financial Technology**

Financial technology (FinTech) refers to the automation of financial services by the use of specialized software and algorithms on computers, smartphones and other digital gadgets to enhance service delivery and improve financial performance (Thakor, 2019). According to Kumar & Ali (2020), financial technology has revolutionized the financial sector and disrupted the traditional finance system by providing faster, secure, and convenient methods of trade that enhance customer experience through excellent service delivery. Fintech, also referred to as digital finance, is being utilized in private companies, corporate organizations, and government to improve financial performance (Schaus, 2016).

The rapid integration of financial technology (FinTech) has significantly influenced the governance, accessibility, and performance of unit trust funds in Kenya. Digital innovations such as mobile money platforms, online fund portals, automated payment systems, and digital risk management tools have enhanced operational efficiency, transparency, and investor confidence. Fund managers now leverage digital platforms for real-time reporting, compliance monitoring, and investor communication, thereby strengthening governance structures and accountability. Moreover, the use of digital

payment and deposit channels has simplified fund subscription and redemption processes, reducing transaction costs and expanding outreach to previously untapped retail investors.

FinTech adoption has contributed to the steady growth in assets under management, improved liquidity, and greater participation in the capital markets. These developments align with the CMA's drive to promote digital transformation and inclusive financial market participation as part of Kenya's Vision 2030 financial sector reforms. The introduction of digital payments, online deposits, Robo-advisory services, and digital risk management tools has transformed how funds are managed and distributed. Mobile money platforms like M-Pesa and mobile apps developed by fund managers, for example the CIC Money Market Fund app, Sanlam Investments' digital portal, and ICEA Lion's Digi-Trust platform have made investment transactions seamless and near real-time. The effect of these technologies ought to be reflected in the overall performance of the funds.

A Study by Anyfantaki (2016), states that the evolution of financial technology has introduced disruptive innovations that are reshaping the delivery of financial services globally, with significant implications for the asset management industry. In Kenya, the fintech revolution has gained momentum, supported by high mobile penetration and proactive regulatory support. Unit funds, as key vehicles for mobilizing savings and allocating capital, are increasingly leveraging fintech to improve efficiency, enhance investor experience, and broaden market access.

Recent developments in technology have spurred a rise in financial technology which utilizes new digital technologies in financial management and data analytics to enhance

automation of financial services. With the advent of sophisticated technologies like the Internet of Things, AI, robots, and smart apps, firms including Unit funds are rolling out innovative products and services that offer potential solutions to financial challenges. Financial technology is a concept that is worthy adopting in firms for purposes of posterity since the world systems are turning digital, the global and regional markets are utilizing it on a large scale with remarkable outcomes (CMA, 2023). It entails the automation of repetitive tasks coupled with expedited data analysis, which furnishes financial institutions with heightened operational efficiency while concurrently curtailing the prevalence of manual errors (Kou & Lu, 2025). In this study, Fintech integration has been discussed in disaggregated form of digital payments, digital deposits, digital portfolio management, and digital risk management.

Globally FinTech is utilized across most financial sectors like banking, SMEs, real estate, and MFIs's with impressive results (Yogeshi, 2021). Caught in the web of digitization, the CIS sector globally is utilizing Fintech across in its business and financial processes. This is positively impacting financial performance and general fund growth as witnessed in developed economies like the USA, China, and Britain (Akash & Manda, 2021). Most of these developed economies embraced Fintech quite early compared to Kenya and have witnessed exemplary performance both in terms of financial performance and fund growth (Investment Company Institute, 2023).

The global financial landscape has undergone significant transformation driven by advances in financial technology (FinTech), which is described as the application of innovative digital tools to enhance financial services and markets (Arner, Barberis, &

Buckley, 2015). FinTech innovations have revolutionized how financial institutions operate, providing efficient, low-cost, and accessible solutions across payments, lending, investments, and risk management. The World Bank (2022) notes that FinTech has become a critical enabler of financial inclusion, efficiency, and transparency, particularly in emerging markets where traditional banking infrastructure is limited.

The evolution of FinTech can be empirically traced through three distinct phases. The first phase (1960s–1980s) saw the digitalization of traditional banking infrastructure through electronic fund transfers (EFTs), automated teller machines (ATMs), and computerized ledgers. The second phase (1990s–2008) was characterized by internet banking and online financial services, which significantly lowered transaction costs and expanded access to credit and savings products (Frame & White, 2004). The third phase (post-2008) introduced a wave of startups and financial platforms leveraging technologies such as big data, blockchain, mobile applications, and artificial intelligence to disrupt conventional financial intermediation models (Arner et al., 2015).

Empirical research supports the positive role of FinTech in improving financial performance and efficiency. Zhao, Zhang, and Yin (2021) found that FinTech and regulatory technology (RegTech) significantly enhanced financial development and inclusiveness across Chinese cities. Similarly, Beck, Chen, Lin, and Song (2016) demonstrated that financial innovation fosters cost efficiency and risk diversification. In developed markets, studies have shown that FinTech contributes to better capital

allocation, operational efficiency, and improved customer experience (Gomber, Koch, & Siering, 2017).

In emerging regional economies, FinTech has been instrumental in expanding access to financial services, especially through mobile money platforms. FinTech adoption has gained remarkable traction in emerging markets, where it serves as a powerful driver of financial inclusion and economic growth (Makina, 2019). Unlike developed economies where FinTech mainly enhances efficiency, in developing regions it has bridged gaps in access to formal financial services through innovations in mobile money, digital lending, and online investments (Thakor, 2020). According to the World Bank (2022), digital financial services have lowered transaction costs, expanded savings options, and facilitated small-scale investments, making financial inclusion a reality for millions previously excluded from the formal banking sector.

In Africa, FinTech growth has been catalyzed by mobile phone penetration, youthful demographics, and limited physical banking infrastructure (Dahir, 2021). The GSMA (2022) reports that Sub-Saharan Africa hosts more than 60% of the world's mobile money accounts, underscoring the continent's role as a global FinTech leader. The continent's FinTech market is projected to reach US\$65 billion by 2030, driven by innovations in payments, credit scoring, wealth management, and insurance technologies (Briter Bridges, 2022). These developments demonstrate how Africa has leapfrogged traditional banking models to embrace mobile-based financial ecosystems that enhance access and affordability.

In Kenya, Fintech was introduced in 2007 with the launch of the Mpesa platform by Vodafone's Kenyan associate, Safaricom. Being Africa's first mobile payment service provider, Mpesa has been the major driver of financial technology, innovation, and inclusion and has steadily grown to accommodate most financial industries. The Kenyan FinTech ecosystem represents one of the most advanced in Africa (FSD Kenya, 2023). The launch of M-Pesa by Safaricom in 2007 revolutionized financial intermediation by enabling users to transfer money, save, and access microloans through mobile phones (Jack & Suri, 2011). This innovation positioned Kenya as a global FinTech pioneer and stimulated the growth of complementary products such as M-Shwari, KCB M-Pesa, Tala, Branch, and Pesa-link, which integrate savings, credit, and investment services into digital platforms (Central Bank of Kenya (CBK), 2023).

Through the Mpesa platform, Fintech is slowly finding its way into the Unit fund sector through the CMA, which has shown great interest in admitting Fintech firms to the regulatory sandbox (Deloitte, 2017). The first one was Innova Limited in 2019, which deals with cloud-based data analytics. The second was Pezesha Africa Limited, a platform that deals with internet-based crowd-funding that allows SMEs to access loans. The Waanzilishi Capital Limited, a licensed investment advisor, offers Robo-advisory solutions using an online app called Ndovu app to provide automated financial planning services for discretionary portfolio management (Tanui, 2021).

The CMA graduated Sycamore Capital Limited from its regulatory sand box, enabling the launch of its mobile app "Cashlet", which allows investors to access money market funds via digital platform (CMA, 2024). The KOA Save Africa Ltd assists retail investors to save

and invest in capital markets using AI. Moneta Ventures Ltd uses an online app called Chumz App that deals with behavioral psychology techniques to encourage investors on investment culture. The FourFront Management Ltd, a Robo-advisor, provides automated, algorithm-driven financial planning and investment services with little or no human interaction to offer investment advice and services automatically. ). The CMA continues to admit new fintech innovations for live testing in its regulatory sand box (CMA, 2024)

Recent studies affirm that FinTech has substantially influenced Kenya's financial sector performance. For example, Musau and Muathe (2022) found that digital platforms significantly enhanced the operational efficiency and profitability of investment firms, while Mutiso and Nzulwa (2021) reported that financial technology adoption improved service delivery and customer satisfaction among commercial banks. Similarly, KPMG (2023) noted that FinTech adoption in Kenya's capital markets, facilitated by the Capital Markets Authority (CMA) regulatory sandbox, has encouraged innovation in fund distribution, risk analytics, and portfolio management.

Recent advancements in FinTech have emerged as a transformative force for reshaping the efficiency and performance of financial intermediaries. FinTech tools such as digital payments, digital deposits, digital portfolio management, and digital risk management offer opportunities to improve liquidity management, reduce transaction costs, and optimize investment decisions (Lee & Shin, 2018; Gomber et al., 2018). Globally, the integration of FinTech has enhanced fund efficiency through automation, analytics, and investor engagement platforms (Vives, 2019).

In Kenya, initiatives by the Capital Markets Authority (CMA) and the rise of mobile-based investment platforms such as KOA, Chumz, and Moneto have accelerated digital transformation in collective investment schemes (CMA, 2023). Despite these developments, empirical evidence on how FinTech adoption influences the financial performance of Unit Trust Funds in Kenya remains limited. This gap underscores the need to examine the extent to which FinTech integration contributes to improved performance outcomes within Kenya's mutual fund industry.

Despite these advances, the application of FinTech within collective investment schemes (CIS) such as unit trust funds remains underexplored. Most innovations have concentrated on mobile payments and banking, with limited empirical analysis on how FinTech enhances fund performance, efficiency, and investor engagement (Gitonga, Kariuki, & Kariuki, 2021). Given the rapid digitization of Kenya's capital markets and growing investor demand for convenience and transparency, it is imperative to assess how FinTech solutions such as digital deposits, digital portfolio management, and digital risk systems affect the financial performance of unit trust fund

According to Ndungu and Muturi (2020) uptake of innovation and limited digital financial technology in Kenya remains relatively low and constrained. Thus, the Kenyan case presents a unique opportunity to extend the understanding of FinTech beyond traditional banking, toward its institutional adoption in investment fund management linking technology, fund size, and financial outcomes within the broader digital finance ecosystem. The use of FinTech in the enhancement of Financial Performance of Unit Funds has emerged as a transformative force in the financial industry, with the potential to disrupt

traditional financial services and improve operational efficiency in various aspects (Katwala & Sadhwani, 2024). One area where FinTech has shown significant impact is the financial performance of Unit funds is in operational efficiency (CMA, 2023). Existing research suggests that the integration of FinTech in the Unit fund industry has the potential to enhance the financial performance of these funds (Suryono, Budi & Purwandani, 2020).

Theoretical basis stems from the Technology Acceptance Model by (Davis, 1989) which states that technological innovation adoption depends on perceived usefulness and ease of use. In financial services, these dimensions manifest through the core FinTech applications that improve fund operations, client experience, and decision-making. Similarly, building on Financial Intermediation Theory (Schumpeter, 1912; Gurley & Shaw, 1960), FinTech acts as a modern intermediary enhancing efficiency in mobilizing savings, allocating capital, and managing risk. The selected constructs represent these intermediary roles within the unit trust fund (UTF) ecosystem.

Digital Payments facilitate efficient fund contributions and redemptions, reducing transaction frictions through transactional costs and information asymmetry. The digital deposits enhance the mobilization and pooling of investor resources through online platforms and mobile savings tools. Similarly, digital portfolio management portfolio management improves investment decision-making, asset allocation, and performance tracking via analytics and robo-advisory tools. Finally, digital risk management supports risk identification, forecasting, and mitigation using AI, data analytics, and cybersecurity tools. This conceptualization aligns with Classical Profit Maximization Theory (Marshall, 1890), which emphasizes on technology as a driver of cost efficiency and profitability,

while the Capital Asset Pricing Model by (Sharpe, 1964), uses technology to help optimize returns relative to risk.

This study discussed fintech in its disaggregated form reflecting four fintech dimensions of digital payments, digital deposits, digital portfolio management, and digital risk management. This is anchored on theoretical grounding, regulatory definition, and empirical evidence from both global and Kenyan contexts. Institutional and Policy Authority supports the conceptualization, where the he OECD (2022), World Bank (2021), and Central Bank of Kenya (CBK, 2023) recognize these four functional categories as core pillars of financial technology adoption in financial institutions and capital markets. The CBK (2023) National Payment Strategy and Capital Markets Authority (CMA, 2022) identify digital payments and digital deposits as foundational enablers of financial inclusion and capital mobilization.

The CMA Regulatory Sandbox Reports (2022–2023) highlight digital portfolio management tools such as robo-advisors and mobile investment apps (e.g., KOA, Chumz, Moneto) as innovations transforming fund management. Digital risk management is emphasized in Basel Committee (2022) and KPMG (2023) frameworks as central to digital governance, cybersecurity, and investor protection. Therefore, fintech constructs used in the study directly correspond to recognized FinTech domains under regulatory and policy frameworks.

The choice of the constructs as well have empirical Authority, where empirical literature further supports the disaggregation of FinTech into these four constructs; Digital Payments, which is proven to enhance operational efficiency and fund inflows (Ozili,

2020; IMF, 2021). Digital Deposits; which strengthen liquidity and savings mobilization (Beck, 2020), digital Portfolio Management which increases fund transparency and decision efficiency (Lee & Shin, 2018), and lastly digital Risk Management which reduces operational risk and enhances investor confidence (Arner, Barberis & Buckley, 2020).

This multidimensional approach allows a comprehensive assessment of FinTech's effect on fund performance rather than treating it as a monolithic construct, this addressing the conceptual and empirical gap in previous studies that examined FinTech adoption broadly without functional disaggregation. This leads to conceptual Integration, whereby the conceptual model recognized FinTech as a multi-dimensional construct influencing financial performance through four operational pillars, each corresponding to a distinct technological intervention point within the fund value chain. This is consistent with OECD (2022) and World Bank (2021) classifications of FinTech ecosystem functions. The fintech effect is assessed within the digital value chain, touching on functionality of UTFs.

Digital payments, which allow transacting, transferring, and investing remotely are considered the most popular payment methods around the world, commanding a significant share of financial markets with much preference (Tobing & Wijaya, 2020). It's characterized by the use of E-payments like e-wallets, contactless cards (tap and go or tap and pay) and customized mobile/ smart apps. Digital deposits allow investors to remotely top up their investment accounts using technology (Niepelt, 2018). It entails capturing the

image of a payment mode and depositing it to an enrolled Account via an approved access device using specialized software (Banson, & Sakoe, 2022).

Digital portfolio management involves the use of advanced technologies like AI, Robo advisors, the Internet of things and other machine learning in data analysis, and arranging huge data in an organized manner for investment decision-making and financial advisory to investors (Kou & Chao, 2019). Advanced technologies like the machine learning has surfaced as a transformative technological paradigm, instigating revolutionary changes across diverse industries, and the finance sector is no exception (Kou & Lu, 2025). This extends to the use of digital tools like chatbots in responding to customer inquiries real time. For example; Safaricom uses the Zuri app, Equity Bank uses the Eva app and ICEA Lion uses the Leo app to respond to customers' queries and provide guidance on investment decisions and opportunities available.

Digital risk management involves monitoring risks arising from digital platforms by detecting possible threats and risks to data and IT systems (Yang et al, 2022). It entails the use of customized mobile apps, coding, Two-factor authentication, facial recognition, Encryption and tokenization to mitigate cybercrimes and other online threats (Ali & Panda, 2018). According to Osewe, (2020), investors are risk-averse and focus on minimizing risk at a given level of returns. According to Mihret, (2020), Artificial intelligence and robotics are very recent technologies and risks for our world. In developed economies, the Internet of Things is used in fraud detection and security beefing through gadgets like CCTVs. AI and Robo-advisors are used in risk assessment of investments with large volumes of

complex data before engagement and thereafter to monitor to enhance effective investment practices.

Although FinTech is widely recognized for improving efficiency, inclusion, and performance, several empirical studies reveal that its effects can also be negative or conditional, depending on contextual factors such as fund size, technological readiness, and governance capacity. Empirical evidence by Li, Zhang, and Yang (2025) indicates that increased FinTech exposure by large banks and Big Fintech firms has a crowding-out effect on smaller firms, leading to decline in small business lending. This suggests that technology adoption can create competitive disadvantages for smaller players with limited digital capacity. By analogy, smaller unit trust funds may similarly struggle to compete with larger, digitally enabled funds, thereby moderating the FinTech–performance relationship.

Furthermore, Khorana and Qian (2023), in a paper entitled ‘The Dark Side of the FinTech Revolution’, stated that rapid digital credit expansion is associated with reduced bank stability (lower z-scores), implying higher financial vulnerability. Such findings highlight that unregulated FinTech growth can amplify systemic and operational risks, especially where cybersecurity and data management systems are weak. Similarly, Chen and Zeng (2023) analyzed digital transformation in banks and observed a U-shaped relationship between FinTech development and profitability with initial adoption phases causing short-term performance declines before efficiency gains materialize at higher levels of technological maturity. This suggests that the benefits of FinTech adoption are non-linear,

contingent upon organizational preparedness and the scale of implementation, a dynamic that may equally apply to unit trust funds in emerging markets like Kenya.

From a developmental perspective, Hikouatcha et al. (2023) found that FinTech adoption among small business managers in Cameroon did not significantly improve financial outcomes for those with low financial literacy levels. This emphasizes that technological capability alone does not guarantee financial performance improvement; rather, complementary human capital and regulatory oversight are crucial. Taken together, these studies underscore that while FinTech has the potential to enhance performance, it can also introduce new risks, inefficiencies, and inequalities. For unit trust funds, these mixed outcomes justify the inclusion of fund size as a moderating variable, since the magnitude and direction of Fintech's impact may vary across fund categories depending on resource capacity and technological readiness.

Despite its benefits, FinTech adoption in Unit Trust Funds also presents several challenges such as over-reliance on digital platforms exposes funds to cybersecurity threats, data privacy concerns, and system disruptions that may undermine investor trust. Additionally, regulatory gaps and uneven digital infrastructure can hinder consistent oversight and fair access across different fund types. Therefore, while technology enhances efficiency and inclusivity, strong digital risk management and regulatory alignment remain essential to safeguard investors and sustain sector growth.

Unit funds are experiencing interruptions occasioned by the digital technology (Puri & Singh, 2024). The emergence of technology especially in developed economies, is being

utilized as a tool for digital transactions and trade, portfolio management, risk management, and market expansion (Yogeshi, 2021). Through digital platforms, investors can transact remotely on smartphones in the comfort of their homes. Clients are seen to show a preference for digital platforms due to their convenience and efficiency.

### **1.1.2 Financial Performance**

The performance of Unit funds has been discussed from the finance perspective referring to how healthy a firm is utilizing its resources to generate wealth for the shareholders in the form of profits or returns on investments (Nthimba, Jagongo & Wamugo, 2021). The financial performance of Kenyan Unit fund sector is significant, playing an integral role in economic development by contributing to the GDP (Ndanu & Gatauwa, 2023). The African vision 2063 goal number four on transformed economies focuses on sustainable economic growth, fostering sustainability and inclusiveness by use of science and technology for job and business creation.

Financial performance has been defined by Omollo, Muturi, and Wanjare, (2018), as a periodic review of a firm's financial well-being aimed at determining the financial health of the firm based on how it has utilized its available capital in the production for better shareholder returns. Performance review is done periodically, mostly, annually by firm management to evaluate the trend and hence make financial decisions and comparisons on how the firm is financially performing against competitors of similar sectors (Olusuyi & Araoye, 2017).

According to Cheruiyot and Jagongo, (2022), different measures have been used by the researchers to measure performance and they are classified into accounting-based and market-based indicators by utilizing the financial ratios calculated from the firm financial statements or otherwise through the use of market share prices. The performance is expressed as a profit or loss, surplus or deficit, or better still as a return on investment. Other metrics used in prior studies in evaluating the performance of Unit funds include the Jensen's ratio Sharpe ratio, and Treynor ratio (Satya & Wulaningrum, 2022).

Theoretically financial performance reflects how effectively an organization uses its resources to achieve financial objectives such as profitability, growth, and shareholder value. According to Brigham and Ehrhardt (2017), financial performance represents the degree to which a firm maximizes wealth and achieves efficiency in utilizing its assets to generate returns. In the context of unit trust funds, financial performance is seen through return on Assets, returns to investors, fund growth, and risk-adjusted efficiency, aligning with the classical profit maximization theory and the capital asset pricing model.

From a managerial and operational viewpoint, financial performance indicates the efficiency and effectiveness of decision-making and fund management. According to Kaplan and Norton (1996), performance must be viewed not only in financial terms but also through strategic indicators that capture value creation, such as portfolio diversification, liquidity, and digital integration. In this view, FinTech adoption contributes to performance by reducing transaction costs, enhancing operational efficiency, and improving fund accessibility and transparency.

Empirically, financial performance is quantified using key financial ratios and indicators including profitability using Return on Assets (ROA) which is the Net income divided by total assets, basically used to measure efficiency in asset utilization. Another metric is Return on Equity (ROE) which is the Net income divided by shareholder equity, used to show the returns generated on investors assets. The study therefore defined financial performance of unit trust funds in Kenya, as the extent to which a unit trust fund achieves efficiency, profitability, and growth in managing investors' assets, as reflected through indicator; Return on Assets (KPMG. (2023).

Although Net Asset Value (NAV) is traditionally used to assess mutual fund performance, this study employed Return on Assets (ROA) as the key measure of financial performance to better align with the study's focus on operational efficiency and profitability. NAV reflects the market value of assets minus liabilities at a given point in time, making it highly sensitive to daily market fluctuations and less indicative of managerial effectiveness or the efficient use of assets (Kaur & Kaushik, 2016). ROA measures how effectively a fund's total assets generate profits, providing a broader and more stable indicator of performance over time (Afolabi, 2020).

Furthermore, secondary data from the Capital Markets Authority (CMA) and fund managers' audited reports were more consistent in providing information required to compute ROA, namely, profit before tax and total assets, across different fund categories and periods. NAV data, however, varies widely in reporting formats and frequency, limiting comparability across funds. Prior studies have also employed ROA as a robust proxy for fund performance in financial technology and investment efficiency contexts

(Ngugi, 2022; Ouma & Jagongo, 2019). Therefore, ROA was chosen because it provides a standardized, comparable, and profitability-oriented measure that captures the real impact of FinTech adoption on fund efficiency and performance, beyond market-based fluctuations captured by NAV.

### **1.1.3 Fund Size**

Fund size refers to total assets managed by the fund on behalf of investors. According to Simiyu et al (2023), fund size affects fund performance, therefore Unit funds should strive to attain an optimal fund size to achieve sufficient returns to justify the cost of investment. The fund size ought to be optimal enough to achieve the preferred outcome, while avoiding the effects of diminishing returns to information acquisition and trade, which grow negative as fund size exceeds optimal size. Small-scale funds tend to attract diseconomies of scale and slow down fund growth.

Fund size is commonly proxied as the total net asset under management by a fund a a given period of time, representing the cumulative value of investor contributions and reinvested earnings ( Chen et al, 2004). In some cases, the size of the fund speaks about its performance. Assessing the firms' AUM helps build investor confidence and so most investors tend to prefer large-sized funds due to investor trust (Farid & Wahba, 2022). Small-sized funds tend to scare away investors because it portrays a struggling fund. Therefore, fund size is used in other economies to explain the success of Unit funds (Nthimba et al., 2021).

According to Simiyu et al (2023), fund size affects fund performance, therefore an optimal fund size is preferred to achieve sufficient returns to justify the cost of investment and cope with the effects of diminishing returns when the firm is too large, it exceeds the optimal size and the returns become negative. Small-scale funds tend to attract diseconomies of scale and slow down fund growth. Therefore, fund size ought to be optimal enough to achieve the preferred outcome.

From a theoretical standpoint, fund size refers to the total value of assets managed by an investment fund at a given time, typically measured as Assets Under Management (AUM). According to Chen, Hong, Huang, and Kubik (2004), fund size represents “the scale of a fund’s investment capital, determining its ability to diversify, exploit economies of scale, and influence market performance. In mutual fund theory, larger funds can benefit from economies of scale, spreading fixed costs (e.g., research, management fees) over a broader asset base thereby potentially improving net returns. However, excessively large funds may experience diseconomies of scale, where increased size reduces agility and limits investment flexibility.

From a managerial or operational perspective, fund size reflects investor confidence and managerial efficiency. Larger funds often attract more investors because they signal credibility, stability, and performance history (Ferreira et al., 2013; Mutua 2022; Mugo & Kamau 2021). Fund managers of larger funds have greater access to analytical tools, skilled personnel, and diversified investment opportunities, enhancing performance through improved decision-making and risk management. However, as fund size grows,

bureaucratic rigidity and portfolio crowding can emerge, reducing the ability to exploit niche or high-return opportunities (Pollet & Wilson, 2008).

Empirically, fund size mainly reflects the scale of resources a fund manages which influences its performance, liquidity and efficiency. Typically measured using various key indicators and metrics such as Assets Under Management (AUM) which refers to the total market value of all financial assets managed by the fund on behalf of investors. It's considered the core measure of fund size as it reflects the funds capacity, investor confidence and market reach larger funds are associated with economies of scale, improved diversification and lower management costs (Wafula, 2023).

Fund size can also be measured as the Net Asset Value (NAV) which represents the per unit market of the fund's total assets less the total liabilities. It's basically the difference between total Assets and total liabilities expressed as a ratio of Units Outstanding (Elton et al, 2012). This reflects the value per investment un. In this study fund size has been operationalized using AUM (lnAUM) representing the total market value of all assets held under a unit trust fund management. This is consistent with prior empirical studies (Chen et al, 2004; Ferreiea et al, 2013; pollet and Wilson 2004). In Kenya, CMA (2023) data indicate that funds with larger asset bases often report higher returns and stability, partly due to enhanced digital infrastructure and investment diversification.

The relationship between fund size and performance is non-linear and has been widely studied in finance literature which presents the various ways in which fund size influences performance. These include; Cost Efficiency where larger funds spread administrative

and transaction costs over more assets, lowering expense ratios, however this may introduce diseconomies of scale whereby excessive growth may increase coordination and compliance costs. Through diversification, large funds can invest across more sectors and instruments, reducing unsystematic risk, however, over-diversification may dilute high-return opportunities. Similarly, liquidity and Market Power where larger funds have capacity to negotiate better transaction terms and influence market pricing. If not checked however this also may cause problems in adjusting portfolios quickly, especially in illiquid markets.

## **1.2 Problem Statement**

Ideally, Unit Trust Funds are designed to provide investors with stable returns, liquidity, and portfolio diversification through professional fund management (Markowitz, 1952; Sharpe, 1964). In well-developed and mature markets, the integration of Fintech through digital innovations, advanced automated systems and real-time risk analytics have caused transformation that enhance transparency, operational efficiency, reduce transaction costs, and deliver superior risk-adjusted returns (Vives, 2019; Philippon, 2020). This has strengthened fund performance and investor confidence.

In Kenya the growth of growth of UTFs has coincided with increased fintech use. However, the empirical evidence linking fintech to financial performance remains limited. The performance of UTFs in Kenya remains modest and inconsistent despite increasing digitalization efforts by fund managers. Although the AUM rose from KES 140 billion in 2019 to KES 205 billion in 2023 (CMA, 2023), the corresponding financial outcomes remain uneven, this disparity suggests that fintech-driven efficiency and profitability

effects have not been empirically established. Pared. World Bank data reports (2023), show that banking sector supports business funding at over 80% while Unit Trust funds remain as low as 1%. The slow performance raises concerns on whether FinTech adoption has translated into real performance gains.

Empirically, most FinTech studies in Kenya have concentrated on commercial banks and microfinance institutions (Lee & Shin, 2018; Ozili, 2020; Were & Muriu, 2021), with minimal attention given to Unit Trust Funds. The few available studies focus on adoption patterns rather than measurable financial outcomes. Moreover, fund size, which determines the extent FinTech enhances performance, has not been adequately explored instead, majorly used as a performance metric. Theoretically, most studies have not integrated TAM, Financial intermediation theory and profit maximization theory to explain how fintech affects fund performance. Fund size though critical in moderating, has been largely under explored, justifying the need for this study.

This study therefore sought to bridge empirical, theoretical and contextual gaps by determining the interrelationship between Fintech integration, Fund size and financial performance of UTFs in Kenya. The findings provide evidence-based insights for policymakers, fund managers, and regulators on how digital transformation can enhance efficiency, returns, and competitiveness within Kenya's Unit Trust Funds.

### **1.3 Justification for the study**

This study is justified by the persistent underperformance and volatility observed in Kenyan UTF sector despite the rapid growth of fintech, increasing integration in Kenya's

investment sector and the limited empirical evidence on its actual effect on mutual fund performance. While FinTech innovations such as digital payments, deposits, portfolio management, and risk management are transforming financial services, their impact on the operational efficiency and returns of Unit Trust Funds remains underexplored. Understanding this relationship is crucial for fund managers, regulators, and policymakers seeking to enhance performance and investor confidence. Additionally, examining the moderating role of fund size provides new insights into how institutional characteristics influence the effectiveness of FinTech adoption in driving financial performance.

#### **1.4 Research Objectives**

The study objectives guided the researcher, outlining the specific areas of focus centered on the core functional areas through which the influence of financial technology, Fund size and financial performance of Unit trust funds in Kenya was examined.

##### **1.4.1 General Objective**

The main objective of the study was to evaluate the inter relationship between Financial technology integration, Fund size and Financial performance of Unit Trust Funds in Kenya.

##### **1.4.2 Specific objectives**

The study's Specific objectives were:

- i. To determine the effect of digital payments on the financial performance of Unit Trust Funds in Kenya.
- ii. To determine the effect of digital deposits on financial performance of Unit Trust funds in Kenya.

- iii. To examine the effect of digital portfolio management on financial performance of Unit Trust Funds in Kenya.
- iv. To determine the effect of digital risk management on financial performance of Unit Trust Funds in Kenya.
- v. To determine the moderating effect of fund size on the relationship between financial technology and the financial performance of Unit Trust Funds in Kenya.

### **1.5. Research Hypothesis**

H<sub>01</sub>: Digital payments have no statistically significant effect on the financial performance of Unit Trust Funds in Kenya.

H<sub>02</sub>: Digital deposits have no statistically significant effect on the financial performance of Unit Trust Funds in Kenya.

H<sub>03</sub>: Digital portfolio management has no statistically significant effect on financial Performance of Unit Trust Funds in Kenya.

H<sub>04</sub>: Digital risk management has no statistically significant effect on performance of Unit Trust Funds in Kenya.

H<sub>05</sub>: Fund size has no statistically significant moderating effect on the relationship between financial technology and financial Performance of Unit Trust Funds in Kenya.

## **1.6 Significance of the study**

The study is significant to academicians, adding to the body of knowledge, contributes to theory and simplifies the understanding of financial technology and its effect on the financial and investment industry and adds to the scholarly work. The study is essential to policymakers, practitioners, investors, and other stakeholders interested in the financial performance of Unit funds. The government, the major stakeholder benefits from the wealth of knowledge that contributes towards the achievement of Vision 2030, supports the Government' Digital Blue print and supports financial inclusivity.

Market players in the industry have gained access to informative insights on the use of technology in their business processes and operations to improve on returns on investments. This study provides industry best practices and guides the investment industry and more specifically the Unit funds in making prudent investment decisions to enhance performance and improve financial practice in the management of Unit funds in Kenya and beyond. It provides in-depth insight and solutions to the issues curtailing the financial growth of Unit funds in Kenya to unlock their potential.

## **1.7 Scope of the study**

The study was centered on financial technology, fund size and financial performance of Unit funds in Kenya. The study was conducted in Kenya, focusing on licensed and actively operating Unit funds for a period of ten years from 2014 to 2023. This window period sufficiently provided the required data to make reasonable and generalized conclusions. The study focused on four independent variables namely digital payments,

digital deposits, digital portfolio management and digital risk management, and the moderating effect of fund size on the effect of financial technology on financial performance of licensed Unit trust funds in Kenya. The choice of constructs have empirical Authority, with literature supporting the disaggregation of FinTech into these four constructs. Digital Payments, which is proven to enhance operational efficiency and fund inflows (Ozili, 2018; IMF, 2021). Digital Deposits; which strengthen liquidity and savings mobilization (Beck, 2020), digital Portfolio Management which increases fund transparency and decision efficiency (Lee & Shin, 2018), and lastly digital Risk Management which reduces reduces operational risk and enhances investor confidence (Arner, Barberis & Buckley, 2020).

### **1.7 Limitations of the study**

While this study provides valuable insights into the effect of financial technology on performance of Unit funds in Kenya, several limitations are hereby acknowledged. First the study experienced geographical limitations whereby it was confined to Unit funds operating within Kenya, this limits the generalization of the findings to other areas beyond Kenya. This may limit generalization to other regional markets, to mitigate this, the study used a comprehensive sample that cover all active UTFs across all the four major categories

Secondly the study was limited conceptually, thus it narrowed down to only four constructs of financial technology; digital payments, digital portfolio management, digital deposits and digital risk management. Fintech runs on advanced technology such as block chain, big data, machine learning, Artificial Intelligence, Internet of Things, and cloud computing among others which were left out. To mitigate this, the constructs were derived

from established theoretical foundations and operationalization done through validated indicators from prior studies aligning with CMA framework

Additionally, this study was limited to panel design for secondary data and descriptive design for primary data. There were problems with data compatibility and measurement variation, there was a gap in using primary data to calculate secondary data. This was identified as a major contribution to literature by using this study as a point of reference for future studies involving such complex scenario, with suggestions for further study to refine and adopt it as a contribution to knowledge. Furthermore, the secondary data used in the study was sourced mainly from published annual reports from official websites and regulatory body CMA. Mostly the financial statements are targeted towards shareholders and hence posing a bias on the published figures. Primary data alone was a limitation in assessing fintech effect on fund performance, therefore through data triangulation, the study migrated on the limitation by using dual data source.

The study focused on Unit funds in Kenya, a market with its own regulatory, technological, and economic characteristics. While this provides valuable localized insights, the findings may not be generalizable to other contexts. This was mitigated by inclusion of comprehensive sample through census to cover all licensed unit funds regulated by CMA to cover representation across different fund types across ten years.

## LITERATURE REVIEW

### 2.1 Introduction

This chapter gives an overview of the research models and theories on which the study variables are anchored and built under the theoretical framework. The chapter also discusses empirical findings from previous relevant studies to bring out the research gaps and the motivation for the study showing the knowledge gap by summarizing in a table of research gaps. Finally, the conceptual framework capturing the effect of financial technology, on the financial performance of Unit funds in Kenya, moderated by fund size.

### 2.2 Theoretical Framework

The study was guided by five theories to succinctly bring out how the three concepts of financial technology, fund size, and financial performance are related to have a causal effect. These theories are the technology acceptance theory, financial intermediary theory, Mutual Fund Theory, profit maximization theory, and the Capital pricing model. This study is anchored on the Technology Acceptance Model (TAM), other study theories are Capital Asset Pricing Model, Financial Intermediation Theory, Mutual Fund Theory, and Profit Maximization Theory. These theories collectively explain how the adoption of financial technology influences the performance of unit trust funds in Kenya, and how fund size moderates these relationships through mechanisms such as efficiency enhancement, cost reduction, portfolio optimization, and risk management.

The relationship between digital payments and fund performance is grounded in the Technology Acceptance Model (TAM) and the Financial Intermediation Theory. According to TAM, technology adoption depends on its perceived usefulness and ease of

use. Digital payment platforms improve transaction efficiency, reduce costs, and facilitate faster remittances between investors and fund managers. The Financial Intermediation Theory supports efficient payment systems by enhancing the intermediary role, by lowering transaction costs and improving fund liquidity. The mechanism is that digital payments improve operational efficiency and capital flow, which further enhances fund performance. This aligns with rejecting the study hypothesis; H<sub>01</sub>: Digital payments have no significant effect on the performance of unit trust funds in Kenya.

On digital Deposits and Fund Performance, the linkage between the two explained by Financial Intermediation Theory and Profit Maximization Theory. Financial Intermediation Theory emphasizes the role of intermediaries in mobilizing savings and channeling them into productive investments. Digital deposit systems expand investor access, reduce administrative burdens, and increase the volume of assets mobilized by funds. Profit Maximization Theory posits that organizations pursue strategies that minimize costs and maximize returns. Digital deposit platforms reduce transaction overheads and support larger investment pools, improving profitability. The mechanism here is that digital deposits increase fund inflows and reduce costs, potentially improving fund performance. Hence the study hypothesis; H<sub>02</sub>: Digital deposits have no significant effect on the performance of unit trust funds in Kenya.

Furthermore, digital Portfolio Management and Fund Performance supported by the Capital Asset Pricing Model (CAPM) and Mutual Fund Theory. According to CAPM, portfolio diversification and optimization reduce unsystematic risk and enhance risk-adjusted returns. Digital portfolio management tools enable managers to analyze and

rebalance assets efficiently. Mutual Fund Theory further asserts that professional management and efficient portfolio allocation are central to achieving superior fund returns. The mechanism through which digital portfolio management affects performance is enhanced analytical accuracy, better risk diversification, and improved asset reallocation decisions. H<sub>03</sub>: Digital portfolio management has no significant effect on the performance of unit trust funds in Kenya.

The link between digital Risk Management and Fund Performance, draws from the CAPM and Mutual Fund Theory. The CAPM framework highlights the trade-off between risk and return, implying that effective risk control enhances expected performance. Mutual Fund Theory emphasizes investor protection and the mitigation of risk exposure through prudent fund management. FinTech-driven risk management tools support these principles by providing real-time monitoring, predictive analytics, and automated compliance systems. The mechanism operates through early detection and mitigation of possible risks, thereby stabilizing fund performance. This aligns with rejecting the fourth hypothesis; H<sub>04</sub>: Digital risk management has no significant effect on the performance of unit trust funds in Kenya.

The moderating Role of Fund Size, is explained by the Profit Maximization Theory which proposes that larger organizations have greater capacity to utilize resources efficiently to maximize returns. Similarly, RBV argues that firm-specific resources such as capital base, technology, and expertise provide competitive advantages. Larger funds possess superior infrastructure, economies of scale, and technical capabilities to implement FinTech innovations effectively. The mechanism is that fund size strengthens the relationship

between FinTech adoption and performance by enhancing resource utilization, technological efficiency, and operational capacity. H<sub>05</sub>: Fund size does not significantly moderate the relationship between FinTech adoption and the performance of unit trust funds in Kenya.

In summary, the integration of TAM, CAPM, Financial Intermediation, Mutual Fund, and Profit Maximization theories provides a coherent theoretical justification for the hypothesized relationships. The mechanisms of efficiency improvement, cost minimization, portfolio optimization, and risk mitigation form the theoretical pathways through which FinTech adoption is expected to influence the performance of unit trust funds, with fund size acting as a moderating factor that enhances these effects.

### **2.2.1 Technology Acceptance Theory (Technology Acceptance Model)**

The theory was pioneered by Davis (1989). This theory was utilized in all the four study objectives to explain the adoption behavior of Unit fund personnel to technology, which was necessary in determining the behavior towards technology adoption and use. The theory is considered one of the most influential theories in explaining users' acceptance and adoption behavior to new technology. The TAM posits that the behavioral intention to use technology is primarily determined by two key constructs namely; perceived usefulness and perceived ease of use.

The Technology Acceptance Model (TAM) was developed to explain and predict technology adoption behavior among users. It posits that perceived usefulness and perceived ease of use are the primary determinants of an individual's intention to use new

technology, which in turn affects actual usage. Over time, the model has been expanded by Venkatesh and Davis (2000) into TAM2, integrating social influence and cognitive instrumental processes. Later, Venkatesh et al. (2003) developed the Unified Theory of Acceptance and Use of Technology (UTAUT) to account for broader determinants such as performance expectancy and facilitating conditions. Recent empirical studies (Chitungo & Munongo, 2013; Wanyoike et al., 2020) applied TAM to digital finance adoption in Africa, demonstrating its robustness in predicting acceptance of mobile and digital financial platforms.

The theory was relevant to the Study by providing the behavioral foundation for understanding FinTech adoption among key personnel in Kenyan UTFs. It helped explain how perceptions of usefulness and ease of use drive the uptake of digital payment systems, online deposit platforms, digital portfolio tools, and risk management systems in the Unit Trust Fund sector. The theory linked with all the Independent Variables; digital payments, digital deposits, digital portfolio management, digital risk management. The moderating Variable: Fund size may influence adoption intensity due to resource capability differences. The dependent Variable; Financial performance, the theory was used to reflect the enhanced operational efficiency and returns.

According to Erdoğan (2024), TAM when used in the context of developing economies, provides a practical model for understanding the limited but growing usage of fintech in the investment sector. The theory further supported the transition from the traditional methodologies of trade to the modern digital world of business as expressed through the primary data responses. It supported the findings of the four objectives on digital payments,

digital deposits, digital portfolio management, and digital risk management where most funds were reported to transact and invest remotely using digital platforms, smart apps, digital portfolio management, in data analysis, and risk management. The theory explained the behavioral perceptions of Unit fund personnel on fintech integration and use.

The TAM was used to how the acceptance of technology is influenced by usability and performance expectations (Venkatesh & Davis, 2000). It helped explain the technology uptake levels and the behavioral perception of the fund managers. The findings revealed a significant positive effect of financial technology on the financial performance of Unit funds. Fund managers' strong perceptions of fintech's usefulness confirm TAM's view that perceived benefits drive adoption and, in turn, influence financial outcomes, even when actual returns are more modest. It contributes to the prediction and understanding of the causes of either accepting or rejecting the use of technology in an organization or firm. The theory points out the perceived use of Fintech and the effect on the Unit funds' performance.

According to Hazeem (2022), the TAM perspective has been widely incorporated in previous studies to show how the behavioral intentions of the technology user to ultimately accept it depends on the users' belief and ability to use the technology effectively. Other theories applicable to financial technology, its adoption in firms and its disruption in traditional financial procedures and processes include Innovation Diffusion theory, Schumpeter theory of Innovation, and disruptive innovation theory. However, these theories have not adequately explained financial technology thus, have not evolved regarding financial emerging issues which are common among Unit funds.

The theory provided a useful framework for understanding how Unit trust fund managers and other personnel respond to adoption and integration digital innovations. The adoption of such technologies depends on the users' perception of their efficiency, convenience, and reliability in improving fund performance and investment decision-making. When fund managers perceive fintech tools as useful in enhancing operational efficiency, reducing transaction costs, and improving portfolio tracking, they are more likely to integrate them into their fund management practices. Investors can be facilitated with digital investment platforms and apps for convenience and transparency to encourage investor engagement and confidence (Hazeem, 2022)

Furthermore, the study provides a theoretical foundation by extending the application of TAM from individual-level adoption to the institutional context of Unit trust funds. This extension acknowledges that technology adoption decisions in financial institutions are often strategic and influenced by organizational structures, regulatory frameworks, and fund characteristics such as size and resources. Moreover, the study positioned Fund size, to be influencing how fintech innovations are perceived and utilized. Larger funds may have greater capacity to invest in advanced digital systems, while smaller funds may perceive technology as costly or complex to implement (Wafula, 2023). TAM framework provided a theoretical foundation for examining how perceptions of usefulness and ease of use drive the adoption of fintech solutions and, consequently, influence the financial performance of Unit Trust Funds in Kenya

As an anchor theory TAM framework further aligns closely with other financial theories used in this study. The classical profit Maximization theory postulates that firms operate

with the main aim of optimizing profits by using available resources optimally and minimizing costs. Fintech integration supports this goal by enhancing operational efficiency, reducing transactional costs and improving returns by use of digital platforms in making payments, deposits management of investment portfolios and risk mitigation.

Similarly TAM aligns with MFT, which emphasizes on diversification, professional management of portfolios, and economies of scale to achieve superior returns. TAM highlights how digital platforms facilitate efficient portfolio management and diversification, to enhance investor engagement and confidence.

The TAM also aligns with Financial Intermediation Theory which explains how Unit trust Funds act as middlemen by channeling funds from surplus to deficit unite efficiently. Fintech complements this important function by providing digital platforms that reduce information asymmetry, lowering transactional charges and enhancing accessibility through digital platforms. Thus supports the role of Unit Trust funds in mobilizing resources and efficient capital allocation.

Finally TAM also blends well with the CAPM which explains expected returns in the context of related risks. The alignment of CAPM to TAM suggests that when the fund personnel perceive that digital risk management tools and platforms are useful and easy to use, then they end up making informed decisions that enhance risk adjusted returns. Collectively all the theories used in the study complement each other in explaining how fintech adoption driven by user perception contributes to profit optimization through efficient intermediation, better portfolio management, and improved risk-return balance.

The theory was consistent with the findings on all the variables and helped explain the acceptance and utilization of technology in Unit funds.

### **2.2.2 The Financial Intermediation Theory.**

The theory advanced by Gurley and Shaw (1960), builds on the notion that intermediaries serve to reduce transaction costs and informational asymmetries. It was later developed by Diamond (1984) and Allen & Santomero (1998). This theory explained how UTFs serve as intermediaries between savers and investors, facilitating efficient allocation of funds by reducing transaction costs and information asymmetry. Diamond (1984) emphasized delegated monitoring as a key function of intermediaries, while Allen and Santomero (1998) advanced the idea of functional intermediation, showing how technology reshapes financial intermediaries' roles.

Modern research demonstrates that FinTech innovations have redefined the intermediation process by introducing digital channels, enhancing transparency, and lowering intermediation costs. (Frame, Wall & White, 2018; Ozili, 2023). The theory was relevant to this study to explain the main role of UTFs and how fintech can be integrated into the process to enhance efficiency. In Kenya, FinTech platforms licensed by the Capital Markets Authority (CMA) such as KOA, Moneta, and Chumz have digitized fund operations, enabling wider reach and cost efficiency. This theory supports the conceptualization of FinTech as a tool for enhancing intermediation efficiency and fund performance.

Linked to Variables to digital payments, digital deposits and digital portfolio management, it explains the FinTech mechanisms that reduce transaction costs and improve fund flows. The intermediation process creates efficient markets and lowers the cost of conducting business. Unit funds act as financial intermediaries by connecting with clients through mobilizing funds from individuals with excess money to invest and engage in financial markets by purchasing stocks, bonds, real estate, and other assets and henceforth create efficient markets.

According to Ndumbuisi (2018), the primary role of financial intermediaries is to create a platform for the mobilization of savings and extension of credit facilities to worthy borrowers for investment purposes. The intermediation function promotes economic growth by providing opportunities for business expansion. Financial intermediation theory has been significant to this study in bringing out how digital payments and digital deposits reduce transaction costs and enhance capital mobilization. Thus, Unit funds can amplify their efficiency and market-reach through digital innovations to reduce unnecessary costs.

According to Boot and Thakor (2010), the emergence of digital technologies enhances the efficiency of the intermediation theory. This theory is suitable for this study as it helped explain the intermediary role played by Unit funds on the financial markets in enhancing economic development. The theory supports and explains all the independent variables being the fintech constructs centered on the four main functional areas of a business entity mainly, payments, deposits, business operational strategies and risk management especially in Unit funds. It brings out credible insights on the benefits that a firm enjoys from fintech when integrated in business processes such as solving the problem of

transaction costs and information asymmetry hence creating efficient markets free of undue influence by the middlemen.

### **2.2.3 The Classical Profit Maximization Theory**

Also called the Neo-Classical economic theory of the firm, was developed by Adam Smith in 1776, and was later formalized by Alfred Marshall in 1890. The proposition of the theory is that the main objective of any business is to maximize profits which is defined as total revenue less total costs. It states that every business person would act in self-interest to maximize profit as an ethical mandate and by so doing increase the aggregate benefit of the society as a whole. According to Marshall profit maximization occurs at a point where Marginal cost equals marginal revenue implying that the firm has allocate resources efficiently for maximum returns.

The theory supports the main goal and core principle of every business including Unit funds, which is making the highest profits possible by employing prudent investment strategies, guided by two universal laws; improving profitability and increase shareholder wealth (Jensen, 1968). Fintech use improves revenue and cut down on costs both translating to profit maximization (Nyabuto, 2023). Although the classical profit maximization theory was developed within the field of economics, it remains relevant to this study because it provides sound theoretical foundation for examining the financial performance of Unit Trust Funds.

Performance is an economic outcome measured in monetary forms, therefore this theory explains the pursuit of profits providing a logical and conceptual grounding. Furthermore, the UTF's operate within competitive markets where fund managers use possible efficient ways to maximize profits and investor wealth. In this study the theory is used to explain fintech as a tool for profit maximization. Digital tools and platforms enable fund managers to reduce transaction costs, enhance operational efficiency, market reach, and enhanced decision making through real time information flow. Fintech adoption therefore aligns with the classical profit motive through technological efficiency and innovations.

The study introduces new theoretical depth by aligning the moderating role of fund size with the Classical Profit Maximization Theory. Larger funds derive greater performance benefits from fintech arising from economies of scale and access to resources and technical expertise. This is consistent with the notion that firms maximize profits by optimizing scale and resource deployment (Wier & Erasmus, 2023). However, the diminishing returns observed in digital risk management among oversized funds echo the theory's caution about diseconomies of scale and need to use tailor made fintech solutions that align with business strategies and financial capability.

The study findings reveals that by employing fintech tools, the fund is likely to experience enhanced performance as evidenced by the positive effect of fintech on performance, this aligns with Nyabuto (2023) who concluded that fintech innovations improve performance of investment firms. This theory supports the study findings by pointing out how the four independent variables; digital deposits, digital payments, digital portfolio management and digital risk management positively influence the ultimate goal of profit maximization.

#### **2.2.4 The Mutual Fund Theory (MFT)**

Also called the two-fund or separation theory, the theory was developed by James Tobin and Harry Markowitz, (1955). The MFT explains the operational and behavioral principles underlying the formation, management and performance of unit funds. The theory acts as an investment strategy that recommends the construction of optimal portfolios that reduce risk exposure by diversification aiming at gaining other advantages while maximizing returns. This theory is the foundation of the collective investment schemes based on the concept of investors benefiting by pooling resources (Reilly & Brown, 2012). It works by holding given assets in appropriate ratios to enhance high returns.

The MFT is attributed to the Modern Portfolio Theory (MPT) which proposes that investors can construct efficient portfolios that maximize expected return for a given level of risk through diversification and optimal asset allocation. MFT is grounded on the same logic and puts this into practice by institutionalizing portfolio diversification in UTF's. The MPT provides the analytical foundation for portfolio construction while MFT provide the institutional context and practical framework for implementation. In this study the MFT is more practical and therefore helps translate the theoretical into real world investment decisions. Guiding the fund managers in daily operations.

The study clearly demonstrates that digital portfolio tools influence diversification and performance through portfolio construction, driven by digital systems. The use of MFT provides a platform to further evolve the theory to account for technology's role in optimizing returns while managing risk. According to Arner, Barberis and Buckley, (2016), the theory provides a relevant base to understanding financial technology as a

modern enabler shaping investor behaviour, fund efficiency and overall fund performance. The theory supports the third and fourth objectives of digital portfolio management and digital risk management by illustrating how Unit funds can use technology to build their portfolios in a manner that maximizes return and reduces risks through efficiency.

The theory is relevant to this study as it provides guidelines to investors in making wise investment decision that involve choosing between available options on the market to achieve a return that justifies the cost of investment. According to Iraya and Wafula, (2018), portfolio diversification improves fund performance. It explains the need for aligned business strategies in constructing optimal portfolios by holding Unit fund products in appropriate ratios to maximize returns. This theory affirms that performance of Unit funds is the key driver of fund growth and investor retention. Fund managers are guided on how to integrate fintech in business models and strategies to enhance fund performance (Sironi, 2016)

### **2.2.5 The Capital Asset Pricing Model**

Though CAPM focuses on market risk, the study uses its principles as a framework to explain how fintech enabled risk management can help reduced overall risk and so enhance fund performance. The CAPM is used to price highly risky assets. Developed independently by Sharpe (2004), Lintner (1965), and Mossin (1966), CAPM measures the risk and expected return on an asset. According to filings by Kenton, (2023), the goal of the CAPM formula is to evaluate whether a stock is fairly valued when its risk and the time value of money are compared with its expected return. In other words, knowing the individual parts of the CAPM helps to gauge whether the current price of a stock is

consistent with its likely return. According to Mang'eli and Ouma (2017), the CAPM model offers a valid and effective tool for the analysis of risk adjusted performance of Unit funds in Kenya.

According to Farma and French, (2004) the use of Capital Asset Pricing Model (CAPM) helps evaluate if Unit funds are leveraging financial technology to outperform their competitors on risk adjusted basis. CAPM is a financial model that calculates the expected rate of return for an asset or investment, it describes the relationship between systematic risk and expected return for assets. It establishes a linear relationship between the required return on investment and risk. The model is based on the relationship between an asset's beta, the risk-free rate (Treasury bill rate), and the equity risk premium, or the expected return on the market minus the risk-free rate (Mona, 2014). The model considers only one macroeconomic variable which is the return and risk on the market

The findings of the study relate to the Capital Asset Pricing Model (CAPM), particularly through the role of digital risk management in controlling portfolio volatility. Although ROA is not risk adjusted, CAPM has been used to set a benchmark for the minimum returns the fund should earn given the exposure to market risk. ROA shows actual performance demonstrating how efficient UTFs Assets generates income. This helps asses if UTFs are generating sufficient compensation in line with the funds risk appetite. Therefore, is ROA is greater than the CAPM expected returns, it translates that the funds earns more to cover all risks demonstrating efficiency and technology advantage.

CAPM therefore shows that fintech tools not only manage risk but also enhance risk-adjusted returns, extending CAPM's relevance in the digital finance era. In this study, this

model is linked to the third and fourth objectives of determining the effect of digital portfolio management and digital risk management on financial performance. It demonstrates the concept of utilizing digital tools in building optimal portfolios and later on in computing the portfolio performance.

### **2.3 Conceptual Background**

This section presents the study variables and how the independent variables; digital payments, digital deposits, digital portfolio management, and digital risk management are linked to the dependent variable. It discusses the effect of financial technology in its disaggregated form proxied by four fintech dimensions centered on key functional areas of fund operations to assess the effect of fintech along the digital value chain. The study reveals a positive effect of financial technology on the financial performance of Unit funds in Kenya. Four dimensions of financial technology; digital payments, digital deposits, digital portfolio management, and digital risk management form the first four objectives of the study. All of them showed a positive effect on financial performance. The dependent variable was represented by the return on assets while the moderating variable, fund size, was proxied by assets under management.

Using both primary and secondary data indicators enhanced the study's internal validity and enabled triangulation of findings. The primary data captured fund managers' perceptions and internal processes regarding FinTech adoption, while the secondary data provided objective financial outcomes and measurable performance proxies translating to reliable statistical evidences. This mixed-measurement approach aligns with recent

studies (Rahi et al., 2022; Almeida et al., 2022) that recommend combining perceptual and financial indicators when analyzing technology-performance relationships.

### **2.3.1 Financial Technology and Performance of Unit Trust Funds.**

Financial Technology is the use of modern digital tools to provide new and improved financial services (Thakor (2020),). Part of the motivation for the emergence of Fintech is that, while financial information technology has made business processes efficient and more functional, the impact on financial performance especially in the local context has not been evident (Chege, Wang, & Suntu, 2020). Financial Technology enhances the provision of financial services more effectively (Kumar & Ali 2020). This implies that FinTech is a concept with an enormous positive impact on business processes and therefore attracts lots of attention due to its posterity effects.

Research shows that Financial Technology provides a wide range of technology solutions to improve efficiency, speed of reaction, and customer satisfaction (Muttai, Njoki & Muchira, 2023). The Statista (2023) defines financial technology as the use of technology to improve and automate traditional financial services and processes. This includes digital payments, digital wealth management, online deposits and banking, peer to peer lending, digital wallets, and financial management tools. Fintech companies often use advanced technologies such as artificial intelligence, blockchain, and big data to create new financial products and services that are more efficient, accessible, and user-friendly than traditional financial institutions (Ibrahim, 2021).

The Fintech market includes startups, established financial companies, and companies that use technology to disrupt and innovate in the financial services industry. According to Imerman and Fabozzi (2020), FinTech can be divided into eight industry segments that perform specific roles. They include; Digital wealth Managers (AI and Robots), digital payments and money transfers, digital deposits and banking, capital markets innovations, FinTech lending, equity crowdfunding, InsureTech (for the insurance industry), and PropTech, (property and real estate industry). These Financial technologies stimulate the growth of investment firms and enhance performance (Ndichu & Kariuki, 2021).

The development of new technologies, innovations, and digitization is becoming a challenge that the financial sector must face (Yударuddin, 2023). The shift in customer needs and expectations due to the dynamic business environment with evolving market trends can influence a new approach toward investor relations. Digital investment platforms are also expected to grow in popularity, as more individuals seek to manage their finances online. The rise of digital assets is likely to continue, as these trends reshape the financial landscape. Overall, the FinTech market is expected to remain dynamic and innovative, with new solutions and services emerging to meet evolving consumer needs (Kenya Market Forecast report, 2023).

The service industry, especially the investment sector has shown great gains from the use of technology in its operations (Yogesh, 2021). In the global market, in countries like India, Germany, and Pakistan, a positive impact both on the clients and the firm's performance has been recorded, (Akasha & Manda, 2021). Caught in the web of digitization, the Unit fund industry has begun to use technology intelligently across all its processes - fund

management, executing transactions, and customer servicing. Digitization of the payment, deposits, asset management, and risk management spectrum is the key to the industry's meteoric rise in recent years (Liu et al, 2024).

According to the China Securities Regulatory Commission, open-end funds accounted for about 90% of the total Unit funds at the end of 2019, and the number grew to more than 5,600 with nearly 4,000 listed companies in the Shanghai Stock Exchange and Shenzhen Stock Exchange (Yue,Zhao & Shan, 2023). Ruhaini, et al, (2020) states that financial technology eliminates informational asymmetry common with financial intermediaries and solves problems of market imperfections that prevent investors from trading directly with each other in an optimal way. Yu et al. (2023) concluded that the major source of market imperfections is information asymmetry, FinTech fills information gaps between savers and borrowers by providing a comparative informational advantage. Fintech provides a digital payment, settlement, and clearing platform that enhances service delivery.

Industry filings by Statista Market Insights (2023), reveals that the structure of financial technology includes five markets which include digital payments, digital investments, digital capital raising, digital assets, and neo-banking. Digital payments include digital trade transactions, mobile point-of-sale payments, and digital transfers. Digital investments include Robo-advisors and neo-brokers. Digital capital raising consists of crowdfunding, crowd investing, crowd lending, and marketplace lending and the neo-banking segment focuses on digital banks. This suggests that the marketplace is rapidly growing digitally and financial technology is the appropriate vehicle to provide the digital trade platform.

Financial technologies are offering a host of technological solutions geared towards achieving convenience, faster turnaround times, and operation efficiency (Fernando, et al, 2016). Financial technology has affected various firms in the financial sector including the banking sector through monitoring savings, and credit scores, provision of banking services beyond traditional banking, faster transactions, mobile transfers, use of cryptocurrencies, and also mobile lending to individuals and small market enterprises using data analytics (Yang & Liu, 2016).

Changing expectations from investors and the market dynamics as a whole are shaping the Unit fund industry at high speed. According to the PWC report 2023, the Unit fund industry is expected to modify its product offerings to meet the demands of the new breed of young tech-savvy investors while complying with regulations and seizing investment opportunities. Firms also need to look for innovative ways to attract and retain investors, through apps, social media, new distribution channels, model portfolios, and digital platforms. The KPMG (2024) report on Pulse for Fintech on current developments for the registered fund industry focuses on the quickly evolving industry and the impact of the changes on the management of the funds. The generative artificial intelligence section of the edition focuses on how AI impacts funds, governance of risks, and the evolving regulatory.

According to Kumar and Ali, (2020), the use of advanced technologies like robots and AI in business operations and processes has enabled many firms to reduce wastages in terms of inaccuracies thereby improving efficiency. Digital tools are utilized in enterprise content management to assist firms in processing large data, organizing, classifying, checking

errors, and managing and distributing data and information that ultimately aid in portfolio management. According to Sankararaman, Ragothaman, and Jigar (2020), most Unit funds that utilized financial technology in their business operations registered a positive return.

In this study, financial technology is discussed and narrowed down to four constructs which are digital payments, digital deposits, digital portfolio management, and digital risk management. The constructs are centered on the four main functions of business set-up. The primary data was got from responses from fund personnel while secondary data was from published financial record on CMA websites. The findings reveal a positive effect of fintech on the financial performance of Unit funds in Kenya.

#### **2.3.1.1 Digital payments**

This study revealed that digital payments have a positive effect on the financial performance of Unit funds in Kenya. Conceptually, digital payments refer to the use of electronic platforms such as mobile money, online transfers, and payment gateways to facilitate investment contributions and redemptions in unit trust funds. Primary data measurement was done through the responses that rated the extent to which their funds used mobile payment apps and systems, payment portals, and automated settlements (e.g., M-Pesa, Airtel Money) on a 5-point Likert scale ranging from “strongly disagree” to “strongly agree.”. Secondary data measurement for digital payments was proxied by the value of fund inflows received through electronic payment channels, calculated as a proportion of the amounts reported in fund annual reports and CMA filings.

Digital payments channels form part of the key areas where FinTech has made significant advancements, offering new and innovative solutions for transferring money and conducting transactions (Bams, 2018). These advancements in digital payments have not only transformed the way individuals and businesses make transactions but also have an impact on the financial performance of Unit funds (Haruthai, & Samanchuen, 2023). Research has shown that the integration of FinTech in the Unit fund industry has the potential to enhance the financial performance of these funds (Yogeshi, 2021).

According to Yu, Zongdu, and Wenqiao (2025), financial technology has reshaped the structure of the financial service industry. The use of technological factors in financial services occurs mainly in payments, investments, loans, and insurance. Modern information technologies aid in the implementation of new solutions for businesses while financial tools support planning personal finances through digital payments via an automatic advisor that makes decisions on behalf of the client (Waliszewski, 2020). These digital payments are done through mobile devices, smartwatches, and the internet. This trend is leading many to believe that digital payments could replace the traditional cash method.

According to the report by Statista Market Insights (2023), the FinTech market is rapidly evolving, with digital payments, digital investment, digital capital raising, digital assets, and neo-banking emerging as some of the most significant trends. Digital payments have seen an unprecedented surge in popularity, with consumers increasingly relying on mobile payment solutions for their day-to-day transactions. Digital investment platforms are also gaining traction, with individuals seeking low-cost and easy-to-use investment options.

Additionally, digital capital raising has become an attractive option for startups and SMEs, as it provides an efficient way to access funding. Digital payments are likely to remain a dominant trend, as consumers increasingly prefer the convenience and speed of mobile payment solutions (Emara & Zhang 2021). Digital investment platforms are also expected to grow in popularity, as more individuals seek to manage their finances digitally.

According to Varlamova, Larionova, and Kolesnikova (2023), the financial sector has not been immune to the impacts of digitalization, with many segments developing rapidly through the use of a variety of digital services. Digital payments have transformed how we consume goods and services and even how we split bills with friends. Security, speed, and convenience are some of the many advantages afforded by the digital world that have led to its popularity. Digital payments have become the preferred mode of payment for many especially sending money from the diaspora (Ahmed, Mughal, & Martinez, 2021).

The rise of digital payment platforms, which are closely linked to e-commerce and new consumer habits points to a cashless society (Ali & Panda, 2018). They can be partially digital, primarily digital, or fully digital. They are done through various modes such as bank transfers, mobile money, QR codes, and payment instruments such as credit, debit, and prepaid cards. Generally, they are considered to be secure, convenient, easy, fast, and proven. According to Oney's survey of payment habits in Europe, respondents in Spain use more alternative payment methods while the majority prefer using bank cards. According to Statista (2023), 47% of Asian Internet users in 2018 paid with their mobiles, compared to 30% of Europeans.

The preference for digital payments won't stop increasing, according to forecasts from Statista (2023), in 2017 there were 2,454 billion users globally and in 2022 this reached 4, 160 billion users. It is estimated that by 2027 digital payments are expected to be used by over 5,480 billion people, which allows for increased financial inclusion. Such growth is partly due to the benefits that digital payments can offer. According to Yu & Zhang (2022), the COVID-19 pandemic has accelerated the adoption of digital payments globally. According to the Kenyan Wall Street (2023), there is a rise in the use of digital platforms in the post covid period.

### **2.3.1.2 Digital Deposits**

Digital deposits refer to the use of electronic means through online applications to deposit funds into one's account for investment purposes. Digital deposits denote the mobilization of investor funds through electronic platforms that allow online account opening, top-ups, and withdrawals. Primary data measurement was done using questionnaire which captured the degree of automation in deposit processing, existence of online or mobile account opening, and use of digital deposit tracking systems. Secondary data measurement was proxied by portion of transactions done digitally, measured by fund-level data on net inflows and deposit volumes disclosed in CMA quarterly bulletins and audited financial statements.

According to Ali and Panda, (2018), paperwork slows down and complicates the entire investment process since one has to physically look for an agent to facilitate the documentation process to allow for deposits. Paperless transactions allow an investor to make online digital investment deposits from their comfort zones. Digital platforms also

allow the investor to redeem the funds online without visiting the asset management company (Agarwal & Chua, 2020). This enhances efficiency and effectiveness in business processes.

The OECD report (2020), states that the use of new technology has important implications for the welfare of market participants that may lead to lower financial intermediation costs in lending, payment systems, financial advising, and insurance, along with better products for consumers. Digital deposits use the latest security measures to offer high-quality protection against fraud. The digital deposits can be done day or night from anywhere with the availability of an Internet connection. This allows high returns since the money works for you sooner since the transactions are simplified by the use of smartphones (Fourth Capital Bank Report, (2023). According to Lei, Dongli, and Youngbin, (2023), Continuous updates to mobile banking features and functions are necessary in maintaining and enhancing the digital level of banks, which drives the growth of deposits.

The financial services are accessed by the digital account holders using mobile phone apps, websites, debit/credit cards, or other means without using cash. Digital accounts enable users to make digital deposits into their accounts for purposes of saving, borrowing, and performing other transactions. A survey done by Fin Access Household survey (2019), revealed that digital deposits through loan apps are the third most common source of credit. Kenya's high mobile phone penetration is projected to increase financial inclusion and hasten digital economy adoption. This study's findings revealed a positive effect of digital deposits on the financial performance of Unit funds.

### **2.3.1.3 Digital Portfolio Management**

Digital portfolio management refers to the use of technology-driven tools such as robo-advisors, algorithmic allocation systems, and online dashboards for monitoring and rebalancing fund portfolios. Primary data measurement was done by allowing respondents rate the extent of adoption of automated portfolio monitoring systems, digital investment dashboards, and algorithmic advisory tools on a Likert scale. Secondary data measurement construct was proxied by portfolio return and portfolio turnover on digitally traded assets.

A study done by Tamplin, (2023), shows that Portfolio performance evaluation is an essential aspect of the process of investment. It allows investors and portfolio managers to assess the effectiveness of their investment strategies. This helps in monitoring to determine whether the chosen investment strategy is achieving the desired risk and return objectives. Portfolio Performance is a tool that helps visualize a portfolio's gains or losses over a given period and easily compare them to a selected benchmark. Measuring portfolio performance involves monitoring and analyzing return and risk. Several metrics such as portfolio return, portfolio turnover, Sharpe ratio, Jensen's Ratio, and Treynors' ratio are used to gauge the progress of the investments over time. A study by DeMiguel et al, (2009), shows that portfolio return and portfolio turnover are the most appropriate in evaluating portfolio performance.

Portfolio management involves Risk Assessment, return assessment, risk-adjusted performance, benchmark comparison, and attribution analysis. Risk assessment involves evaluating portfolio performance by assessing the level of risk taken by the investor

(Tamplin, 2023). This can be done by examining portfolio volatility using standard deviation metric or other risk metrics, or by determining the correlation of the portfolio's returns with the broader market. Return assessment involves analyzing the returns generated by the portfolio over a specific period. This is done using measures such as absolute returns, relative returns compared to a benchmark, and risk-adjusted returns that consider the risk levels involved.

Financial technology has been utilized in many firms especially from the developed economies to enhance the process of portfolio management causing improvement in asset management services to retailers by use of simplified technological systems. Digital portfolio management involves the using complicated algorithms in decision-making and managing portfolios using of AI and robots (Tiberius, Gojowy & Dabic, 2022). A report by Statista Market Insights (2023) states that the largest market is projected to be Digital Investment in portfolio management with Assets Under Management of US\$41.05m by the end of 2023, with mean asset under management per user in the Digital Investment market projected to 31.97 UD dollars by end of 2023. The Digital Assets market has a projected growth in revenue at 32.4% by 2024, while digital users projected at 39.14 million by 2027.

In wealth and portfolio management, fintech entails utilizing advanced technology such as Robo-advice, the Internet of Things, insure-tech, and digital lending services in business operations (Altrock, Mention, & Hedge, 2022). Robo-advice technology is based on advanced algorithms using artificial intelligence and tools for analyzing large data sets.

The use of Robo-advice contributes to cost reduction in advisory services making them available to massive potential investors, (Jones, 2019).

A study by Coombs and Redman (2018) on Impact of Robo-Advice on Financial Advisers concludes that the emergence of new powerful technologies in wealth management such as artificial intelligence and robotics means that managers need to decide on the balance between humans and technological inputs. Artificial persons seem to be taking over the roles of financial advisors where options like full technology-driven services replace full human-driven roles Larivière, 2017).

In wealth management, advanced digital tools like Robo-advice are used in the generation of trading signals about financial instruments (Tanda & Schena, 2019). This digital tool is used as a computer program to assess, analyze, and learn the users' preferences and make financial investments on their behalf (Thorun & Diels, 2020). Prudent portfolio building, with optimum returns, is the preferred position for both investors and investing companies (Jung, Glaser, & Köpplin, 2019). Robo-advisors are mostly considered significant and disruptive in managing of assets and wealth (Beketov, et al, 2018). According to Tiberius et al, (2022), the investment decisions and general financial advisory roles can be done automatically by Robo advisors.

The need for Fintech integration is underscored by the highly evolving technology in the finance sector. It is therefore interpreted that FinTech integration is key in the financial environment in terms of posterity. Digital investment platforms are reported to be gaining traction and becoming the new mantra for the Unit funds that use them for asset management. Individual investors prefer adopting less costly and more client friendly

investment options that allow for ease of monitoring of their investments (Ali & Panda, 2018). Fintech through digital platforms has disrupted the traditional methods of trade by availing to the market more innovative, client-centered solutions that meet the needs of modern digital-savvy clientele (Statista Market Insights report, 2023). This is in align with the study's findings that reveal that digital portfolio management enhances Unit fund performance in Kenya just like in the global and regional markets.

#### **2.3.1.4 Digital Risk management**

In this study, digital risk management was captured by the adoption of digital systems for identifying, monitoring, and mitigating financial and operational risks through real-time analytics, cybersecurity tools, and compliance software. Primary data measurement by questionnaire items assessed the presence of cybersecurity measures, digital compliance systems, and risk analytics dashboards used by fund managers. The digital apps were used as observable proxies as they form the channel through which digital transactions are made, the activities on the apps captures the economic activities of the fund (value of the transactions per period). Secondary data measurement was proxied by volatility of fund returns (measured using the standard deviation of annual returns) and value of reserves for risk management

Risk management involves highlighting and quantifying risk to ensure consistency with the desired risks to provide critical information necessary for performance evaluation. According to Giudici (2018), in a study on fintech risk management, Investment risk models help a portfolio manager understand how much the value of the portfolio is likely to change given a change in a certain risk factor. They also provide insight into the gains

and losses the portfolio might reasonably be expected to experience and the frequency with which large losses might occur. A study done by Mudanya, Kadima and Miroga, (2022), reveals that effective risk management requires the application of judgment and experience to appreciate the strengths and limitations of the models.

A study by Lopez et al (2024), reveals that risks are broadly classified into two major classes; systematic risk and unsystematic risk. Systematic risks are inherent risks that exist in the stock market. Also referred to as non-diversifiable risks meaning they can't be mitigated, or market risks meaning they impact the entire asset class. Systematic risks are typically due to various external factors like the current geopolitical situation, monetary policy, and natural disasters (Honnesh & Shailaja, 2023). They include interest rate risks, market risks, or inflation risks (purchasing power risk). Interest rate risk results from a change in the market interest rate and mainly impacts fixed-income securities, like bond prices and asset-backed securities.

Unsystematic risks, firm-specific risk, or diversifiable risk/residual risk, are unique to a specific company or industry. These risks arise due to various factors that affect only the particular organization but not the entire market. Examples include cybercrimes and related risks labor unrest at a factory, regulatory changes, and shortages of raw materials. They can be controlled, minimized, and even avoided by an organization; they are of two types; business risks and financial risks. According to Reddy and Kumar, (2025), business risk includes any internal factors that affect a company's revenue and performance while financial risks relate to a company's debt and equity whereby a negative debt-to-equity ratio is a sign of bankruptcy.

This study delved deep into determining the effect of financial technology on performance by evaluating if when fintech, is utilized in risk management can enhance performance. Digital risk management involves the use of modern advanced technology to manage and mitigate risks. According to Kumar, (2015) in a study on portfolio management and Unit funds analysis based in India, Unit funds normally don't promise certain returns but it all depends on firm performance. The investment entails a measure of risk factor whereby unit measure varies with firm performance. Also, government regulations may affect a given industry adversely affecting its performance and ultimately reporting losses.

Digital disruption has made its way to the Unit fund sector, adopting a digital strategy helps the Unit funds to address the concerns of today's dynamic digital world while remaining agile enough to outpace evolving changes of the future. Technology has always played a crucial part in the financial sector however current speed of change demands that firms be more agile than ever before. Digital solutions are seen to transform compliance and reporting in terms of digital risk management by turning raw data into strategic insights that can drive change in firms (FSD Kenya, 2023). According to Price Water Coopers (2022), strange shifts in core technologies have seen most firms preparing for disruptive changes to their operations shortly. Firms aim to achieve faster, smarter, and more efficient processes by leveraging technology in performance analytics, customized analytics, and predictive modeling to prepare ahead and combat any emerging risks.

Developments in Fintech are shifting the provision of traditional financial services to digital processes. Besides the benefits and opportunities, weaknesses also emerge posing potential threats to financial systems (Milena & Luburić, 2022). Advanced technological

tools are being used in developed nations for risk management purposes where they are utilized in making risk estimations and risk assessment (Kumar & Ali, 2022). Digital tools can anticipate and detect fraud, malicious transactions, and other potential cyber-attacks so risk management strategies remain very vital.

Risk-adjusted performance metrics allow investors to evaluate the effectiveness of a portfolio by considering both the returns generated and the level of risk taken to achieve those returns (Honnesh & Shailaja, 2023). This helps determine whether a portfolio is generating sufficient returns for the level of risk taken. Benchmark Comparison involves comparing funds' performance to a relevant benchmark as a common practice in performance evaluation. This allows investors to determine whether the fund is outperforming or underperforming the market or its peers, providing valuable insight into the effectiveness of the investment strategy (Tamplin, 2023).

A study by Amira, Alala, and Musiega, (2023) on the Influence of management of Liquidity Risk on the performance of Banks in Kenya, concluded that effective risk management enhances high-quality, and increased, stable net interest income flow for banks. Firms that have strict risk mitigation measures tend to report high profits and better performance. According to Osewe, (2020) most investors universally tend to be risk averse, preferring to implement strategies that aim at mitigating risks to certain levels of returns. Therefore, logically investors would prefer lower-risk investment projects given the levels.

Artificial intelligence, for example, enables risk assessment of investments by involving large volumes of complex data in performing due diligence before engagement and thereafter monitoring after engagement to enhance effective investment practices ( Ali and

Panda,2018). To enhance the security of digital transactions, various measures are taken to protect users' data, for example; Two-factor authentication, Encryption, or tokenization. According to Simon (2023), IoT solutions present a myriad of opportunities to enhance financial performance in the investment sector. Solutions on asset management, personalized customer experiences, and improved security. Unit funds can leverage IoT to optimize operations and improve performance.

According to Cirappa, (2023), Digital platforms help in the eradication of risks relating to theft and counterfeit money. Ultimately this promotes transparency in financial transactions and simplifies the monitoring of payments by use of digital apps that provide real-time and detailed control feedback. Digital tools are also used in the fraud detection system where machine learning algorithms are utilized to detect and prevent fraudulent transactions (Ali & Panda, 2018). This also entails the integration of prudential regulations in risk management practices where the firms are expected to comply with industry standards to ensure best practices for security. The use of technology in regular monitoring and auditing ensures secure and up-to-date digital systems.

Generally, digital risk management is a shared responsibility between investors, investment companies, and regulators. Users should take steps to protect their devices and passwords, while payment providers should implement robust security measures and comply with industry standards. Regulators should also provide a regulatory framework that promotes security and protects users' rights. According to Milena and Luberic (2022), performing a SWOT analysis of the business environment enhances Risk-based thinking. This approach

works towards mitigation of potentially risky opportunities and threats that emerge from financial technology.

As per the research done by Cirappa, (2023) on Risks and performance of a Unit fund industry with evidence from different caps based in India, risk affects Unit fund performance looking at the investments returns. Historical volatility is measured by standard deviation of returns, while systematic risks are measured by beta values and the Sharpe ratio is used to measure the risk-return performance of the portfolio. According to Frey and Osborne (2017), technology may not always be the preferred option because of its high costs of implementation and the related insecurities and risks. Altrock et al., (2022) allude that digital technologies are known to disrupt and turn around the financial sector and industry as a whole.

Mention (2021) however notices that the Fintech actors have equally launched new products and services that match the dynamics of the highly evolving FinTech world. Therefore, FinTech can confidently be adopted by firms as a modern tool of trade since it's capable of handling insecurities and high risks in the digital systems of trade. Simon (2023) in a study on IoT solutions for enhanced financial performance states that IoT solutions can enhance security measures in financial transactions by using biometric authentication, (fingerprints, facial recognition) to ensure more secure and convenient access to customer accounts. IoT-powered fraud detection systems can be used to prevent potential losses by identifying suspicious activities and transactions in real time.

This study utilized systematic risks, as market risks arising from movements in the prices of shares, interest, rates of exchange, and the prices of commodities. Financial markets are

known to be quite dynamic leading to new prices being constantly generated, due to the large amount of data on market risk, it's one of the easier financial risks to analyze. The process of managing market risk relies heavily on the use of models. A model is a simplified representation of a real-world phenomenon; whereby financial models attempt to capture the important elements that determine price changes and sensitivity in financial markets.

### **2.3.2 Financial Performance of Unit Funds**

Financial Performance, the dependent Variable was assessed using both profitability proxied by ROA. Primary data measurement respondents rated fund performance in terms of growth in investor base, income stability, and return consistency. Secondary data measurement was done using the Return on Assets (ROA) as the main indicator of financial performance, reflecting operational efficiency in asset utilization. ROA was computed as the ratio of net income to total assets, following similar studies on mutual funds and collective investment schemes.

According to Omollo, Muturi, and Wanjare, (2018), financial performance is an indicator of the health of a firm in utilizing the available resources in the generation of good shareholder returns. Performance review is normally conducted periodically, mostly, annually by firm management to evaluate the trend and enable in making sound decisions with comparative analysis with competitors in the sector (Olusuyi & Araoye, 2017).

The company's key goal is optimizing wealth of shareholders, therefore evaluating performance helps in assessing whether the goal has been achieved through the periodic investments. According to Cheruiyot and Jagongo, (2022), various measurement metrics

are utilized evaluate performance as grouped accounting-based or market-based indicators. The ratios calculated from the firm financial statements are also good indicators commonly used. Kenya has recorded a steady growth of Unit funds since its launch (MFI, 2020). According to the CMA report (2020), the value of assets held in Kenyan Unit fund schemes rose by 15% in the second quarter of 2020 to 88.1b from 76.5b Kenya shillings at the end of the first quarter. This growth is way below that of developed Unit Funds like the S. Africa which had 705 funds in 2019 with an asset of USD 147 billion (Price water house coopers, 2020). This implies that Kenya's market is an attractive investment that ought to be improved further.

The World Bank data, (2023) shows that the Unit fund to GDP ratio by Q1 of 2023 was 4.6%, which is significantly low in comparison to the average of 57.6% amongst global markets, S.Africa and Namibia have a ratio of 61.5% and 43.1% respectively, while the USA at 140.2%, Australia 185.1%, the UK 77.6% and China 18%. Steady growth has been experienced in the number of firms since its launch in 2001 (MFI, 2020). In 2018, we had 19 licensed funds, 25 in 2021, 32 in 2022, and in 2023, 36 funds with only 25 actively operating while 11 were not active. This growth is expected to reflect a commensurate effect on performance yet, according to Cyttonn's annual markets review (2022), Kenya has reported notably underperformed benchmarks especially the equity markets with a downward trajectory with all indices declining by 23.7% against NSE-ASI, 12.4% for NSE 20 and 16.6% for NSE 25.

The CMA quarterly statistical bulletin (2023) shows mixed growth trends were reported in 2021, where CIC topped with AUM of 44.8B from 36.3b in 2020, ICEA, Sanlam, Britam,

and NCBA reported 30% growth, while Amana unit trust reported a decline by 44.2% to Ksh.7.56B. However, in 2023, CIC declined by 7% to 57.0b from 61.3b in 2022, while Cytonn declined by 9.45% to 704.1m from 774.5M in 2022. Genghis Unit Trust Funds, Equity Investment Bank, Madison Asset Unit Trust Funds, and Amana Unit Trust Fund also reported a decline.

Globally, a study done by Cuthbertson, Nitzsche and Sullivan, (2023) states that nations like China, the UK, the USA, and India have experienced an upward trajectory in performance with increased AUM. In a study by Ndanu and Gatauwa, (2023), in terms of market share, CIC, has a market share of 34.7% in 2023 declining by 3.4% from 38.1% in 2022. According to World Bank data, (2023), globally, businesses rely on banks for funding at 40% while on capital markets at 60%, whereas in Kenya, banks provide 99% of funding while capital markets fund businesses by only 1%, this denotes a stunted and constrained capital market. This is confirmed by the Cytonn report on banks versus Unit funds for 2017 to 2023 which states that there was a 2.8% decline in funds growth while banks recorded a growth of 3.6%.

In comparison with other sectors like banks, Sacco's, Pensions, and SMEs, the CMA, CBK, and SASRA annual reports of Q1 2023 describe the Kenyan Unit fund sector as dwarfed with a market share of 0.2T compared to banks (4.8T), pensions (1.6T), and Sacco's (0.8T). A study by Ndanu & Gatauwa (2023), the Kenyan MF industry is relatively small scale with low market coverage possibly due to unexploited market, yet according to Farid & Wabha, (2022), most investors show preference to big size funds with the perception that they perform well. However, an optimal size definitely leads to good returns that justify

overall cost of investment. A study by Pandow (2017), concludes that traditional methodologies cause information asymmetry disabling the free flow of real-time information causing market failures evidenced by adverse selections and moral hazards.

A study by Thune, (2022), concludes that Investors may use multiple benchmarks for monitoring portfolio performance or for measuring individual investment security performance. The primary portfolio monitoring metric for performance is total return, which is usually measured against a benchmark. Other metrics include Standard deviation, Beta, R-squared, and Sharpe Ratio. As per study by Akombo, et al (2020), performance helps companies to monetarily determine the financial activities of a firm to determine its position in the market in comparison with its counterparts. It shows the financial health of the shareholders in terms of return on investments by the closure of a specified period in comparison with the start of business.

A study by Tamplin (2023), concludes that Portfolio performance evaluation is an essential aspect of the process of investment. It allows investors and portfolio managers to assess the effectiveness of their investment strategies with the main goal of performance evaluation to determine whether the chosen investment strategy is achieving the desired risk and return objectives. Performance measurement is paramount in effective management of a company and the general success of the business processes since only measurable things can be managed well (Cheruiyot & Jagongo, 2022).

In Kenya, Kamau and Maina (2019) investigated the effect of portfolio diversification on the performance of Unit Funds, targeting the county of Nakuru. Using regression analysis on primary data, the results showed a strong positive and statistically significant effect of

bond diversification on performance of MFs. Similarly, there was a positive moderate significant effect of share diversification performance of Unit funds. A study by Namu and Nthemba, (2021), shows Unit funds in Kenya have continued to register poor performance preventing them from attaining financial stability and growth. The researcher further states that the overall performance of these firms has been poor possibly due to poor financing.

The use of traditional methodologies in performing business operations and financial transactions also contributes to the lagging behind in the growth of Unit funds in Kenya (Ndanu &Gatauwa, 2023). A study by Ndanu &Gatauwa, (2023) on collective investment schemes in Kenya, focusing on fund characteristics and performance, institutional factors positively affect the return on investment while investment strategies do not affect ROI. Despite industry expectations, the performance of the Kenyan Unit fund industry has continued to record a negative trajectory over time. Returns on pooled assets in the form of portfolios have been unattractive all through (Shitemi, Maingi & Egessa, 2023). This can be attributed to information asymmetry where investors make uninformed investment decisions due to unreliable and insufficient information. Most investors have limited knowledge on market trends leading to adverse selection problems due to poor market timings (Ade, 2017).

A study by Joshi, (2023), Unit fund institutions act like investment enablers that pool resources from many individuals to invest in a diversified portfolio of securities collectively. These securities include stocks, bonds, money market instruments, and other assets, all selected and managed by professional fund managers. Investors purchase shares or units of the Unit fund, effectively becoming shareholders in the collective investment.

Unit funds allow individuals to access a diversified investment portfolio without substantial capital. By spreading investments across various asset classes and industries, they aim to reduce risk and provide exposure to broader market trends.

The evaluation of the performance of Unit funds can be done using various metrics which include; return on assets, return on investment, Annual growth rate, compounded annual growth rate, the Jensen Alpha, the Sharpe ratio, and the Treynor ratio. The researcher used return on assets by way of financial ratios computation. The ideal is a progressive growth rate that denotes good performance and positive growth. High-level technology, for example, Artificial Intelligence and blockchain, have unveiled fresh innovations in financial technology that are accelerating growth in the market (Statista Market Insight report, 2023).

Despite the performance prospect mirrored in the rising number of funds, the financial growth and performance have remained low. According to a study done by Ndanu and Gatauwa, (2023) on performance of CIS in Kenya, institutional factors positively impact the return on investment of Unit funds in Kenya. A study by Khurana and Panjwani (2017) using the Sharpe, Treynor, and Jensen measures to evaluate the performance of fifteen open-ended hybrid Unit fund schemes in India, concluded that all the schemes have outperformed the market. This study used return on assets to measure fund performance as the ideal and justifiable metric for efficiency in asset use to generate profits. This captures the operational efficiency, asset utilization and decision making which jointly affects performance in relation to fintech and fund size (Ongore & Kusa, 2023; Munyiri & Ngugi, 2021)

### **2.3.3 Fund Size and Performance of Unit Trust Funds in Kenya**

Fund Size, the moderating variable represented the total assets under management (AUM) of a unit trust fund, reflecting economies of scale and resource capacity for adopting FinTech. Primary data measurement was done by respondents indicating on a five-point Likert scale. Secondary data measurement was done by AUM values extracted from CMA reports and fund financial statements and transformed into the natural logarithm of total assets to reduce skewness.

One of the ways to gauge the performance of the firm is by assessing the assets under management as it signifies investor trust (Farid & Wahba, 2022). When in business the main motivation of the investor is to make profits on every investment, this is achieved whenever there is growth in the share prices. However, Kenyan Unit funds have registered poor performance in comparison to their counterparts both regionally and globally. This poor performance possibly scares away potential investors. Therefore, fund size is used in other economies to explain the success of Unit funds (Nthimba et al., 2021).

A study by Ndanu and Gatauwa (2023), shows that the size of the fund affects the overall financial performance of the fund. In their study, on fund characteristics of collective investment schemes, Simiyu et al, (2023) concluded that size contributes to overall performance since Kenyan funds are small in size, therefore this affects performance. Farid and Warbha (2022) did a study on the influence of fund size on the performance of Egyptian funds, using fund size, age, type, and expenses. The results showed that fund size had a significant negative effect on performance. These results were consistent with Alvi

and Rehan (2020) who researched Pakistan Unit funds and concluded that the size of the fund related significantly to the performance of Unit funds.

Simiyu, Yugi and Alala (2023) studied the Moderating Role of Fund Size on the Relationship between the Disposition Effect and the Portfolio Performance of Unit Funds in Kenya. Using the causal design, secondary data gathered from published financial data, using panel data technique for eleven years, from 2011 to 2021. Multiple regression was utilized where the results indicated a significant negative disposition effect on the performance.

A study done by Alvi and Rehan (2020) on factors affecting Pakistan Unit fund shows that fund size significantly affects performance. The study critically examined the potential performance drivers, using convenience sampling method covering 16 out of 19 asset management companies consisting of 114 best performing funds in the Unit Fund Association of Pakistan (MUFAP). The data was for the period from March 2013 to March 2018, using multiple regression. Results showed that the size, risk, total income, total expense, age, and lagged returns recorded a positively significant effect.

According to a report by Cytonn Kenyan Unit Funds overview, (2023), based on the released statistical bulletin for quarter one, 2023 of the Capital Markets Authority (CMA), the performance of UTF's showed that ' Assets under Management grew by 3.3% to Kshs. 161.0 bn as at the end of 2022, from Kshs. 155.9 billion recorded in Q3'2022. Similarly, on a year-on-year basis, the AUM grew by 19.6 %, from 134.7 bn at the end of FY'2021. Additionally, as of the end of FY'2022, there were 34 approved Collective Investment Schemes, making up 150 funds in total. This shows a growing market though at a slow rate

with notable back-and-forth asset growth trends which could be an indicator of an underlying problem

## **2.4 Empirical Review of Literature**

This section discusses the various relevant studies previously done to identify and bring out the research gaps and motivation for the study. The studies are related to the study variables which are financial technology, fund size and performance of Unit funds in Kenya. The constructs of financial technology discussed are; digital payments, digital portfolio management, digital deposits, and digital risk management. For financial performance, Return on investment, and annual growth while for fund size, the assets under management.

### **2.4.1 Digital Payments and Financial Performance of Unit Trust Funds**

Nyabuto (2023) examined the Effect of FinTech on the Operational Performance of Investment Firms in Kenya using a census of 68 firms analyzed through multiple regression. The findings indicated that fintech innovations, especially digital payments and robo-advisory services, had a positive and significant effect on operational performance. The study concluded that digital payment systems enhance transaction speed and reduce costs, leading to improved profitability. This is relevant to the current study since mutual funds similarly rely on efficient payment systems to improve investor experiences and fund performance.

Kipkoech (2023) conducted a quantitative study on the Relationship Between Fintech Adoption and Performance of Commercial Banks in Kenya using data from 40 banks

analyzed with multiple regression. The results showed that digital payment adoption significantly improved bank profitability through transaction efficiency and enhanced customer convenience. The study concluded that fintech-driven payment systems are critical to financial performance. Although the study focused on banks, it supports the current study by confirming that digital payment adoption can positively affect financial performance across financial institutions, including unit trust funds.

Mwangi (2025) carried out a cross-sectional study on, *The Role of Digital Payment Systems in Financial Inclusion: A Study of Mobile Banking Adoption in Kenya* using a sample of 450 respondents. The findings revealed that mobile banking and payment platforms enhance saving and investment participation. The study concluded that digital payments promote financial inclusion by simplifying fund access and lowering transaction barriers. This relates to the current study since mutual funds benefit from increased inclusion and investor participation enabled by digital payments.

Limna et al., (2022) did a systematic review of the growing trend of digital economy, using the methodology of narrative synthesis to obtain data. The inclusion-exclusion criteria was used to identify published and peer-reviewed studies that clearly defined a digital economy. Results indicated a growing trend in digital economy where digital platforms are employed in business payment processes. The conclusion was that it's critical to carefully pay attention to the digital economy to enhance and grow the economic systems.

Ndichu and Kariuki, (2021) did research on the *Fintech Predictive Modeling and the Performance of Investment Firms in Kenya*. The study population was 57 investment firms,

employing mixed method research design by incorporating descriptive-explanatory research design. Questionnaires and an in-depth interview guide were used to fetch data. Coefficient of FinTech predictive modeling has a significantly positive impact on firm performance. The conclusion was, financial technology in predictive modeling allows investment firms to forecast business growth and customer behavior changes and come up with client-centric products and services for operational efficiency.

Kariuki, (2021), studied the influence of fintech investment financing mechanisms on the performance of Kenyan investment firms. Explanatory-descriptive designs were used with a sample size of Fifty-seven, using a questionnaire, and one director from each investment firm was interviewed. Content analysis was used for Qualitative data while structural equation modeling was utilized for the quantitative data. The results revealed that FinTech peer-to-peer lending, equity crowdfunding, crowd lending, and factor-scoring FinTech services have a significant positive relationship with the performance of investment firms.

Aicha, (2023), studied on FinTech services and financial inclusion in Kenya. Aiming at investigating the effect of various FinTech services. Using the descriptive design and panel secondary data, Inferential (regression analysis) was used for analysis using the trend analysis. The findings revealed a positive relationship between FinTech services and financial inclusion in Kenya.

Mutinda, Jagongo, and Kenyanya, (2017) did a study on Financial Inclusion Innovations and Performance of Commercial Banking institutions in Kenya. He focused on financial inclusion innovations adopted by commercial banks in Kenya. The study looked at the use of technology in banks and its impact on the financial performance on Kenyan banks. The

researcher obtained time series data from CBK and annual bank supervisory reports from Kenya Bankers Association for the period 2010 to 2016. Correlation analysis revealed a strong positive relationship between financial inclusion strategies and financial performance of commercial banks in Kenya.

#### **2.4.2 Digital Deposits and Financial Performance of Unit Funds in Kenya**

Akoko (2024) investigated the Effect of Mobile Transactions on the Financial Performance of Mutual Funds in Kenya using a descriptive research design and secondary data from licensed fund managers. The study found that digital deposits and mobile transactions had a positive influence on fund liquidity and investor retention. It concluded that digital deposits improve the convenience of contributions, enabling funds to attract more investors and manage liquidity efficiently. This study relates to the current one as it supports the positive link between digital deposit adoption and fund performance.

Sang (2017) conducted a study on the Effect of Asset Allocation on the Financial Performance of Unit Trust Schemes in Kenya using secondary data from 2013–2016 analyzed through panel regression. The results indicated that the proportion of funds held in deposits influenced returns and liquidity. The study concluded that efficient management of deposit-related assets contributes to fund stability. This relates to the current study by suggesting that digital deposit platforms can facilitate efficient portfolio allocation and enhance performance.

Cytonn Research (2024) analyzed Unit Trust Funds Performance in Kenya using industry data from the Capital Markets Authority and Central Bank. The report found that money

market funds experienced significant inflows following the introduction of mobile deposit options. It concluded that ease of digital deposits drives retail participation and increases fund AUM. This directly relates to the current study as it provides market-level evidence that digital deposits promote fund growth and performance.

The Capital Markets Authority (2023) in its Collective Investment Schemes Report reviewed all registered unit trust funds in Kenya and observed that funds that had adopted mobile and online deposit channels reported higher inflows and improved liquidity positions. The report concluded that digital deposit systems enhance operational efficiency and investment participation. This is relevant to the current study as it provides regulatory evidence supporting the positive link between digital deposit adoption and fund performance.

Mbataru (2009) analyzed Factors Affecting the Performance of Unit Trust Funds in Kenya using secondary data from all licensed funds at the time. The results showed that fund characteristics, including fund size and capital inflows, significantly affected financial performance. The study concluded that improved inflows through digital deposits could enhance fund returns. This relates to the current study as it supports fund size as a key moderator in the digital deposits–performance relationship.

Ndichu and Kariuki, (2021) examined the influence of financial technology and investment financing mechanisms on the performance of investment firms in Kenya. Using mixed design of descriptive and explanatory design, with questionnaire to collect data, then analyzing data using the content analysis technique and structural equation modeling. The

outcome showed that FinTech had a significantly positive relationship with the performance of investment firms in Kenya. Siska (2022) examined how FinTech services affect Islamic banking's financial performance. Using secondary data in annual time series format from 2016 to 2020 and simple Linear Regression, t-test, and determination of coefficient test, findings showed digital service had an impact on the bank performance.

Tshukudu, Mokatsanyane, Ferreira-Schenk, van Rensburg and Sgammini (2022) conducted a study to determine the relationship between fintech and performance of commercial banks. Using simple linear regression, descriptive analysis and correlation analysis based on the top five banks in South Africa, return on equity and return on assets, were utilized using secondary bank data from 2011 to 2021. The results showed that financial technology adoption positively influenced the the number of mobile subscriptions used for Internet banking. The study recommended a shift from traditional banking to a more digital approach for the benefit of improved financial performance and gaining market share within the sector.

Ndede, (2020) did a study on digital banking technology and Kenyan banks' performance. Aiming at evaluating how digital banking technology innovations affect the performance, and using descriptive survey design, a questionnaire to collect primary data while targeting a population of 42 commercial banks. The study analyzed data using a descriptive methodology, findings showed that innovations in digital banking positively influence the financial performance of Kenyan commercial banks.

Salman (2021) investigated on FinTech, financial performance and client satisfaction. A sample of seven banks representing Egyptian banks over the period from 2016 to 2020, in

addition to 396 banking clients. The findings revealed that financial technology had an impact on bank clients' satisfaction. Yударuddin (2023) studied on FinTech startups on Islamic and conventional banking performance in Indonesia. Data was for fifteen years on 124 conventional and Islamic banks in Indonesia from 2004 to 2018. The two-step generalized methods of moments were utilized in estimating the system model. Results showed that FinTech startups had detrimental effect on bank performance in Egypt.

Bashayreh and Wadi (2021) examined the effect of FinTech services on bank performance using panel data from thirteen Jordanian commercial banks for the period (2012–2018). Return on equity was used to measure level of performance. Control variables were growth in GDP, size of bank and leverage. The Fintech services were represented by services from ATM, internet banking, and phone banking. The outcome revealed that fintech services had a positive impact on performance of bank in Jordan. Yan and Yiping (2016), researched on digital finance in China and concluded that digital finance significantly lowers transaction costs; enhances credit risk scoring through data that helps pin risk-based pricing; reduces information asymmetry, and expands the set of feasible transactions.

Sirengo and Muturi, (2022) studied on the Effect of E-Banking on Kenyan Commercial Banks' performance in Kenya, anchoring the study on diffusion theory, technology Acceptance Model, and theory of Perceived Characteristics. Descriptive and longitudinal design with target population being licensed Commercial Banks in Kenya. Secondary data from central bank of Kenya, published and audited financial reports between 2015 and 2019. Analysis employed inferential and descriptive statistics and the results showed a

relatively strong relationship between electronic banking and the performance of commercial banks in Kenya.

Gichana, Nyakundi, and Muturi, (2016) studied on technology-enabled banking services and performance of commercial banks in Kenya, with a case study of cooperative bank, Kisii branch, Kenya. The target consisted of 280 banks with sample size of ninety-three for the period between January 2016 and May 2016. A questionnaire was the main instrument of data collection. Using descriptive survey, results revealed a perfect negative correlation between technology-enabled services and the performance of banks in Kenya. The study recommended that banks should desist from making huge investments in technology with the expectation of improving performance but instead use technology to as a management tool that aids decision making.

Ibua, Millan, and Kamau, (2023) did a study on the Effect of Internet Banking Technology on Loan Performance of Deposit-Taking SACCOs in Mombasa County, Kenya. The study utilized diffusion innovation theory and descriptive design, with a sample size of seventy given questionnaire that gave a 90% response rate. Regression analysis was used and the results showed that implementation of digital financial innovations in loaning procedures, there is an increase in loan performance. The study therefore recommended using internet banking technology, since it improves performance especially with the financial sector getting digital.

### **2.4.3 Digital Portfolio Management and Financial Performance of Unit Trust Funds in Kenya**

Kariuki (2024) conducted a study on the Effect of Digital Portfolio Management Tools on the Performance of Collective Investment Schemes in Kenya using a descriptive and correlational design on a sample of 42 fund managers. The study found that the adoption of automated portfolio management systems significantly improved fund efficiency, return predictability, and client satisfaction. It concluded that technology-enabled portfolio tools enhance fund diversification and real-time risk tracking, which improve overall performance. This relates to the current study as it supports the idea that digital portfolio systems can strengthen performance outcomes in unit trust funds.

Omondi and Wekesa (2023) examined the Influence of FinTech Adoption on Investment Decision-Making among Fund Managers in Kenya using a mixed-method design involving surveys and regression analysis. The results showed that the use of digital portfolio platforms improved the accuracy of investment decisions and enhanced returns. The authors concluded that digital analytics tools provide fund managers with data-driven insights that support superior performance. This relates to the current study since portfolio management is one of the fintech dimensions examined for its impact on fund performance.

Kiarie (2022) studied the Adoption of Robo-Advisory and its Effect on Fund Management in Kenya using a sample of 35 fund management firms analyzed through multiple

regression. The findings revealed a positive relationship between robo-advisory adoption and fund performance efficiency. The study concluded that digital portfolio management enhances cost efficiency and scalability in fund management. This is relevant to the current research as it supports the hypothesis that digital portfolio management positively influences performance.

World Bank (2023) in its Fintech and Capital Markets Report for Sub-Saharan Africa analyzed the role of digital investment tools in fund performance using regional data. The report found that fund managers using algorithmic and digital portfolio systems achieved higher returns and reduced operational costs. The conclusion was, digital portfolio management promotes market efficiency. This supports the current study by demonstrating the macro-level impact of digital portfolio tools on fund performance.

Cytonn Research (2024) noted in its Quarterly Unit Trust Fund Performance Report that firms employing automated asset allocation and rebalancing systems outperformed those using manual systems. The report concluded that digital portfolio management enhances accuracy in portfolio rebalancing and reduces timing errors. This relates to the current study by providing market-level evidence of the positive link between digital portfolio tools and performance of unit trust funds.

A study done by Makhoha, Namusonge, and Sakwa (2016), using a mixed research design with primary data collected using questionnaires and interviews, sought to examine effect of diversification of portfolio on banks' financial performance. The sample size was 43

banks and 133 bank managers adopting the simple random technique. The finding revealed that portfolio diversification had a significant but positive influence on banks' financial performance. Also noted was that, investments diversification recorded a growth in the returns and overall performance in the previous years.

A study by Musembi and Jagongo, (2018) on the Impact of Portfolio Diversification on Financial Performance of Investment Firms Listed at NSE, Kenya, focusing on determining how portfolio diversification impacts overall financial performance of firms investing at the NSE in Kenya. Utilizing the explanatory experimental design and targeting on the investment firms trading at the NSE, the study outcome showed that diversification improves firms' financial performance over time.

Osewe, (2020) studied on Portfolio Diversification and Financial Performance of NSE listed Investment Firms. The researcher used the descriptive design targeting a population five listed firms and obtaining secondary data using a questionnaire. Census survey was used, for a period of ten years beginning 2010 to 2019. Data analysis was done using multiple regression and the outcome showed a significant positive correlation between investment portfolio diversification and financial performance of firms listed at the NSE.

#### **2.4.4 Digital risk Management and Financial Performance of Unit Funds in Kenya**

Kamau (2025) conducted a study on the Effect of Digital Risk Management Systems on Financial Performance of Investment Firms in Kenya using a descriptive research design with a sample of 50 investment institutions. The findings revealed that digital risk management tools significantly improved firms' ability to detect and mitigate operational

and market risks. The study concluded that technology-based risk management enhances financial performance. This relates to the current study since risk management is a key fintech construct influencing fund stability and returns.

Waweru and Njoroge (2024) examined the Influence of FinTech Risk Management Practices on Performance of Fund Managers in Kenya using a survey of 60 licensed fund managers analyzed through regression analysis. The study found a positive and significant relationship between digital risk management systems and fund performance. The conclusion was that integrating automated compliance and fraud detection tools improves transparency and investor confidence. This supports the current study as it confirms that digital risk management contributes to fund sustainability.

Ochieng (2023) carried out a study on Technology Adoption and Risk Management in the Kenyan Financial Sector using data from 45 financial firms. The results showed that firms using real-time digital monitoring systems experienced lower losses and higher profitability. The study concluded that proactive digital risk control enhances institutional resilience. This relates to the current study as it validates the role of digital risk management in improving fund performance.

KPMG (2024) in its FinTech and Risk Management Outlook for Kenya reported that fund managers integrating digital risk analytics reduced compliance costs by 25% and improved return consistency. The report concluded that advanced digital risk tools minimize operational disruptions. This study demonstrates the measurable financial benefits of digital risk management adoption among investment institutions.

FSD Kenya (2023) in its FinTech Landscape Report analyzed how digital systems influence risk culture and performance across financial institutions. It found that digital risk monitoring improves fund liquidity, investor trust, and financial stability. The study concluded that digital risk systems create a strong governance foundation for sustainable performance. This aligns with the current study's view that digital risk management positively affects the financial performance of unit trust funds

A study by Amira, et al, (2023) on Liquidity Risk Management and Financial Performance of Commercial Banks in Kenya. The study was anchored on shiftability and liquidity management theories, and positivism philosophy. The explanatory and longitudinal research designs were utilized on a population of thirty two Kenyan commercial Banks. Panel data consisting of time series and cross-sectional data was used for ten years from 2010 to 2019. The results of the study showed that Liquidity risk management had an insignificant negative effect on return on investment as a measure of financial performance. The study made recommendations that the risks ought to be managed at minimal levels to avoid making losses.

Cirappa, (2023) did a study on Risk management focusing on Unit fund performance drawing evidence from varied Indian based funds. The study used basic techniques like the standard deviation to measure volatility and beta to evaluate systematic risk of the portfolio, Sharpe ratio was utilized to measure performance in terms of risk-return. The performance of firms was analyzed using averages and rate of returns. The results showed that in large-size funds there is a better return with low risks while Medium size funds are

risky at mid-term with high returns with high risks. The small-size funds have high returns with low risks in the long term period.

Sawant, Amonkar, and Melo (2023) studied on Performance Evaluation of Indian Unit Funds, Using Risk Return Relationship Models. The study narrowed to twelve growth-oriented Unit funds using the Treynor index, Sharpe index, and Jensen measure. Monthly data was used for the period from Jan 2015 to Dec 2019. Findings showed that Unit funds didn't perform better than their benchmark indicators except the Multi-asset fund, this was done using both non-risk-adjusted measure of the average returns and Risk-adjusted measures. Alvi and Rehan (2020) did a study on factors affecting Unit fund performance in Pakistan, the study critically examined potential performance indicators for Unit funds. With a sample size of sixteen companies while using convenient sampling method and secondary data for five years from 2013 to 2018. Multiple regression model was used and the results showed that fund risk significantly affects fund performance.

#### **2.4.5 Fintech, Fund Size and Financial Performance of Kenyan Unit Trust Funds.**

Nthimba, Jagongo, and Wamugo (2021) examined the effect of fund size on the performance of unit trust funds in Kenya using an explanatory research design. The study employed a census of 16 registered unit trust firms, utilizing secondary data from 2005 to 2017. The findings revealed that fund size had a statistically significant positive effect on fund performance. The study concluded that larger funds benefit from economies of scale and better resource allocation, thereby enhancing returns. This supports the present

study's expectation that fund size positively influences performance through improved efficiency.

Maina (2013) conducted a study on the effect of size on the performance of mutual funds in Kenya using a descriptive research design. The study analyzed secondary data for 33 registered mutual funds and applied regression analysis to test the relationship between fund size and returns. The findings indicated a positive relationship between fund size and performance, suggesting that larger funds enjoy operational efficiencies and lower transaction costs. This evidence reinforces the argument that fund growth contributes to improved performance among Kenyan mutual funds.

Wandia (2015) analyzed the effect of fund characteristics on the returns of mutual funds in Kenya using secondary data from 19 funds licensed by the Capital Markets Authority between 2010 and 2014. The study employed regression analysis to test the influence of fund size, age, and costs on returns. Results showed that fund size had a significant but negative relationship with performance, implying that beyond a certain threshold, larger funds may experience inefficiencies. The study concluded that the impact of fund size on performance may vary depending on management practices and market conditions, suggesting a non-linear relationship.

Wafula, Charles, and Alala (2023) examined the moderating role of fund size on the relationship between overconfidence bias and portfolio performance of mutual funds in Kenya. The study adopted a causal research design using panel data from 2011 to 2021. The findings revealed that fund size negatively moderated the relationship between

overconfidence and performance, indicating that larger funds may reduce the effect of behavioral biases on investment outcomes. The study concluded that fund size can influence how internal and external factors shape fund performance, supporting its inclusion as a moderating variable in performance models.

Farid and Warbha (2022), studied on Unit fund size and its effect on financial performance of Egyptian funds. Seven types of funds were analyzed to determine the development of the fund's performance for the period from 2012 to 2017. Using Secondary data fetched from the Egyptian Investment Management Association; analysis was done using multiple regression. Using fund size, age of the fund, fund type, and fund expenses as the independent variables, the outcome revealed that fund size has a significant but negative impact on performance of Unit funds.

Alvi and Rehan (2020) conducted a study on Pakistan funds to examine the potential performance drivers of Unit funds. The convenient sampling technique was used on 16 asset management companies comprising 114 Unit funds. Secondary data for a period of five years from 2013 to 2018 was used. A multiple regression model revealed that the fund size is positively significant to fund performance.

Patil, Waghmode, Shukla, and Desai (2022) did an explanatory study on Unit funds' Performance in India. The research examined Assets under Management (AUM) from the year 2010 to 2020, using secondary data fetched from annual reports, descriptive statistics and coefficient of variation, performance was calculated using the average annual growth rate (AAGR) and also the compounded annual growth rate (CAGR). The finding showed

a high positive correlation between various sizes of Unit funds with good performance noticed. The study recommended investment of surplus income with minor-risk investment options to increase the fund size.

Muthomi and Muturi (2019) studied on performance of Unit funds in Kenya, using stock selection, market timing, fund size, and expense ratio as independent variables. The study employed Treynor and Mazuy's (1966) model for market timing and stock selection. Using the single-index asset pricing model to estimate the performance (Jensen's alpha) of each selected Unit fund. A cross-sectional multiple regression model was utilized and the outcome showed that stock selection and market timing are the only factors that affect the performance of Unit funds in Kenya. Stock selection was found to be a significantly positive determinant of Unit funds. Fund size did not affect Unit fund performance.

Indro, Jiang, Hu, and Lee (2019), studied on fund size and financial performance, using a sample of 683 non-indexed U.S equity funds over three years from 1993-1995. The outcome showed that 20 % of the Unit funds were smaller than the break-even-cost fund size and 10 percent of the largest funds were overinvested. The study concluded that fund size affects Unit fund performance, and therefore Unit funds must attain an optimal fund size to achieve sufficient returns to justify their costs of acquiring. Diminishing marginal returns to information acquisition and trading, and the marginal returns become negative when the Unit fund exceeds its optimal fund size.

Kiran and Naka (2023), did a study to investigate the effects of size on the risk-adjusted fund performance of USA Extended trade funds (ETF). Using panel quantile and cross-

sectional regression approaches, the regression results show that the rate of return-to-scale diminishes as the Fund size increases and becomes negative for the most significant fund group. The size has a considerably substantial negative impact on the highest-performing clusters of equity funds, suggesting that the diseconomies of scale found in conventional active Unit funds affect the ETFs. The results align with Indro et al (2005) findings of Unit funds that there are diminishing marginal returns to information acquisition and trading, and the marginal returns become negative when the fund exceeds its optimal size.

Overall, empirical evidence in Kenya presents mixed findings on the effect of fund size on performance. While some studies (e.g., Nthimba et al., 2021; Maina, 2013) found a positive relationship, others (e.g., Wandia, 2015; Wafula et al., 2023) revealed negative or moderating effects. These differences highlight the importance of contextual factors such as management efficiency, investment strategy, and technological adoption. In the current study, fund size is incorporated as a moderating variable to test whether larger unit trust funds leverage digital financial technologies more effectively to enhance performance.

## **2.5 Summary and Research gaps**

The number of Unit funds in Kenya has grown steadily since inception. The net asset value standing at sh. 49.5 Billion as of the end of June 2019 (MFI, 2020). This growth is not reflected in the financial performance of the funds, nor is it comparable to Kenya's counterparts regionally and globally. More developed Unit Fund markets like the Republic of South Africa have several fund institutions at 705 with an asset value of USD 147 billion (Price water house coopers, 2020).

The Kenya Unit funds market is an attractive investment with an unexploited market that ought to be improved further. This performance prospect is the motivation for this study under the pretext of financial technology and fund size. Most of the studies done in Kenya concentrated on the growth of Unit funds as opposed to the financial performance of MFs in the light of financial technology and prudential regulations. Previous studies have posted conflicting results where some indicated positive while others negative effects of Fintech, This study on financial technology adoption, fund size, and financial performance of UTFs in Kenya is intended to bridge the existing contextual, conceptual, methodological, and geographical gaps in the previous studies as summarized in the table below.

**Table 1: Summary of Relevant studies and Research Gaps**

Author and year	Focus of study	Methodology	Findings	Research gaps
Ndichu and Kariuki, (2021)	The influence of FinTech investment financing mechanisms on performance of investment firms in Kenya	Descriptive and explanatory research designs	Financial technology has a positive and significant impact on performance	methodological gap, panel not used
Amarnath, (2019)	B.R Trending performance of selected Unit funds in India	trend analysis using Treynor, Sharpe, Jensen ratios was used to measure performance of five debt and equity Unit funds for four financial years 2015-2019	-	Financial technology was not used in the study
Tshukudu et al (2022)	Relationship between financial technology and commercial banks' financial performance	A simple linear regression was used along with descriptive analysis and correlation analysis based on the top five banks in South Africa.	There is a relationship between the financial performances of the top five banks in South Africa. Financial technology led by the number of mobile	Other measures of Fintech were not considered. E.g.; digital management of assets and digital risk management.

Author and year	Focus of study	Methodology	Findings	Research gaps
			subscriptions used for internet banking	-Conceptual gap
Simiyu, Yugi & Alala (2023)	Moderating Role of Fund Size on the Relationship between Disposition Effect and Portfolio Financial Performance of Unit Funds in Kenya	Causal research design using secondary data. Multiple regression model was utilized	Disposition effect had a significant negative effect on the financial performance of the Kenyan Unit funds	The study didn't utilize financial technology as a variable
Farid and Warbha (2022)	The effect of fund size on the financial performance of Unit funds in Egypt.	Independent variables used in the study were fund size, age of the fund, fund type and fund expenses.	fund size has a significant negative impact on Unit fund performance in Egypt	Conceptual gap whereby Financial technology was not considered.  Geographical gap
Alvi and Rehan (2020)	Factors affecting Unit fund performance in Pakistan	Convenience sampling technique was used to identify 16 Asset management companies;	Asset under management (fund size), fund risk, total income, total expense, age of the	Financial technology not used.

Author and year	Focus of study	Methodology	Findings	Research gaps
		Multiple regression model was used.  Independent variables were  fund risk, total income, total expense, age of the fund	fund and lagged returns have a significant positive impact on fund performance.	
Salman (2021)	Impact of FinTech on financial performance and client satisfaction in commercial banks	A sample size of seven Egyptian banks, and 396 clients was used, secondary data was used.	The study found a significant impact both of "banking investments on FinTech" and "number of Fitch's drives" on the rate of return on bank assets under the types of ownership (Domestic/Foreign/Mix) as a control variable	The study focused on client satisfaction, and did not show how financial technology, financial performance of the banks and client satisfaction are related.  -Contextual and conceptual gaps
Yudaruddin (2023)	Impact of financial technology	Data were collected from a sample of 124	Findings indicated that FinTech startups have a	The study findings were

Author and year	Focus of study	Methodology	Findings	Research gaps
	(FinTech) startups on Islamic and conventional banking performance in Indonesia.	conventional and Islamic banks in Indonesia from 2004 to 2018. The two-step generalized methods of moments was used to estimate the system model	detrimental effect on bank performance. This study also finds that Islamic banks have low performance compared to conventional banks.	contradictory making it difficult to generalize in non-Islamic banks
Phan et al. (2020)	Financial technology (Fintech) and its influence on bank performance	The authors studied the Indonesia market, where FinTech growth has been impressive. Using a sample of 41 banks and data on FinTech firms,	The study showed that the growth of FinTech firms negatively influences bank performance	Even though the study was conducted in financial sector, it did not focus on Unit funds
Siska (2022)	How Fintech services affect Islamic bank's financial performance. With a case study at Bank Syariah Indonesia (BSI)	Quantitative-descriptive research design. Financial ratios used are CAR, ROA, ROE, BOPO, FDR. S Secondary data was used. Annual time series data format from 2016 to 2020.	Finding of current research proves that Fintech service has an impact on the financial performance of BSI in terms of CAR, ROA, ROE, BOPO, and FDR	The study did not show how financial technology was operationalized and measured

Author and year	Focus of study	Methodology	Findings	Research gaps
Bashayreh and Wadi (2021)	Effect of FinTech services on banks performance in thirteen Jordanian commercial banks for the period (2012–2018) using the panel data	The research employed return on equity (ROE) as a proxy to measure the performance level in addition to three types of control variables applied in this study Gross Domestic Product (GDP) growth, Bank size (BS) and financial leverage (LEV)..	The empirical findings revealed that the effect of Fintech on Jordanian banks' performance was positive. Regarding the control variables, the bank size and GDP positively affected the profitability, while the financial leverage was not significant.	The Fintech factors include automated teller machines services, internet banking services and phone banking services, the variables in the proposed conceptual framework were not included.
Anindya and Kartini (2023)	Analysed differences in banking financial performance in Indonesia before and after the issuance of FSA regulations on financial technology	This research is a quantitative study using a sample of 37 banking companies listed on the Indonesia Stock Exchange. The data used is secondary data obtained from annual reports for the period 2014-2017 before the issuance of OJK regulations and 2018-	The results of this study indicate that the ROA, ROE, and CAR variables have a greater value after the regulation on financial technology, the BOPO variable has a smaller value after the regulation on financial technology and the LDR variable has a smaller	The results did not indicate the moderating variable role on the the relationship between financial performance and financial technology.

Author and year	Focus of study	Methodology	Findings	Research gaps
		2021 after the issuance of OJK regulations	value after the regulation on financial technology	The study did not indicate how financial technology was measured
Mugo, Muathe and Waithaka (2017)	Moderating effect of government policies on the relationship between mobile technology services and performance of Deposit-Taking Savings and Credit Cooperative Societies (SACCOs) in Kenya	Descriptive and explanatory research designs were adopted based on a sample of 86 Deposit-Taking SACCOs. A structured questionnaire administered to two managers in each SACCO was used for data collection	The study found that government policies positively moderate the relationship between mobile technology services and performance of Deposit-Taking SACCOs implying that appropriate government policies that are favorable for the Deposit taking SACCOs should be formulated	The study focused on government policies and it was conducted on Sacco's which are regulated by SASRA  -Contextual gap
Said and Kaplelach (2019)	Moderating effects of CBK rules and	The study also sought to determine the moderating	During test for moderation, it was found	The study limited itself to m-

Author and year	Focus of study	Methodology	Findings	Research gaps
	regulations and M-banking on the financial performance of selected commercial banks in Kenya.	effects of CBK rules and regulations and M-banking on the financial performance of selected commercial banks in Kenya. The study adopted a descriptive research design. The target population comprised of 42 commercial banks. Data were collected using structured questionnaires.	that CBK rules and regulations moderate m-banking and financial performance of selected commercial banks in Kenya. This implies that compliance with CBK rules and regulations improves the performance of commercial banks.	banking which was not conceptualize using digital deposit, risk management and asset management.
Mugambi and Muturi, (2019)	Factors affecting Performance of Unit Funds in Kenya	Used single index pricing model and Cross section multiple regression mode.	Stock selection and market timing had a significance effect on performance.	Fintech was not considered.  The performance was not specified as financial or otherwise
<u>Rohleder, Wilkens, Zink, (2021)</u>	The Effects of Unit Fund Decarbonization on	Anew methodology to identify equity Unit funds' decarbonization trades, was used-metric of	Findings were that a critical mass of investors is able to reduce carbon emissions	The study neither looked at Financial performance nor

Author and year	Focus of study	Methodology	Findings	Research gaps
	Stock Prices and Carbon Emissions	decarbonization selling pressure (DSP) on stocks.		adopted financial technology  -conceptual gap
Enguk,Rahman, <u>Rahim.</u> (2018)	Adoption of financial technology (Fintech) in Unit fund/ unit trust investment among Malaysians	The research methodology in an adoption of FinTech service in Unit fund/ unit trust was conducted through questionnaire	No specific findings were outlined	Study was based in Malaysia, however it dint look at financial performance as a D.V  -geographical gap
<u>Singh,Goel,</u> <u>Baral</u> (2021)	Application of Digital Technology on Public Sector Banks: Special Reference to Unit Fund Investment	Empirical Analysis	no specific findings	Mix-up on study population (banks or Unit funds)  -conceptual gap
Kumar , Gupta &Shailendra (2023)	The role of FinTech on financial awareness and Unit	Methodology used was descriptive statistics, correlation, regression analysis, and ANOVA	Study's outcomes indicate that FinTech strongly impacts financial literacy and investing decisions	The researcher used non-finance variables.

Author and year	Focus of study	Methodology	Findings	Research gaps
	fund investment Decisions		regarding Unit funds, also suggest that FinTech plays a vital role in promoting financial literacy and strengthening investment financial decisiveness.	
<u>Haruthai &amp; Samanchuenk</u> (2023)	Factors Influencing Behavior Intention in Digital Investment Services of Unit Fund Distributors Adoption in Thailand	Used questionnaire survey of Thai investors and partial least square structural equation modeling (PLS-SEM) for data analysis	Results showed that individual investors' intention to use digital investment services is significantly impacted by their perception of the usefulness of these services	Only used non finance variables ie ; perception, convenience, trust, and subjective norm
<u>Cai, Atampokah &amp; Kwame</u> (2021)	The Impact of Macroeconomic Variables on Unit Funds Performance in Ghana	Focused on Unit fund companies in Ghana from 2008 to 2016 using correlation analysis, examined the co-movement of the returns from the selected funds	Findings showed that macroeconomics variables positively affect the returns of Unit funds.	Focused on micro economic variables only.

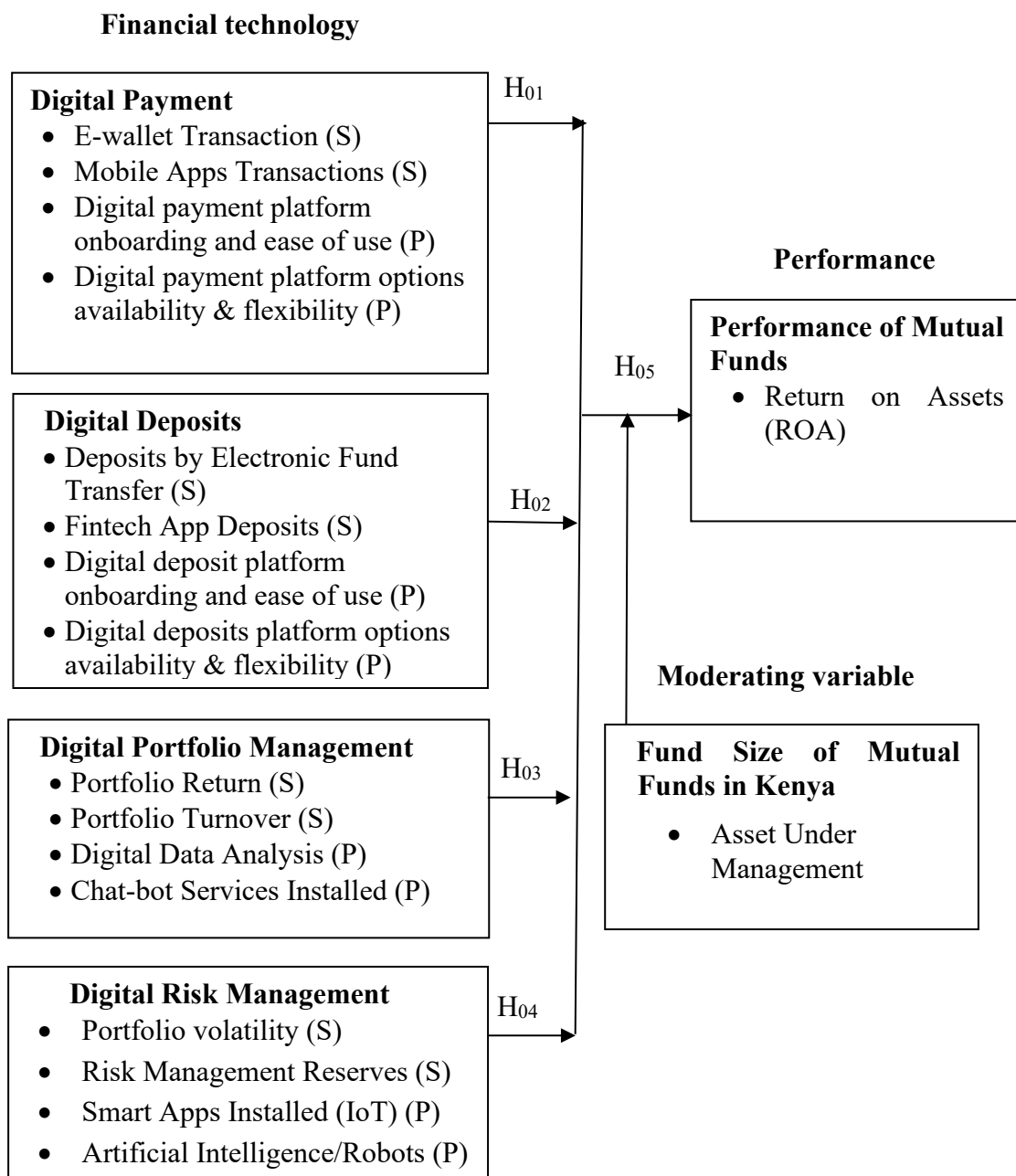
Author and year	Focus of study	Methodology	Findings	Research gaps
		with the key macroeconomic variables.	Exchange rate is the strongest macroeconomic variable that affects the performance of Unit funds in Ghana	The study period is far past.  Geographical gaps identified
Kumar & Ali (2020)	Role of digital technologies on growth of Unit Fund Industry in India		Fintech has a significant positive impact on growth of Unit fund	Focused on growth as opposed to financial performance
Yogesh,(2021)	Kenya is emerging as FinTech hotbed in Africa	Used chain analysis survey	Mobile money promotes financial innovation	The study delved into the financial innovation as opposed to effects of financial technology
Akasha & Manda (2021)	Emerging Unit fund Trends for 2021 in India	Used desk-top review	Digital penetration, cost management, low cost products ESG, and Inter-	Focused on the drivers of Unit fund.

Author and year	Focus of study	Methodology	Findings	Research gaps
			regulations are drivers of the Unit fund industry	Not in the Kenyan Context
Abbas, B. M., Alhmoud, T., & Algazo, F. A. (2019).	Financial leverage and firm performance,  Evidence from Amman stock exchange	Pooled general least squares	Financial leverage has a negative relationship with the firm performance proxies by ROA and EVA	Did not consider Financial technology as a variable
Shitemi, Maingi, Egessa (2023)	Effect of exchange rate fluctuation on performance of Equity funds in Kenya	A descriptive correlational research design	negative relationship exists between performance of equity funds and exchange rate	The study focused on equity funds only. Other types were left out
Wachira, K.V., Kalui, F., & Gathii.J (2021)	Digital financial innovation services and their impact on performance of commercial banks in Kenya	Multiple regression and Pearson correlations.	Digital financial services offered by Fintech companies have a negative impact on the performance of Commercial banks in Kenya	the study was done on commercial banks only

**Source: Researcher, 2024**

## **2.6 Conceptual Framework**

The study utilized a conceptual framework that incorporated comprehensive measures of financial technology rather than a single contextual base conceptualization. The expected correlation between the independent, dependent, and moderating variables is portrayed in the conceptual framework bellow. The predictor variable for the study was Financial Technology while the dependent variable is the financial performance of Unit funds in Kenya. The moderating variable was fund size. This research hypothesizes that fund size has no moderating effect on the relationship between financial technology and the financial performance of Unit funds in Kenya.



Source: Researcher, (2024)

Key: P-Primary data, S- Secondary data

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### **3.1 Introduction**

This chapter outlines the research methodology adopted to determine the effect of financial technology and fund size on the financial performance of Unit funds in Kenya. It describes the philosophical orientation, research design, and approach used to generate and analyze data. The chapter further explains the target population, sampling methods, data collection techniques, research instruments, and procedures for data analysis. The chapter also highlights the ethical considerations and diagnostic tests done.

The study used several statistical techniques to achieve comprehensive data analysis as recommended by Creswell (2018). Descriptive statistics helped to summarize the characteristics of the data set using mean, minimum, maximum and standard deviation, Pearson correlation was used to determine the direction and strength of effect of fintech on the fund performance (Field, 2018). Simple liner regression, helped in assessing the predictive power of each of the fintech variables independently while multiple linear regression assessed the combined predictive power of fintech on fund performance. Lastly hierarchical regression analysis was used to determine the incremental contribution of fund size to fund performance. The study was done at the organizational level focusing on how fintech when integrated in systems and processes shapes the outcomes (Sekaran & Bougie, 2019; Yin, 2018).

### **3.2 Study Area**

According to Yin, (2018) selecting a study area should reflect the ability to address the research objective effectively based on the available data, uniqueness of context and available gaps in prior studies. It is the geographical boundaries in research used to define the extent and set area for the study. The study area is Kenya, a rapidly growing financial hub in East Africa, characterized by increasing adoption of financial technology (FinTech) in its financial services sector. The study focused on Unit funds considering the country's fintech ecosystem that is highly dynamic, with the CMAs, efforts to promote digitization in fund management. (CMA, 2023; FSD Kenya, 2020). Nairobi, as the capital city and financial center, hosts the headquarters of most Unit funds, making it the primary locus for data collection. This aligns with Mugenda and Mugenda, (2003) who emphasizes on contextual relevance, access to data and policy importance in selecting the study area.

### **3.3 Research Philosophy**

According to Nthimba, Jagongo, Wamugo (2021), research philosophy is a system of beliefs and assumptions about the development of knowledge when embarking on research. There are four main trends of research philosophy; positivism, interpretivism, pragmatism, and realistic research philosophy. This study is grounded in the pragmatic research philosophy, which emphasizes the use of diverse methods, the practical application of knowledge and the use of multiple approaches to understand complex real-world phenomena. It holds that research questions should determine the choice of methods, rather than commitment to a single worldview such as positivism or interpretivism.

According to Gillespie et al, (2024), pragmatism empowers researchers to craft creative and synergistic mixed methods designs that effectively responds to complex real-world problems-like fintech. The pragmatic research philosophy supports the use of both qualitative and quantitative methods to understand complex social phenomena, allowing for flexibility in choosing methods that best address the research questions, facilitating convergence and corroboration of results through triangulation (Creswell & Clark, 2018).

In the context of this study, which examines the effect of financial technology and fund size on the performance of mutual funds in Kenya, pragmatism was most appropriate for several reasons. First, the study sought both objective measurement of FinTech constructs through quantitative data and subjective insights from fund managers on FinTech adoption. Pragmatism allows the integration of primary (perceptual) and secondary (financial) data to capture both the operational and financial dimensions of fund performance. Pragmatism acknowledges that both objective measurement and subjective understanding are valuable for generating knowledge (Liu, 2022). The mixed-methods approach aligns well with pragmatism, thereby allowing flexibility that aids in addressing the research problem using both quantitative and contextual evidence to generate practical solutions and actionable insights for the sector.

According to Shan (2021), in a study on philosophical foundations of mixed methods research, the pragmatic approach facilitates integration by valuing practical outcomes and methodological flexibility, thereby enabling the study to capture both statistical relationships and also the contextual nuances.

Additionally, the philosophy supports the use of mixed or complementary data sources and analytical techniques such as descriptive analysis, panel regression, and correlation tests, aligning with the study's aim of providing practical, evidence-based recommendations for fund managers and regulators. Furthermore, from a practical standpoint, the study focuses on real-world decision-making in Kenya's UTFs, an area where technology and financial performance are interlinked through contextual, dynamic factors. Pragmatism therefore provides a flexible philosophical base to interpret findings in a way that informs policy, management, and future innovation.

In contrast, the philosophy of positivism focuses exclusively on the objective. This means that the measurable facts would constrain the study to quantitative analysis alone, and so potentially neglecting critical subjective factors about technology adoption behaviors and key role of decision-making (Saunders, Lewis & Thornhill, 2023). Interpretivism on the other hand, is suitable in studies dealing with understanding social constructs and individual perspectives, therefore in this study it would be insufficient for such as a rigorous empirical testing (Creswell, 2014). Consequently, pragmatism stands suitable for this study since it provides a philosophical background that is well balanced and appropriately aligns with the mixed-methods design herein used. This therefore enabled a more robust and in-depth assessment of the combined effect of fintech and fund size on fund performance.

While both positivism and interpretivism offer valuable perspectives, neither alone was sufficient for this study. A purely positivist stance, which relies solely on objective and

numerical data, would have limited the understanding of contextual and managerial perspectives surrounding FinTech adoption in unit trust funds. Conversely, a strictly interpretivist approach, focused on subjective meanings and qualitative interpretation, would not have provided the statistical evidence required to test the study's hypotheses or evaluate fund performance quantitatively. The pragmatic philosophy was therefore preferred, as it combines the strengths of both paradigms, allowing the use of empirical data and statistical models alongside contextual insights, to generate findings that are both scientifically valid and practically relevant to Kenya's mutual fund industry.

### **3.4 Research Design.**

This study used a mixed research design combining descriptive and panel designs. According to Creswell, (2018), mixed methods approach provides side by side comparison of qualitative and quantitative research. This design supports the pragmatic approach that guided this study by facilitating the collection and analysis of multiple types of data necessary to address the research objectives comprehensively. The cross-sectional analysis enabled effective evaluation of the effect of financial technology, and fund size, on the financial performance of Unit funds across fund categories while making comparisons across the four categories of funds.

The unit of analysis was the Licensed Unit funds operating in Kenya, while the units of observation for primary data were fund managers, finance officers, ICT Analysts and CEO's. These were preferred basing on the strategic roles they play in the implementation of innovations, which makes them appropriate informants (Creswell, 2018). For the secondary data, the units of observation were the performance reports and published

financial records and filings by CMA. Despite the use of individual responses in data collection, the unit of analysis for the study remained the Unit funds, this aligns with the research objective since fintech is implemented at firm level and not individual level (Babbie, 2020; Mugenda & Mugenda, 2003). There was consistency between research problem, data collection process and analysis as recommended in organizational research (Creswell, 2018)

### **3.5 Target Population**

Target population allows the researcher to concentrate on the units of analysis with specific attributes, characteristics, common traits and experiences required to provide the necessary information for the study (Fink, 2017). The target population for this study was Unit Trust funds registered and actively operating in Kenya under the regulatory oversight of the Capital Markets Authority. These were launched and licensed since the year 2014, which is ten years back from 2023 to capture the most recent period since the advent of financial technology in the Kenyan Unit fund sector. These funds include four main categories which are equity funds, money market funds, balanced funds, and fixed income funds.

According to CMA, the total number of licensed Unit funds as of 2023 was thirty-six but only twenty-five are actively operating while eleven are inactive (CMA, 2023). Using the inclusion exclusion criteria by elimination method, the study narrowed down and worked with thirteen funds that had all the four main categories of Unit funds i.e., Money market funds bond funds, Equity funds, Bond (fixed) funds, and balanced funds, each with four categories, for ten years forming five hundred and twenty datasets for secondary data. For

the primary data, four respondents from each formed 52 respondents forming a generalizable sample (Cooper &Schindler, 2014). This is summarized in the table below.

**Table 2: Target population in the four main categories of UTFs**

SN	Name-of Fund	Unit	<u>CATEGORY</u>			
			Money Market Funds	Equity Funds	Fixed income Funds	Balanced Funds
1	<b>African Alliance Unit Scheme</b>	<b>Kenya Trust</b>	African Alliance Money Market Fund	African Alliance Equity Fund	African Alliance Fixed Income	African Alliance Enhanced Fund
2	<b>British American Trust Scheme</b>	<b>Unit</b>	British American Money Market Fund	British American Equity Fund	British American Income Fund	British American Balanced Fund
3	<b>ICEA Trust Scheme</b>	<b>Unit</b>	ICEA Money Market Fund	ICEA Equity Fund	ICEA Bond Fund	ICEA Balanced Fund
4	<b>CIC Unit Trust Scheme</b>	<b>Trust</b>	CIC Money Market Fund	CIC Equity Fund	CIC Fixed Income Fund	CIC Balanced Fund
5	<b>OLD Unit Trust Scheme</b>	<b>Unit</b>	Old Money Market Fund	Old Unit Equity Fund	Old Unit Bond Fund	Old Unit Balanced Fund
6	<b>NABO Funds</b>	<b>Africa</b>	NABO Africa Money Market Fund	NABO Africa Equity Fund	NABO Africa Fixed Income Fund	NABO Africa Balanced Fund
7	<b>Co-Op Fund</b>	<b>Trust</b>	Co-Op Money Market Fund	Co-Op Equity Fund	Co-Op Bond Fund	Co-Op Balanced Fund
8	<b>Apollo Trust Scheme</b>	<b>Unit</b>	Apollo Money Market Fund	Apollo Equity Fund	Apollo Bond Fund	Apollo Balanced Fund
9	<b>Cytonn Trust Scheme</b>	<b>Unit</b>	Cytonn Money Market Fund	Cytonn Equity Fund	Cytonn High Yield Fund	Cytonn Balanced Fund
10	<b>KCB Trust Scheme (Natbank Unit Trust Scheme)</b>	<b>Unit</b>	KCB Money Market Fund (Kes)	KCB Equity Fund	KCB Fixed Income Fund	KCB Balanced Fund

SN	Name-of Fund	Unit	Money Market Funds	CATEGORY			Balanced Funds
				Equity Funds	Fixed income Funds		
11	Jubilee Trust CIS	Unit	Jubilee Money Market Fund	Jubilee Equity Fund	Jubilee Fixed Income (KES) Fund	Jubilee Balanced Fund	
12	Genghis Trust Fund	Unit	Gencap Hela Fund	Gencap Hisa Fund	Gencap Fixed Income Fund	Gencap Eneza Fund	
13	ABSA Trust Scheme	Unit	ABSA Shilling Money Market Fund	ABSA Equity Fund	ABSA Bond Fund	ABSA Balanced Fund	

Source: CMA Website, (2024)

### 3.6 Sampling Design and Procedure

A sample of a subject is taken from the total population to make inferences about the entire population. The size of the study sample is always critical in producing meaningful results. According to Kothari (2013), a sample is a representative subset of the study population and therefore ought to be adequate to yield the desired precision. Using inclusion exclusion criteria, 52 funds survived to be used in the study, due to the size, census technique was used. Respondents for primary data were experts knowledgeable and with relevant knowledge and experience regarding financial technology adoption and Unit fund management. Secondary data was drawn data from the thirteen by four categories to form 52 funds, actively operating, with a full cycle of ten years in active operation from 2014 to 2023.

### 3.7 Data collection instruments

To enhance the robustness of the research findings, the study used data triangulation by utilizing multiple data collection instruments to achieve complementarity and expansion

of research findings (Fetters, curry & Creswell, 2013). Data were gathered through both qualitative and quantitative methods to achieve a comprehensive understanding of the effect of fintech on the performance of Unit funds. Well-structured questionnaires were used to collect primary data from respondents while secondary data was collected using a customized data tool. The use of triangulation not only ensured more robust analysis but also helped validate results by comparison, thereby integrating the benefits of both methods. The convergence point was discussed and corroboration clearly brought out.

### **3.7.1 Primary Data Collection Instrument**

A structured self-administered questionnaire with a mix of closed and open-ended questions was used to collect the primary data from identified senior staffs of Unit funds (finance managers, fund managers, CEOs and ICT analysts). According to Maxwell, (2013), structured questionnaires allow standardized responses which enhance reliability. The questionnaire was subdivided into three parts. Part 1 consisted of general information about the respondents, mainly for the purpose of providing contextual background for interpretation of the results, which helped establish the relevance and credibility of the responses and to confirm that the respondents have adequate knowledge, expertise and exposure to fintech practices. This also enabled the researcher to interpret findings with an appropriate professional context.

Part two consisted of information about the general experience with fintech and the approximate uptake levels of fintech in business operations, and part three comprised of close-ended questions that provided information about the respondents' perception on the use of fintech in the Unit fund aimed at obtaining data on specific study independent

variables, including the moderating and dependent variable. A five -point Likert-type scale ranging from 1(Strongly Agree) to 5(Strongly Disagree) was used for all the constructs as shown in Appendix I. According to Joshi (2015), the 5-point Likert scale captures varying degrees of agreement allowing for more nuanced data. It also enables computation of basic characteristics such as mean scores standard deviation and inferential statistics (Boone & Boone, 2012). According to survey design expert Rensis Likert, who originally introduced this scale in 1932, Attitudes are best understood when measured through consistently structured options that reflect degrees of sentiment rather than binary choices.

### **3.7.2 Secondary Data Collection Instrument**

A special and customized data collection tool was used to collect secondary data, orderly summarize it, and then group it into panels for ease of analysis. According to Baltagi, (2021) and Wooldridge (2010), panel data requires customized tool for structured formatting to support time series analysis and improved traceability. The main source of data was the financial statements of the licensed Unit Trust funds actively operating in Kenya. This data was obtained from published annual reports covering a period of ten years from 2014 to 2023 which is a ten-year window period to capture the latest technological and performance trends observed in the Unit funds, the tool is annexed as Appendix ii.

### **3.7.3 Data Collection Procedure**

The data collection procedure involved a systematic process through which information relevant to the study objectives was obtained. The researcher collected primary data using structured questionnaires administered to fund key personnel from licensed mutual fund

management firms in Kenya. The questionnaires were designed based on the study's key constructs; digital payments, digital deposits, digital portfolio management, and digital risk management, to capture the extent of financial technology adoption and its perceived effect on fund performance. The process of data collection involved the deployment of two qualified research assistants, who were tasked with distributing the questionnaires to the identified respondents, and later on collected them ensuring efficiency and timeliness. To maintain data integrity, the research assistants supervised the questionnaire completion process by providing guidance where necessary, ensuring that all items are appropriately responded to. The collected questionnaires were meticulously organized according to the respective Unit funds for streamlined analysis.

Secondary data were obtained from audited financial statements, fund fact sheets, and regulatory filings submitted to the Capital Markets Authority (CMA), which provided quantitative information on fund size and performance indicators such as returns and assets under management. Secondary data was collected guided by the primary responses on the proportion of transactions done digitally (a percentage of the transaction reported in published financial statements got from CMA websites)

Both data sources were collected concurrently to allow triangulation and ensure accuracy, consistency, and completeness of the information gathered for analysis. This systematic procedure ensured a more comprehensive and credible process to support the end results.

### **3.7.4 Measurement of Variables**

This section presents the operationalization and measurement of variables used in determining the effect of financial technology on the financial performance of Unit funds

in Kenya. The study variables were measured using multiple indicators to cater for both qualitative and quantitative data to reflect the key dimensions of financial technology adoption in the Unit fund sector (Hayduk & Littvay, 2012). The responses from part 3 of the questionnaire were rated on a five-point Likert scale enabling standardized quantification and comparison. This ensured construct validity and internal consistency, to enhance the robustness of the study's findings.

The secondary data was measured appropriately using relevant performance indicators as shown in the table below.

**Table 3: Operationalization and Measurement of Variables for Secondary Data**

<b>Variable</b>	<b>Type</b>	<b>Indicator</b>	<b>Measurement</b>
Financial Performance	Dependent	PAT/T.A	Ratio of PAT to total Assets
Digital Payments	Independent	E-Wallet payment transactions	Value of E-wallet payment transactions per year.
		Mobile-App payment Transactions	Value of Mobile-app payment transactions per year
Digital Deposits	Independent	Fintech-App Deposits	Value of online deposits made p/a
		Deposits through Electronic-Fund Transfer	Value of EFT deposit transactions
Digital Portfolio Management	Independent	NAV	Portfolio return
		Value of digital investments	portfolio turnover
Digital-risk Management	Independent	Standard deviation of returns	Portfolio-Volatility

<b>Variable</b>	<b>Type</b>	<b>Indicator</b>	<b>Measurement</b>
		Risk Reserves:T.A	Risk Reserve Ratios.
Fund size	Moderating	Value of Assets under Management	Natural Log of AUM (nlAUM)

Source: Research study (2024)

**Table 4: Operationalization and Measurement of Variables for Primary Data**

<b>Variable</b>	<b>Type</b>	<b>Indicators</b>
Financial Performance	Dependent	Changes in Performance trends observed
Digital Payments	Independent	Ease of onboarding and use of digital platform Payment Options available for clients
Digital deposits	Independent	Ease of onboarding and use of digital platform Deposit alternatives and their flexibility
Digital-Portfolio Management	Independent	Digital analysis of data -AI /Robo-Advice Digital tools (Chat-bot) services installed.
Digital-risk management	Independent	Smart Apps installed for data security Utilization of AI /Robots in security.
Fund size	Moderating	Growth Trends in investors

**Source: Research study (2024)**

### 3.8 Reliability and Validity of Instruments

A pilot study is a small feasibility study designed to test various aspects of the methods planned for a larger, more rigorous, or confirmatory study (Arain, Campbell, Cooper, & Lancaster, 2010). To ensure the credibility and robustness of the data collection tools, both reliability and validity of the research instruments were thoroughly evaluated. A pilot study

on primary data was conducted involving a sample of Unit fund professionals who were not part of the main study.

The objective of the pilot study was to test the clarity, consistency, and relevance of the questionnaire items in measuring the constructs. Feedback from the pilot study informed minor revisions to improve question wording and layout. The pilot test was done on four Unit funds from each category and this formed a representation of each of the main categories. From the pilot study report on factor analysis, All the indicators of the various constructs were subjected to confirmatory factor loading analysis using SPSS version 27. According to the findings all the indicators of various constructs were retained.

### **3.8.1. Validity test**

The validity test is based on the adequacy with which the items in an instrument measure the attributes of the study and give desired results. Content validity and face validity was used for both the questionnaire and the customized data tool for secondary data. The study utilized a customized data collection tool to fetch secondary data from audited and published financial statements which were found to be robust. For both primary and secondary data collection tools, Content validity was done using expert judgment of content by supervisors and other experts from the School of Business and Economics, Masinde Muliro University of Science and Technology. They made comments on the Clarity, Relevance, Objectivity, and Simplicity of each item. The results of their response were analyzed to establish the percentage representation using the content validity formula:

$$\text{Content Validity Index} = \frac{(\text{Agreed items})}{(\text{total number of items})}$$

Besides, the questionnaires were subjected to construct validity by conducting factor analysis to determine if indeed the questionnaire items are measuring the underlying variables. Factor loadings indicated the strength of the relationship between observable variables and the latent factors within factor analysis. These loadings helped in assessing the extent to which each observed variable contributes to defining and measuring the variables. This helped the researcher to discern which variables are more closely linked to each other. Factor loadings are typically categorized as 0.32 (poor), 0.45 (fair), 0.55 (good), 0.63 (very good), or 0.71 (excellent). Loading of 0.4 or 0.5 are substantial for explanatory purposes (Tabachnick & Fidell, 2020).

### **3.8.2 Reliability test.**

Reliability tests measure the degree of consistency to ensure that the data collection tool is able to produce consistent results repeatedly (Bell, 2010). It indicates the extent to which measurement results are relatively consistent if repeated twice or more (Sekaran, 2010). Reliability is either consistency across time (test-retest reliability) or across items (internal consistency). Cronbach's alpha was used to assess reliability by comparing the amount of shared variance, or covariance, to the amount of overall variance and measuring the internal consistency and how closely related the variables are. The instrument was considered reliable whenever there was a covariance among the variables relative to the variance.

### 3.8.3 Pilot study report

From the pilot study report, reliability statistics for the first variable, digital payments, showed an overall Cronbach alpha value of 0.815 for 6 items. None of the items was deleted. The second variable that formed the second objective was “To determine the effect of digital deposits on financial performance of Unit funds in Kenya” The overall Cronbach alpha value for the Digital deposits was 0.900 for 6 items. None of the items was deleted. The reliability statistics for the third variable digital portfolio management showed the overall Cronbach alpha value of 0.850 for 7 items. None of the items was deleted.

The fourth objective on digital risk management showed reliability statistics with an overall Cronbach alpha value of 0.779 for 7 items. None of the items was deleted. For the moderating variable fund size, the overall Cronbach alpha value was 0.890 for 6 items. None of the items was deleted. For the dependent variable, financial performance, the overall Cronbach alpha value was 0.925 for 7 items. None of the items was deleted. Overall statistics is presented in the table 5 below.

**Table 5: Overall Reliability statistics for pilot study**

<b>Variable</b>	<b>No of Items</b>	<b>Items deleted</b>	<b>Cronbach Alpha</b>	<b>Reliable</b>
Digital payment	6	0	0.815	Reliable
Digital deposits	6	0	0.900	Reliable
Digital portfolio management	7	0	0.850	Reliable
Digital risk management	7	0	0.779	Reliable
Fund size of Unit fund	6	0	0.890	Reliable
Financial performance	7	0	0.925	Reliable
<b>Total</b>	<b>39</b>	<b>Average</b>	<b>0.859</b>	<b>Reliable</b>

**Source: Pilot Data (2024)**

Since all the variables had Cronbach alpha above 0.7 none of the items was dropped. Similarly, factor loading was greater than 0.4, hence none of the items was dropped. Based on the pilot results the researcher recommended none of the questionnaire items should be dropped during the main study. For the secondary data, obtained from audited financial reports, no reliability test was done since it was considered that the data was robust, trustworthy and reputable. Audited financial reports undergo a review by independent auditors who provide an opinion on the fairness and accuracy of the financial statements. This adds a layer of credibility compared to unaudited data. Further, secondary data was got from official websites of individual Unit funds and the Capital Markets Authority website.

The dual-source approach enhances the credibility and robustness of the data, enabling a comprehensive analysis of the Unit fund industry (Creswell, 2018). By cross-referencing information from multiple reputable sources, the study aims to mitigate potential biases and inaccuracies, thereby enhancing the trustworthiness and validity of the research findings. This rigorous data collection strategy underscores the commitment to rigor and accuracy in the research process, ultimately strengthening the integrity and reliability of the study's conclusions.

### **3.9 Data Analysis and Hypothesis Testing**

The study employed panel data regression analysis since the dataset combined both cross-sectional (four categories of unit trust funds Unit Trust Funds) and time-series for annual observations of 10 years' dimensions. This approach was appropriate because it allowed

the study to control for individual fund-specific heterogeneity and time effects, which cannot be captured by ordinary least squares (OLS) regression.

Diagnostic tests were performed to determine the most suitable panel model. Specifically, the Hausman test guided the choice between the Fixed Effects Model (FEM) and the Random Effects Model (REM). The Fixed model accounted for unobserved characteristics unique to each fund while ensuring efficiency and consistency of the estimates. This methodological approach provided more robust and reliable results.

Data processing involved inspecting, cleaning, transforming, and modeling data to highlight useful information, suggest conclusions, and support decision-making (Yin, 2018). The primary data collected was grouped, tabulated and classified, then the output was numerically coded to properly categorize and group the responses into a limited number of categories (Kandel, 2012).

### **3.9.1 Descriptive Statistics**

Descriptive statistics were used to illustrate trends and for ease of summarizing the characteristics of the data. The measures of central tendency, including the mean, were calculated to represent the typical value in the data-set (Kothari, 2007). Additionally, measures of variability, such as the standard deviation, were computed to indicate the spread or dispersion of the data points around the mean. The minimum and maximum values were determined to demonstrate the range of the dataset

For primary data, descriptive statistics involved means, maximum, minimum and standard deviations. Descriptive statistics based on frequencies and percentages were particularly

useful for summarizing categorical variables responses to Likert-scale items (e.g., Agreement levels with statements). They provided a clear and concise overview of the distribution of responses, facilitating easy interpretation and comparison across different categories or groups (Boone & Boone, 2012). This data was then presented in tables and figures. The convergence of the dual data findings was done using the descriptive statistics.

### **3.9.2 Pearson Correlation Analysis**

The Pearson Correlation Coefficient (Pearson  $r$ ) was used as a pivotal tool for examining the relationship between variables (Jahangir & Begum, 2008). It helped quantify the magnitude and direction of the linear relationship between the two variables, offering valuable insights into their association (Mugenda & Mugenda, 2008). Employing bivariate correlational analysis, this study utilized Pearson  $r$  to assess the strength and direction of the relationship between Fintech and financial performance.

The significance level plays a crucial role in determining the significance of the correlation. A significance level below 0.05 indicated a significant correlation, implying a linear relationship between the two variables. Conversely, a relatively large significance level, such as 0.50 or higher, suggested a lack of significance in the correlation, indicating that the variables were not linearly related. This was used for both primary and secondary data.

### **3.9.3 Simple Linear and Multiple Linear Regression**

Both simple and multiple linear regression analysis were used as a powerful statistical method for determining the relationships between the independent variables and

dependent variable (Lind, 2008). Simple linear regression was used to determine individual effect of each variable while multiple regression analysis was used to explore how combined variations in financial technology constructs impacted financial performance of Unit funds.

Through multiple regression analysis, the study sought to determine the effect of the different components of financial technology on financial performance. By assessing the R square, F Statistics, regression coefficients, t-statistics, and significance levels, the study aimed to identify the effect of financial technology on financial performance of Unit funds in Kenya. The study used two set of multiple linear regressions for the two data sources as follows;

#### **For Primary Data**

The Multiple regression model was of the form;

$$Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \varepsilon$$

#### **For panel data (secondary data)**

The Multiple regression model was in the form of

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon$$

Where Y= Return on investment or Annual growth

X<sub>1</sub> : Digital payments

X<sub>2</sub>: Digital deposits.

X<sub>3</sub>: Digital portfolio management

X<sub>4</sub>: Digital risk management.

- ε: an Error term
- i: Individual Unit fund
- t: time in years

**3.9.3.1 Testing the Effect of Digital Payment on Financial Performance**

The effect of digital payments on financial performance of Unit funds in Kenya was tested using the following sets of regression models for primary and secondary data respectively. The reason for having two sets of equations was the data triangulation technique that allowed for both secondary and primary data separately.

$$Y = \beta_0 + \beta_1 X_{1i} + \varepsilon \dots \dots \dots \text{Primary Data}$$

$$Y = \beta_0 + \beta_1 X_{1it} + \varepsilon \dots \dots \dots \text{Secondary Data}$$

Where

Y: the financial performance of Unit funds

β<sub>0</sub> : constant (intercept),

β<sub>1</sub> was coefficient parameter to be determined,

X<sub>1</sub> was Digital payments

ε was Error term

i was an individual Unit fund

t was time in years

Significance of the regression coefficient was measured using P values. For P value<0.05,

**H<sub>a1</sub>**: There is statistically significant effect of digital payments on financial performance of Unit funds in Kenya.

Otherwise, if the P value > 0.05, the Null hypothesis was accepted:

**H<sub>01</sub>**: There is no statistically significant effect of digital payments on financial Performance of Unit funds in Kenya.

### 3.9.3.2 Testing the Effect of Digital Deposits on Financial Performance

The effect of digital deposits on the financial performance of Unit funds in Kenya was tested using the following regression models for primary and secondary data respectively:

$$Y = \beta_0 + \beta_2 X_{2it} + \varepsilon \dots \dots \dots \text{Primary Data}$$

$$Y = \beta_0 + \beta_2 X_{2it} + \varepsilon \dots \dots \dots \text{Secondary Data}$$

Where;

Y: the financial performance of Unit funds

$\beta_0$ : Constant (intercept),

$\beta_2$ : Coefficient parameter to be determined,

$X_2$  is Digital deposits

$\varepsilon$  is Error term

i is an individual Unit

t is time in years

Significance of the regression coefficient was measured using P values. For P value < 0.05,

**H<sub>a2</sub>:** There is statistically significant effect of digital deposits on financial performance of Unit funds in Kenya.

If the P value > 0.05, the null hypothesis is accepted and affirm that:

**H<sub>02</sub>:** There is no statistically significant effect of digital deposits on financial performance of Unit funds in Kenya.

### **3.9.3.3 Effect of Digital Portfolio Management on Financial Performance**

The effect of digital portfolio management on financial performance of Unit funds in Kenya was tested using the following regression models for primary and secondary data respectively:

$$Y = \beta_0 + \beta_3 X_{3i} + \varepsilon \dots \dots \dots \text{Primary Data}$$

$$Y = \beta_0 + \beta_3 X_{3it} + \varepsilon \dots \dots \dots \text{Secondary Data}$$

Where;

Y is the Unit funds financial performance

$\beta_0$  is constant (intercept),

$\beta_3$  is coefficient parameter to be determined,

$X_3$  is digital portfolio management

$\varepsilon$  is Error term

i is an individual Unit fund

t is time in years

Significance of the regression coefficient was measured using P values. For P value<0.05, the study rejects the null hypothesis and affirm that:

**H<sub>a3</sub>**: There is a statistically significant effect of digital portfolio Management on financial performance of Unit funds in Kenya.

Otherwise, if the P value>0.05, it implies there is no statistically significant evidence to reject the null hypothesis and affirm that:

**H<sub>03</sub>**: There is no statically significant effect of digital portfolio Management on financial performance of Unit funds in Kenya.

### 3.9.3.4 Testing the Effect of digital risk management on Financial Performance

The effect of digital risk management on financial performance of Unit funds in Kenya was tested using the following regression models for primary and secondary data respectively:

$$Y = \beta_0 + \beta_4 X_{4i} + \varepsilon \dots \dots \dots \text{Primary Data}$$

$$Y = \beta_0 + \beta_4 X_{4it} + \varepsilon \dots \dots \dots \text{Secondary Data}$$

Where Y is the financial performance of Unit funds

$\beta_0$  is constant (intercept),

$\beta_4$  is coefficient parameter to be determined,

$X_4$  is digital risk management

$\epsilon$  is Error term

$i$  is an individual Unit fund

$t$  is time in years

Significance of the regression coefficient was measured using P values. For P value  $< 0.05$ , the study rejects the fourth null hypothesis and affirm that:

**H<sub>a4</sub>:** There is statistically significant effect of digital risk management on financial Performance of Unit funds in Kenya.

Otherwise, if the P value  $> 0.05$ , the null hypothesis and affirm that:

**H<sub>04</sub>:** There is no statistically significant effect of digital risk management on financial Performance of Unit funds in Kenya.

### **3.9.3.5 Testing the Moderating Effect of Fund Size on the Relationship between Financial Technology and Financial Performance of Unit Funds in Kenya.**

A moderating variable was used to specify conditions under which financial technology is related to an outcome. It was used to illustrate that when independent and dependent variables are related, the moderating effect could have either an enhancing, buffering, or antagonistic effect. For enhancing, when the moderator is increased, it increases the effect of the predictor on the outcome; for buffering, if the moderator is increased, it decreases the effect of the predictor on the outcome; for antagonistic, increasing the moderator would reverse the effect of the predictor on the outcome.

The Moderation effect of fund size on the relationship between Financial Technology and Financial Performance was tested using a hierarchical regression model. Going by the writing about moderating and mediating effects in causal models, Kim, Kaye and Wright (2001) noted that when the independent and moderator variables are continuous, their interaction can be estimated using the following functional form

$$Y = \beta_0 + \beta_1 X_{1i} + \beta_2 M + \beta_3 (MX_{1i} \cdot M) + \varepsilon$$

Thus  $\beta_0$  is the intercept,  $\beta_1$  shows the effect of  $X_1$  on  $Y$  when  $M=0$ ,  $\beta_2$  shows the effect of  $M$  on  $Y$  when  $X=0$  and  $\beta_3$  shows how the effect of  $X$  on  $Y$  changes as  $M$  changes i.e. the interaction effect. This means the change in slope of  $Y$  on  $X_1$ , given a unit change in  $X_2$ , is represented by  $\beta_3$ . The interpretation of  $\beta_3$  is symmetric, in that it also represents the change in slope of  $Y$  on  $X_2$ , given a unit change in  $X_1$ . Since product  $X_1X_2$  is often highly correlated with  $X_1$  and  $X_2$ , as when both  $X_1$  and  $X_2$  take on only positive values. The possible multicollinearity problem is typically addressed by rescaling  $X_1$  and  $X_2$  such that they are centered near zero (this is often accomplished by centering  $X_1$  and  $X_2$  at their means).

The following two sets of regression model was used in measuring the moderating effect of fund size. The reason for having two sets of equations is because of the dual data sources which was preferred for enhanced outcome, where the researcher analyzed both secondary and primary data separately.

$$Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 M + \beta_6 X_{1i}M + \beta_7 X_{2i}M + \beta_8 X_{3i}M + \beta_9 X_{4i}M + \varepsilon \dots \dots \dots \text{Primary Data}$$

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 M_{it} + \beta_6 X_{1it}M_{it} + \beta_7 X_{2it}M_{it}$$

$$+ \beta_8 X_3 M_{it} + \beta_9 X_4 M_{it} + \varepsilon \dots \dots \dots \text{Secondary Data}$$

Where;

Y is the financial performance of M.Fs

$\beta_0$  is constant (intercept),

$\beta_1$  is coefficient parameter to be determined,

$X_1$  is Digital payments

$X_3$  is Digital deposits

$X_2$  is Digital portfolio management

$X_4$  is Digital risk management

M is the Fund Size

$\varepsilon$  is Error term

i is an individual Unit fund

t is time in years

The interaction term shows the effect of financial technology on financial performance given a unit increase in fund size.  $\beta_6$ ,  $\beta_7$ ,  $\beta_8$ , and  $\beta_9$  represent change in financial performance due to financial technology constructs (digital Payments, Deposits, Portfolio management, and Risk management), given a unit change in fund size. The coefficient was attached to the interaction term. A positive value for the effect of interaction term implied an enhancing effect, thus, the higher the fund size, the greater (more positive) the effect of financial technology constructs on financial performance. Similarly, the greater (more positive) the effect of fund size on financial performance. A change in  $R^2$  implies that fund size plays a moderating role and if a change in P value is significant (P value < 0.05), the null hypothesis is rejected and affirms that:

**H<sub>a5</sub>:** Fund size has statistically significant moderating effect on the relationship between Financial Technology and Financial Performance of Unit funds in Kenya.

Otherwise, if the P value > 0.05, the researcher affirms that:

**H<sub>05</sub>:** Fund size has no statistically significant moderating effect on the relationship between Financial Technology and Financial Performance of Unit funds in Kenya.

The Stepwise test for Moderation was done using the study adopted the moderating model developed by Burns and Burns (2018). This was achieved by undertaking a hierarchical regression analysis consisting of 3 stages yielding three models. In each step, the change in R<sup>2</sup>, F, and significance level was noted. Moderation analysis typically involves testing interaction effects within regression models. This means assessing whether the relationship between financial technology and financial performance changes at different levels of the moderator variable

**Stage 1** The independent variables (digital payments, digital deposits, digital portfolio management and digital risk management) was entered in the model.

This yielded model 1.

$$Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{i4} + \varepsilon \dots \dots \dots \text{Primary data}$$

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon \dots \dots \dots \text{Secondary data}$$

**Stage 2** The moderator variable in this case, fund size was added in the model to yield second model.

$$Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 M + \varepsilon \dots \dots \dots \text{Primary data}$$

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 M_{it} + \varepsilon \dots \dots \dots \text{Secondary data}$$

**Stage 3** The interaction effect of independent and moderating variables was entered into the model. This is the cross-product of fund size and individual independent variables. This yielded the third model. With the moderating variable, the model becomes as below;

**i) Primary data:**

$$Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 M + \beta_6 X_{1i}M + \beta_7 X_{2i}M + \beta_8 X_{3i}M + \beta_9 X_{4i}M + \varepsilon$$

**ii) Secondary data:**

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 M_{it} + \beta_6 X_{1i}M_{it} + \beta_7 X_{2i}M_{it} + \beta_8 X_{3i}M_{it} + \beta_9 X_{4i}M_{it} + \varepsilon$$

Where;

Y is Return on investment

X<sub>1</sub> is Digital payments

X<sub>2</sub> is Digital deposits

X<sub>3</sub> is Digital portfolio management

X<sub>4</sub> is Digital risk management.

M is Fund size

ε is the Error term

i is an individual Unit fund

t is time in years.

### **3.9.5 Diagnostic Tests**

Various diagnostic tests and Model Specification tests were run to ensure that the data and study models are appropriate and robust for measuring the relationship between fintech and financial performance. The various tests include; the normality test, the multicollinearity test, the autocorrelation test, the unit root tests for stationarity, and the heteroscedasticity test. The multiple linear regression model was tested prior to use to ensure that the assumptions of linear regression were met to achieve the accuracy of the end results. The general assumptions of linear regression are; variables are linearly related, normally distributed, no multicollinearity, no auto-correlation, and homoscedasticity. Panel root test was done to ensure the stationarity of data.

#### **3.9.5.1 Normality test**

Normality, in the context of statistics and probability theory, refers to the characteristic of a distribution where the data is symmetrically distributed around its mean, with the majority of observations clustering near the center and fewer observations in the tails (Asghar & Saleh, 2012). This assumption is crucial for valid statistical inferences and accurate estimation of model parameters. When violated, this leads to type 1 or type 2 errors implying that the t-tests and F-tests are in-accurate, the confidence intervals become unreliable and the also may lead to biased estimation of parameter. Consequently, this leads to loss of statistical power and misleading model fit and therefore incorrect inference about relationships (Field, 2018; Gujarati et al, 2020)

To ensure this assumption is met, for primary data, statistical tests such as the Shapiro-Wilk test and the Kolmogorov-Smirnov test were applied to test for normality (Pallant, 2020). In these tests, the null hypothesis was that the residuals are normally distributed.

For secondary data, the Jarque-Bera test recommended by Yap and Sim (2011) was used to determine the normality of residuals in the multiple regression. The researcher examined the p-value that are associated with the test statistic. The general rule is that a p-value greater than 0.05 implies that the null hypothesis of normality cannot be rejected, meaning, the residuals follow a normal distribution. Additionally, to further assess the distribution of residuals, skewness was tested to ensure a p-value of less than 2, and kurtosis of a p-value of less than 6.

### **3.9.5.2 Linearity Test**

The linearity assumption states that the relationship between the independent variables and the dependent variable is linear. The effect of each predictor variable on the outcome is constant across its range that a unit change in predictor variable leads to a constant change in dependent variable holding other factors constant. However, because linear regression is highly influenced by outliers, it was crucial to detect and address them to avoid erroneous interpretation of results, (Field, 2018). Outliers, which are extreme data points, can significantly skew the regression line and distort the relationship between variables.

The violation of the assumption leads to model mis-specification, failing to capture the true pattern between variables and hence making wrong conclusions. Also causes low explanatory power of R-square, biased and inconsistent estimates, and invalid significance tests. (Gujarati et al, 2020). To ensure the validity of the linear regression model, the

researcher visually inspected scatter plots as recommended by Zhao and Zhang (2022). The scatter plots provided a clear indication of whether the data points exhibit a linear trend or not.

### **3.9.5.3 Multicollinearity Test**

Multicollinearity is a statistical phenomenon in which multiple independent variables in a multiple regression model are highly linearly related thus showing high correlation between each other. It causes the model fitted to give unreliable outcome since it disturbs and causes the statistical inferences made about the data to be unreliable. When this assumption is violated it distorts the findings and gives a false result (Akinwande & Dikko, 2020). In this study variance Inflation Factor (VIF) was used to validate this assumption whereby according to DeFusco and Mcleavey, (2015), the ideal VIF value should be less than 10 ( $<10$ ) signifying no multicollinearity. In case of multicollinearity, one of the highly correlated variables is dropped from further analysis (Yu, Jiang & Land, 2015).

### **3.9.5.4 Auto correlation Test**

Auto-correlation, also known as serial correlation poses a significant problem in the analysis of historical data if not well checked. The test is performed to ensure the precision of predictions (Huitema & Laraway 2006). Autocorrelation represents the degree of similarity between a given time series and a lagged version of itself over progressive time intervals. This was used to measure the relationship between the variable's current value and its past values for a period of ten years. When the residuals are correlated with residuals from another observation, then auto-correlation exists thus the standard errors are underestimated and therefor the t-tests and F-tests become inflated.

For primary data, the Durbin-Watson test was used to test the null hypothesis that there is no autocorrelation. The value of d statistic lies between 0 and 4. According to Wooldridge (2019), a value near 0 shows the presence of positive autocorrelation, a value near 4 shows the presence of negative autocorrelation whereas a value near two shows the absence of autocorrelation. When the value is less than 1.5, it shows serial correlation and if more than 2.5, it indicates autocorrelation. With the Durbin – Watson, the Regression model includes an intercept term, the explanatory variables be non-stochastic (non-random or fixed), the error term is normally distributed, the regression term doesn't include any lagged (past) value of the dependent variable and there must be no missing observation.

When examining secondary data, autocorrelation was assessed using the Wooldridge F-test. The null hypothesis stated the absence of serial correlation, with an alternative suggesting its presence. In both scenarios, the null hypothesis assumed no serial correlation. Reject  $H_0$  if P-value  $< 0.05$ , meaning the existence of a specific order of serial correlation, while failing to reject it suggested no such correlation. Subsequently, appropriate instruments were selected, such as variables from the first or second lag, or differences, based on deductions drawn from the test results.

### **3.9.5.5 Heteroscedasticity test**

In regression analysis, heteroscedasticity refers to a situation where the variability of the dependent variable differs across the dataset. Conversely, homoscedasticity indicates that the variance of the dependent variable remains constant across all data points (Huang & Yao, 2014). The impact of deviating from the assumption of homoscedasticity varies

depending on the degree of heteroscedasticity, with greater heterogeneity leading to increased consequences (Gelfand, 2015).

To assess heteroscedasticity for primary data, White's Test for Heteroscedasticity was employed as recommended by Gujarati & Porter (2009), offering a robust examination of whether variances are uniform across the data; if the data is not normally distributed, this test determines if the data exhibits heteroscedasticity by comparing the variance of the data to that of the model. In the case of secondary data, the researcher employed the modified Wald test for GroupWise, where the null hypothesis posits constant variance and the alternative hypothesis suggests the presence of heteroscedasticity. Deviation from homoscedasticity results in an increase in heteroscedasticity.

#### **3.9.5.6 Unit Root Test (Stationarity Test)**

The Im Pesaran-shan test was used to perform the Panel root test to ensure data stationarity where data doesn't change with time, this helped in avoiding spurious regression. The statistical properties such as mean, variance, and autocorrelation should be constant over time, the ideal value should be  $<0.05$ . In case of the unit root test fails, then differencing is adopted to ensure stability by generating the first difference variable for the specific variable until the P-value of less than 0.05 is obtained. The Philips Perron test, an improvement of the ADF, was also used to ensure the data is stationary and each variable is subjected to the test with the null hypothesis that: the panel data is non-stationary while the alternative hypothesis as panel data is stationary. If the P value is less than 0.05, then the data is considered stationary and therefore reject the null hypothesis and adopt the

alternative hypothesis. But for P value greater than 0.05, the panels are non-stationary (Phillips & Perron, 1988).

### **3.9.5.7 Durbin Hausman test (Random Effects and Fixed Effects)**

The Durbin–Wu–Hausman (DWH) test is used to check if unique errors are correlated with the regressors. The two main techniques suitable to analyze panel data are the random effects and the fixed effects, the FE assumes correlation while the RE assumes no correlation. It guides the researcher on whether to use fixed effect or random effects. It's used to evaluate the consistency of an estimator when compared to an alternative, less efficient estimator which is already known to be consistent. The Hausman test was used to differentiate and choose between fixed effects model and random effects model in panel analysis as recommended by (Hausman, 1978).

The hypothesis is

H<sub>0</sub>: fixed effect model and Random effect model do not differ substantially

H<sub>1</sub>: The fixed effect is appropriate, (Individual effects are correlated with regressor)

The null hypothesis is rejected if the p-value is less than 5% significance level and conclusion made that F.F model is appropriate

Random effects (RE) assumes that the difference in the intercept for all selected funds is due to the randomness of the sample. RE was done by running the secondary data for all the variables in order to determine the coefficients and the p-values for each. The random effect is preferred where the p-value is greater than 0.05. For the fixed effects all firms are considered in the model and assumes the intercept of all funds is different due to different

factors, it is suitable for analyzing the impact of variables that vary over time. The fixed effect assumes that the variables are unique to each other and therefore no correlation, the P values are less than 0.05, reject Null hypothesis and use FE. If the p-value was greater than the significance level (0.05), then we fail to reject the null hypothesis and therefore use the Random effects model (Hausman, 1978)

### 3.10 Hypothesis Testing

Hypothesis testing is a systematic and statistical procedure for deciding whether the results of a research study support a particular theory or model which applies to a population. It provides a framework for assessing whether empirical data supports or contradicts theoretical predictions (Creswell & Creswell, 2018). There are two competing hypotheses; Null hypothesis and alternative hypothesis, this study used null hypothesis as it provides a neutral starting point which enhances objectivity (Gravetter & Wallnau, 2017). The researcher used sample data to evaluate the relationship between financial technology and financial performance of Unit funds in Kenya. The five hypotheses were tested using the following framework indicated in the Table below:

**Table 6: Hypothesis testing**

	<b>Hypothesis Statement</b>	<b>Model</b>	<b>Hypothesis Testing</b>
i	H <sub>01</sub> : There is no statistically significant effect of digital payments on financial performance of Unit funds in Kenya.	$FP = \beta_0 + \beta_1 X_1 + \epsilon$ $FP = \beta_0 + \beta_1 X_{1it} + \epsilon_{it}$	H <sub>01</sub> : $\beta_1 = 0$ H <sub>a1</sub> : $\beta_1 \neq 0$ Reject H <sub>01</sub> if $\beta_1 \neq 0$ and P-value $\leq 0.05$ otherwise fail to reject H <sub>01</sub> if $\beta_1 = 0$ and P value $> \alpha$ $\alpha = 0.05$
ii	H <sub>02</sub> : There is no statistically significant effect of digital		H <sub>02</sub> : $\beta_2 = 0$

Hypothesis Statement	Model	Hypothesis Testing
deposits on financial performance of Unit funds in Kenya	$FP = \beta_0 + \beta_2 X_2 + \varepsilon$ $FP = \beta_0 + \beta_2 X_{2it} + \varepsilon_{it}$	$H_{a2}: \beta_2 \neq 0$ Reject $H_{02}$ if $\beta_2 \neq 0$ and $P \text{ value} \leq 0.05$ otherwise fail to reject $H_{02}$ if $\beta_2 = 0$ and $P \text{ value} > 0.05$
iii $H_{03}$ : There is no statistically significant effect of digital portfolio Management on financial performance of Unit funds in Kenya	$FP = \beta_0 + \beta_3 X_3 + \varepsilon$ $FP = \beta_0 + \beta_3 X_{3it} + \varepsilon_{it}$	$H_{03}: \beta_3 = 0$ $H_{a3}: \beta_3 \neq 0$ Reject $H_{03}$ if $\beta_3 \neq 0$ and $P \text{ value} \leq 0.05$ otherwise fail to reject $H_{03}$ if $\beta_3 = 0$ and $P \text{ value} > \alpha$ $\alpha = 0.05$
iv $H_{04}$ : There is no statistically significant effect of digital risk management on financial performance of Unit funds in Kenya.	$FP = \beta_0 + \beta_4 X_4 + \varepsilon$ $FP = \beta_0 + \beta_4 X_{4it} + \varepsilon_{it}$	$H_{04}: \beta_4 = 0$ $H_{a4}: \beta_4 \neq 0$ Reject $H_{04}$ if $\beta_4 \neq 0$ and $P \text{ value} \leq 0.05$ otherwise fail to reject $H_{04}$ if $\beta_4 = 0$ and $P \text{ value} > \alpha$ $\alpha = 0.05$
v $H_{05}$ : Fund size has no statistically significant moderating effect on the relationship between Financial Technology and Financial Performance of Unit funds in Kenya	$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 M + \beta_6 X_1 M + \beta_7 X_2 M + \beta_8 X_3 M + \beta_9 X_4 M + \varepsilon$  $Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 M_{it} + \beta_6 X_{1it} M_{it} + \beta_7 X_{2it} M_{it} + \beta_8 X_{3it} M_{it} + \beta_9 X_{4it} M_{it} + \varepsilon_{it}$	Change in $R^2$ to assess change in financial performance which is due to its relationship with the interaction term  If $X * M$ has a $p \text{ value} \leq 0.05$ , then moderating effect is supported else is not supported $\beta_i > 0$ signifies positive moderating effect $\beta_i < 0$ signifies negative moderating effect

### **3.11 Ethical considerations**

This study was conducted per the established ethical guidelines to ensure the protection, rights, and dignity of all participants (Creswell, 2018). Ethical clearance and a research permit were obtained from the National Commission for Science, Technology, and Innovation (NACOSTI) before the commencement of data collection. Informed consent was obtained from all respondents after clearly explaining the purpose of the study, their voluntary participation, and their right to withdraw at any point without consequence. The confidentiality and anonymity of all participants were strictly maintained, with data collected being stored securely and used solely for academic purposes.

The researcher committedly upheld rigorous ethical standards in order to safeguard the integrity and credibility in collection of secondary data. Researchers who use secondary data are expected to adhere to ethical implications a regarding access, privacy and responsible reporting of the research findings (Babbie, 2020; Saunders&Lewis, 2019). Secondary data were obtained from publicly accessible sources such as audited financial reports and regulatory filings, in full compliance with ethical standards on data use. The study was carried out with integrity, transparency, and full respect for research ethics as guided by NACOSTI and institutional policies.

## CHAPTER FOUR

### DATA ANALYSIS, RESEARCH FINDINGS AND DISCUSSION

#### 4.1 Introduction

This chapter presents analysis of data, presentation, interpretation, and discussion of study findings as per the study objective, to determine the effect of financial technology on the financial performance of Unit funds in Kenya, and the moderating role of fund size. The study used the data triangulation approach where the two data sources were used to enhance robustness of results (Denzin, (2012). Results for descriptive statistics and inferential statistics; regression, and correlation analyses have been discussed. The results are shown in tables, figures, and models. According Feters, Curry and Creswell (2013), the best practice when dealing with dual data sources is to organize findings thematically, then present each data source separately but subsequently before synthesizing them for convergence and corroboration.

The study used the correlation interpretation scale proposed by Cohen(1988), where coefficients between 0.00-0.09 indicate very weak convergence, 0.10 - 0.39 weak, 0.4 - 0.59 moderate, 0.60-0.79 strong convergence and 0.8 -1.00 very strong convergence. According to Johnson and Turner, (2007), descriptive statistics offers the most valuable means for comparison of perceived and actual performance trends.

## **4.2 Response Rate**

The primary data was collected using questionnaires from thirteen firms, fully licensed and actively operating in Kenya with the four main categories of funds and a full cycle of ten years since inception (from 2014 to 2023). The questionnaires were issued to four categories of respondents believed to offer valuable insights from classified information for credible output. The respondents comprised fund managers, finance officers, CEOs, and analysts, a total of fifty-two questionnaires were issued and forty-four were collected back, this yielded a response rate of 84.6%. This rate is attributed to effective reminders and follow-ups which encouraged participation and timely completion of questionnaires. The use of qualified research assistants for data collection also enhanced the response rate. According to Finchman, (2008), a response rate above 80% is excellent and sufficient to ensure representative sample for generalization,

## **4.3 Diagnostic Tests.**

Diagnostic statistics are used to detect potential problems by assessing the model assumptions (Akinwande, Dikko, & Samson,2022). The study undertook the following diagnostic tests: normality test, linearity test, heteroscedasticity test, stationarity test, autocorrelation, and multicollinearity test for all variables examined.

### **4.3.1. Normality Tests**

#### **Primary data**

For primary data, normality was done to determine if the residuals are normally distributed, using the Kolmogorov-Smirnov and Shapiro-Wilk Test as recommended by Pallant,

(2020). The Null hypothesis Ho: The data is normality distributed. The results are shown in the table below.

**Table 27: Normality test for primary data**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Digital Payment	.131	44	.200*	.928	44	.078
Digital Deposit	.152	44	.118	.933	44	.113
Digital Portfolio Management	.123	44	.200*	.936	44	.119
Digital Risk Management	.160	44	.098	.945	44	.196
Fund Size	.115	44	.147	.973	44	.105
Financial Performance	.110	44	.137	.997	44	.116

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

a. Lilliefors Significance Correction

**Source: Researcher (2024)**

The results indicate that the significance values (Sig.) for all the variables are above 0.05, suggesting that the data is approximately normally distributed. These results indicate that all the variables used in the study meet the assumption of normality, as their p-values (Sig.) are greater than 0.05. This suggests that parametric statistical tests, such as regression and correlation analysis, can be appropriately applied to the data.

#### **Normality test using Secondary data**

The research used the Jarque-Bera test, to ascertain the normal distribution of the residuals (Yap & Sim, 2011). The null hypothesis is Ho: The residuals do not significantly deviate from a normal distribution. The investigation failed to reject the null hypothesis since the Jarque-Bera probability for the investigated variables exceeded 5% as shown in Table below, The model is  $Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 M_{it} + u_i + \lambda_t + \epsilon_t$

**Table 28: Normality Test for secondary data**

	skewness	kurtosis	Jarque-Bera test	P-Value
Performance	0.28743	3.308482	1.565	0.4573
Digital Payment	0.093741	3.109311	1.02	0.6004
Digital Deposits	-1.18526	3.164097	4.822	0.0515
Portfolio Return	-1.07596	3.022072	3.911	0.1019
Portfolio Turnover	-0.84518	3.950842	3.925	0.1405
Portfolio volatility	0.212633	3.017876	1.966	0.631
Risk-Management Reserves	0.212633	3.017876	3.197	0.2022
Fund Size	-1.8124	2.707981	2.115	0.141

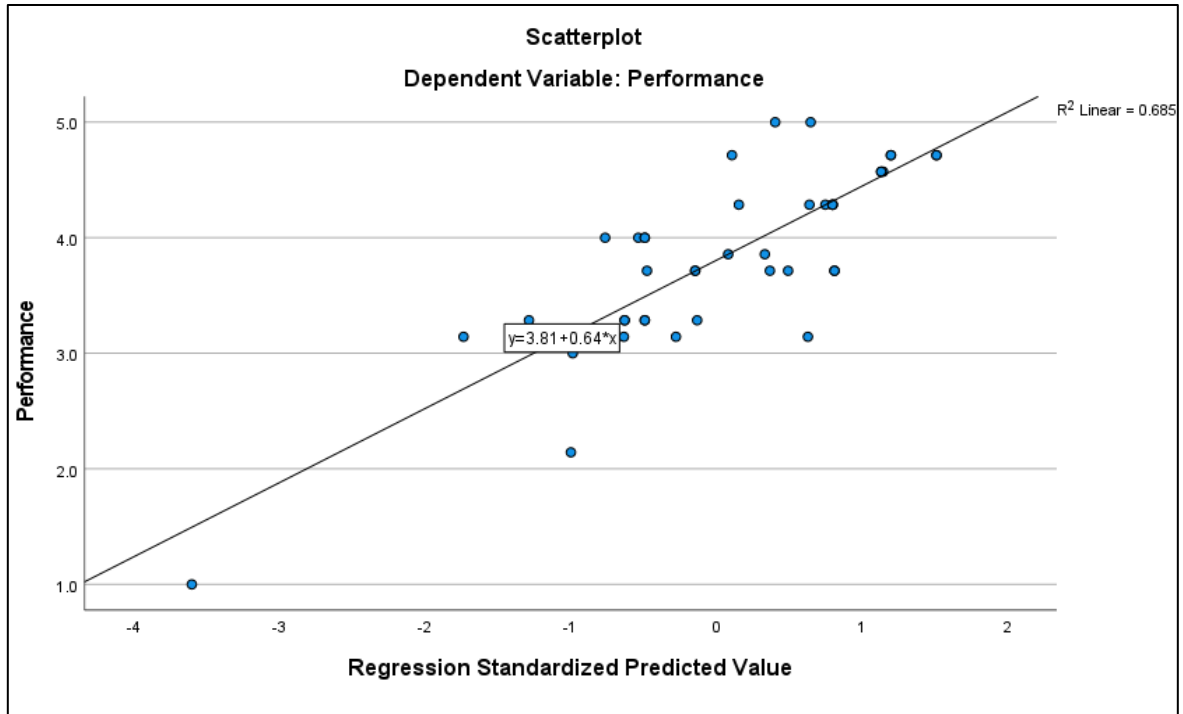
**Source: Researcher, (2024)**

As shown in the table above, all variables recorded JB test p-values greater than 0.05, indicating that their distributions did not significantly deviate from normality at the 5% significance level. Consequently, the study failed to reject the null hypothesis for all variables, confirming that the residuals are approximately normally distributed, thus satisfying one of the assumptions for reliable regression analysis.

#### **4.3.2 Test of Linearity**

##### **Primary data**

The extent to which the change in the dependent variable correlates with the change in the independent variable is termed linearity. It checks if the relationship between dependent and independent variables is linear (Zhao & Zhang, 2022). This was assessed using the scatter plot, where the points closely align with the straight line, as seen in Figure 9 below.



**Figure 9: Linearity Test**

**Source: Researcher (2024)**

The above figure is a graphical presentation of the extent to which the change in the dependent variable correlates with the change in the independent variable. This shows points closely aligned with the straight line, meaning fail to reject the null hypothesis since there is linearity.

### **4.3.3 Autocorrelation Test**

This test detects autocorrelation among residuals in time series and panel data. (Wang, Zhang & Wu, 2021). Ho: There is no autocorrelation in the residuals of regression model For Primary data, Durbin Watson was used to determine autocorrelation as shown below,

**Table 29: Durbin Watson test for primary data**

<b>Model</b>	<b>Durbin-Watson</b>
1	1.939

**Source: Research study, (2024)**

Since the Durbin-Watson statistic ranges from 0 to 4, a value near 2 suggests no significant autocorrelation while a value below 2 indicates positive autocorrelation, whereas a value greater than 2 suggests negative autocorrelation. The Durbin-Watson statistic of 1.939 is very close to 2, indicating that there is no serious concern of autocorrelation in the residuals. This suggests that the regression model is reliable, and there is no need for additional corrections related to serial correlation.

### **Secondary data**

Including serial correlation into the model might provide erroneous findings, the Wooldridge autocorrelation test was used. The null hypothesis was  $H_0$ : There is no autocorrelation in the residuals. The findings are shown in Table 26.

**Table 30: Testing for serial correlation (Independence) for secondary data**

**Wooldridge test for autocorrelation in panel data**

**$H_0$ : no first-order autocorrelation**

F(1,51) = 0.031

Prob > F = 0.8605

**Source: Researcher, (2024)**

The Wooldridge test for autocorrelation in panel data was conducted to determine whether there is first-order autocorrelation in the dataset. The null hypothesis ( $H_0$ ) states that there is no first-order autocorrelation, meaning that the residuals from the regression model are independently distributed. The test statistic obtained was  $F(1,151) = 0.031$  with a

corresponding probability value (p-value) of 0.8605. Since the p-value is greater than the conventional significance level of 0.05, the null hypothesis cannot be rejected. This suggests that there is no significant evidence of first-order autocorrelation in the panel data.

#### 4.3.4 Multi-Collinearity test

Multicollinearity refers to the condition when many predictor variables are highly correlated. Robust correlations among independent variables amplify their effect on the dependent variable. Perfect multicollinearity arises when several linear relationships exist among a set of variables (Akinwande, Dikko & Samson, 2022)

The test was done using the VIF, the null hypothesis was Ho: There is no multi-collinearity.

**Table 31: Multicollinearity for Primary Data**

Variable	Collinearity Statistics	
	VIF	1/VIF
Digital payments	0.737	1.357
Digital deposits	0.730	1.369
Digital Portfolio Management	0.758	1.319
Digital-risk management	0.739	1.353

**Source: Researcher, (2024)**

Since all VIF values are below 10 and Tolerance values exceed 0.1, multicollinearity is not a concern in this study. Fail to reject the null hypothesis, thus the predictor variables do not exhibit strong linear relationships, ensuring the stability and reliability of the regression model.

The secondary data also underwent a Multicollinearity test, as seen in Table 32 below.

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 M_{it} + u_i + \lambda_t + \epsilon_t$$

**Table 32: Multicollinearity for Secondary Data**

Variable	Collinearity Statistics	
	I/VIF	VIF
Digital payments	.522	1.916
Digital deposits	.592	1.690
Digital Portfolio Management	.440	2.273
Digital-risk management	.510	1.962

**Source: Researcher, (2024)**

The VIF values were integrated with the variable's Tolerance. Multicollinearity exists when the tolerance value is 0.2 or below, and the VIF value is above 10. No multicollinearity was present, as shown by a tolerance value over 0.1 and a VIF value below 10.

#### 4.3.5 Heteroscedasticity Test

Heteroscedasticity refers to a violation of linear regression assumption that the variance of the error terms remains constant across all levels of the variables. The null hypothesis is  $H_0$ : The variance of errors is constant. Thus the residuals have equal variance across the levels of independent variables, denoting homoscedasticity.

For Primary data Heteroscedasticity was determined using white test as shown below.

**Table 33: White Test for Heteroscedasticity Primary data**

Chi-Square	df	Sig.
20.227	14	.123

a. Dependent variable: Financial Performance  
b. Tests the null hypothesis that the variance of the errors does not depend on the values of the independent variables.

**Source: Research study, (2024)**

Since the p-value (0.123) is greater than 0.05, we fail to reject the null hypothesis. This indicates that heteroscedasticity is not present in the model, meaning the assumption of homoscedasticity holds (Gujarati & Porter, 2009; Wooldridge, 2016). Consequently, the regression model can be considered reliable for statistical inference, as the error terms exhibit constant variance across different values of the independent variables.

### **Heteroscedasticity test for the Secondary data**

Heteroscedasticity in panel data can distort standard errors and test statistics (Greene, 2018). The null hypothesis is Homoscedasticity, if the p-value  $< 0.05$ , reject the null hypothesis meaning there is evidence of heteroscedasticity. This was tested using white test as shown in Table 34

**Table 34: Modified Wald Test for GroupWise Heteroscedasticity**

Modified Wald test for GroupWise heteroscedasticity  
in fixed effect regression model  
H0:  $\sigma(i)^2 = \sigma^2$  for all i  
chi2 (52) = 5.27  
Prob>chi2 = 0.137

---

**Source: Researcher, (2024)**

To test for the presence of GroupWise heteroscedasticity in the fixed effects regression model, Modified Wald test was used. The null hypothesis of this test states that the variance of the residuals is constant across all groups. The results yielded a chi-square statistic of 5.27 and a corresponding p-value of 0.137. Since the p-value exceeds the conventional 5% significance threshold, the null hypothesis of homoscedasticity is not rejected. This indicates that there is no statistically significant evidence of GroupWise heteroscedasticity

in the model. Consequently, the assumption of constant variance across cross-sectional units holds, supporting the appropriateness of the fixed effects estimation in this context.

#### 4.3.6 Stationarity or Unit Root Test for Secondary Data

To ensure the reliability of the study's findings, unit root tests were conducted to determine the stationarity of the variables. The study employed the Im-Pesaran-Shin (IPS) test and the Phillips-Perron (PP) test, both of which are commonly used to detect the presence of unit roots in panel data. According to Phillips and Perron, (1988), the Phillips-Perron test checks if the variance of the time series is constant over time. They help confirm whether the variables are stationary, meaning they do not exhibit trends or random walks over time, which is essential for accurate regression analysis. The null hypothesis is  $H_0$ : The time series is non stationary and  $H_a$ : The series is stationary (No unit root). If  $Pvalue < 0.05$  Reject null hypothesis since its stationary, if  $p$  value is  $> 0.05$  Fail to reject

**Table 35: Stationarity/Unit Root Tests for secondary data**

Variable	Phillips-Perron tests	Im-Pesaran-Shin
Digital payments	22.2838**	-5.3315 **
	0.0000	0.0000
Digital deposits	6.6060**	-3.8346**
	0.0000	0.0001
Digital Portfolio Management	27.3998**	-6.6261**
	0.0000	0.0000
Digital-risk management	13.4095**	-2.9371**
	0.0000	0.0017
Fund size	17.9408**	-3.9020**
	0.0000	0.0000
Performance	5.9002**	-3.3078**
	0.0000**	0.0005

\*\* sig at 5% level,

**Source: Secondary Data by researcher (2024)**

The results presented in table above indicate that all the variables Digital Payments, Digital Deposits, Digital Portfolio Management, Digital-Risk Management, Fund Size, and Financial Performance are stationary at the 5% significance level. Both the Phillips-Perron test statistics and Im-Pesaran-Shin test statistics yield highly significant p-values < 0.01, leading to the rejection of the null hypothesis of non-stationarity for all variables.

#### 4.3.7 Hausman Test (Choice of Model)

##### Secondary data

To determine the most appropriate estimation model between fixed effects and random effects, Hausman specification test was done. If the random effect model violates assumption of zero correlation between individual effects, the FE Model is preferred. The null hypothesis  $H_0$ : Random effect is appropriate. If the p-Value < 0.05, reject the null hypothesis and use fixed effect (Hausman, 1978)

**Table 36: Hausman Test**

	(b) Fixed	(B) Random	(b-B) Difference	$\sqrt{\text{diag}(V_b - V_B)} \text{S.E.}$
Digital payments	0.040847	0.029532	0.011315	0.003433
Digital deposits	0.018446	0.019848	-0.0014	0.004072
Digital Portfolio Management	0.164157	-0.19603	0.360188	0.006809
Digital risk management	0.051229	0.051389	-0.00016	0.002779

b = consistent under  $H_0$  and  $H_a$ ; obtained from xtreg  
 B = inconsistent under  $H_a$ , efficient under  $H_0$ ; obtained from xtreg  
 Test:  $H_0$ : difference in coefficients not systematic  
 $\chi^2(4) = (b-B)'[(V_b - V_B)^{-1}](b-B)$   
 = 28.82  
 Prob> $\chi^2$  = 0.0000

**Source: Secondary Data, researcher (2024)**

As presented in Table above the test yielded a chi-square statistic of 28.82 and a p-value of 0.0000. Given that the p-value is well below the 0.05 significance level, the null hypothesis is strongly rejected. This indicates that the differences between the fixed and random effects estimators are statistically significant and not due to random chance. Therefore, the fixed effects model is deemed more appropriate for the analysis, as it provides consistent and unbiased estimates in the presence of correlation between the individual effects and the explanatory variables.

#### **4.4 Descriptive Analysis**

The descriptive statistics included measures of dispersion and measures of central tendency. This study used minimum and maximum to mark the data range, variance, and standard deviation as measures of dispersion. The metrics of central tendency in this dataset included the mean. Computations were made for standard deviation, mean, maximum, and minimum values for all variables from 2014 to 2023. Independent variables are; Digital Payments, Digital Deposits, Digital Portfolio Management, and Digital Risk Management, the moderating variable (fund size) and the dependent variable (financial performance). All monetary figures were presented in millions of Kenyan Shillings (Ksh.). Research findings and discussions for each variable are organized thematically and presented separately; first primary then secondary data findings followed with a comprehensive discussion on convergence/divergence and corroboration.

##### **4.4.1 Descriptive statistics on respondents' profile and demographic statistics**

This section presents findings on respondents' profile with demographical characteristics. This section is significant to the study as it enables the researcher to understand the

characteristics of the sample and assess the generalizability of the findings and also it's essential for the contextualization of the findings to ensure appropriateness of interpretations (Creswell & Creswell, 2018; Mugenda & Mugenda, 2003). It also enhances the relevance of the outcomes. The study was done on forty four respondents drawn from various professional roles and engagements within the Kenyan Unit fund sector.

The background information not only adds contextual depth to the study but also serves as a foundation for interpreting the effect of financial technology on Unit fund performance. This allows the findings to be grounded on real-world operational environments, thereby enhancing the credibility, relevance, and practical applicability of the research. The job titles reflected a cross-section of strategic and operational personnel to ensure that insights were obtained from individuals with expertise and job relevance to form a solid basis for generalization of findings regarding strategic decision making, oversight of financial operations and technology use within Unit fund management. The diversity of professional roles ensured the study captured a wide range of perspectives from individuals at different functional levels, thereby enhancing the reliability and richness of the data.

The length of period in service provided professional experience for a balanced perspective on how long-term and relatively newer employees perceive and interact with financial technology solutions in the Unit fund industry. The variation in years of service introduces a temporal dimension, allowing the study to consider how both experienced and relatively new professionals perceive the integration of fintech in Unit fund operations. The data on daily duties pointed to emphasizing the position and role each

plays in the fintech integration. These duties are directly aligned with the study variables. The respondents actively participate in core operational areas which strengthened the study's validity by ensuring that the data collected came from individuals who interact regularly with digital financial systems and are well-positioned to assess their influence on Unit fund performance. The alignment of daily duties with core functions directly affected by technology ensured firsthand experience with digital platforms and tools.

**Table 7: Descriptive Statistics on Respondents Job Titles**

<b>Job Title</b>	<b>Frequency</b>	<b>Percentage</b>
CEO	7	16%
Analyst	12	27%
Manager	13	30%
Finance Officer	12	27%
	<b>44</b>	<b>100%</b>

**Source: Researcher, (2024)**

The table 7 shows the findings on the demographics on job titles of the fund personnel. The Chief Executive Officers recorded the least number of respondents (16.0%). This could be attributed to their busy schedule and oversight roles that are makes them delegate most of their duties. The data Analysts were at (27.0%), Fund Managers (30.0%), and Finance Officers (27.0%). This distribution reflects sufficient exposure to Unit fund operations with a fair distribution across early-career and experienced professionals. The early career professionals are considered techno-savvy and more exposed to technological innovations. The data collected reflects insights from both strategic (decision making) and operational levels for implementation of decisions.

**Table 8: Descriptive Statistics on Respondents Length of Service**

<b>Years of Service</b>	<b>Frequency</b>	<b>Percentage</b>
1-5 Years	23	52%
6-10 Years	17	39%
11-15 Years	4	9%
16-20Years	0	0%
	<b>44</b>	<b>100%</b>

**Source: Researcher, (2024)**

The length of period in service provided professional experience, 52% of the respondents had worked in their respective organizations for between 1 to 5 years, while 39% had 6 to 10 years of experience. Those with 11 to 15 years were 9% of total respondents. None of the respondents had stayed in their work stations for 16-20 years. This range of experience levels provided a balanced perspective on how long-term and relatively newer employees perceive and interact with Fintech solutions in the Unit fund industry.

**Table 9: Descriptive Statistics on Respondents Daily Duties**

<b>Daily duties</b>	<b>Frequency</b>	<b>Percentage</b>
Strategy & Oversight roles	7	16%
Data Analysis and ICT	12	27%
Investment and operations	13	30%
Financial Reporting	12	27%
	<b>44</b>	<b>100%</b>

**Source Researcher, (2024)**

The data on daily duties pointed to emphasizing the position and role each plays in the fintech integration. Majority of respondents were managers engaged in investment and operational functions (30.0%), followed closely by data analysis tasks (27.0%) and the Financial reporting role at 27%. The CEO's who play mainly the oversight roles and decision making functions reported 16.0% of respondents.

#### **4.4.2 Descriptive Statistics on Digital Payments**

This section presents discussions of findings on digital payments, first using primary data then next using secondary data and lastly a discussion on the convergence point for the dual data sources.

##### **4.4.2.1 Descriptive Statistics on Digital Payments using Primary data**

To assess the level of digital uptake in Unit funds, respondents were asked to estimate the proportion of digital transactions processed per annum within specified ranges. The findings revealed that 18.8% of the respondents indicated that between 26-50% of their fund's transactions were processed digitally, 31.3% of the respondents indicated that between 51-75% of their transactions involved digital technology. Notably, a majority of the respondents, accounting for 50.0%, stated that 76-100% of their fund's annual payment transactions were conducted using digital technological methods. A weighted average was computed using mid points of ranges and corresponding proportions of responses. Digital payments showed a fintech uptake level of 70.86% meaning investors access payments mostly through digital means. The table 10 shows the summary of the findings.

**Table 10: Descriptive statistics for Fintech uptake levels through digital payments**

Range	Midpoint	Score	Decimal(weights)	Weighted Average %
1-25%	13	0	0	0
26-50%	38	18.80%	0.1880	7.144
51-75%	63	31.30%	0.3130	19.719
76-100%	88	50%	0.5000	44
				<b>70.86%</b>

Source, Researcher, 2024.

Results in table 10 shows the fintech uptake levels in digital payments. Most of the respondents at 50% were of the opinion that approximately 44% of the Unit funds' payment transactions are done digitally. Averagely all the respondents were of the view that 70.86% of all the payments are transacted digitally. This shows positive perception of fund personnel on financial technology adoption in UTFs.

Furthermore, the digital payments were also measured using six items on a 5-point Likert scale as Strongly Agree (5), Agree (4), Neutral (3), Disagree (2) and Strongly Disagree (1).

**Table 11: Descriptive Statistics on Digital Payments using Primary Data**

Digital Payments	Min	Max	Mean	S.D
1 The fund has facilitated investors to use digital payment platform to do redemptions	1	5	4.07	1.189
2 Most clients are conveniently using the digital platforms available	1	5	3.55	1.150
3 The use of digital platforms to make payment to clients leads to remarkable reduction in transaction costs	1	5	3.82	1.206

<b>Digital Payments</b>		<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>S.D</b>
4	The use of digital platform in making payment encourages client's participation in investment activities	1	5	4.00	1.100
5	The use of digital payments platform has made investment in Unit funds more accessible, affordable and transparent	1	5	3.80	1.286
6	There is remarkable increase in number of payment transactions done using digital platform	1	5	3.82	1.225
<b>Overall Mean Score</b>				<b>3.84</b>	

**Source: Researcher (2024)**

As shown in table 9, respondents agreed (mean = 4.07, SD = 1.189) that 'fund has facilitated investors to use digital payment platform to do redemptions. This high mean score, accompanied by moderate variation, suggests a widespread adoption of technology, though experiences may differ based on infrastructure or fund size. There was high agreement (mean = 4.00, SD = 1.100) that use of digital platforms encourages client participation in investment activities. The standard deviation of 1.1 reflects moderate variation in responses on rating fintech adoption.

Respondents further agreed (mean = 3.82, SD = 1.206) that digital payment platforms lead to notable improvements in efficiency, and likewise agreed (mean = 3.82, SD = 1.225) meaning that there has been an increase in the number of payment transactions executed via digital platforms. The similar mean values and slightly higher standard deviations imply general approval with some differences in user experience, perhaps due to system integration levels or client demographics. There was also moderate agreement (mean = 3.80, SD = 1.286) that digital payment platforms simplify the investment process, making

it more accessible and affordable to investors. The standard deviation indicates varied perceptions.

The lowest-rated item (mean = 3.55, SD = 1.150) was the extent to which clients conveniently use the digital platforms to seek services. This suggests that while systems are in place, user adoption or ease of use may still present a challenge for some clients, highlighting the need for ongoing user training or system refinement. Overall, the results (overall mean = 3.84) suggest that digital payments significantly contribute to the efficiency of Unit fund operations. However, the moderate to high standard deviations across statements highlight the importance of tailoring digital solutions to client capabilities and ensuring consistent user experiences across platforms.

#### 4.4.2.2 Descriptive statistics on digital payments using secondary data

According to filings by capital markets authority (CMA, 2023), and FSD Kenya (2022), digital payment platforms in financial markets has steadily grown through the years. For the secondary data the Digital payments were assessed using value of E-Wallet payment Transactions and Mobile App payment transactions, averages were calculated for each fund as shown in Table 12 below.

**Table 12: Descriptive Statistics on Digital Payments with Secondary Data.**

		<b>Balanced Funds</b>			
	<b>N</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>S.D</b>
E-Wallet Transactions	130	0.011577	573.45	14.52	53.18
Mobile App Transactions	130	0.016409	641.67	18.87	63.23
<b>Combined Digital Payments</b>	130	0.027986	1,215.12	33.39	116.41
		<b>Bond Fixed</b>			
E-Wallet Transactions	130	0.179755	765.02	99.43	188.44
Mobile App Transactions	130	0.345744	1,077.81	131.38	247.15
<b>Combined Digital Payments</b>	130	0.525499	1,842.83	230.81	435.59

<b>Equity Funds</b>					
E-Wallet Transactions	130	0.00192	987.49	71.78	172.01
Mobile App Transactions	130	0.001979	1,380.90	100.30	242.59
<b>Combined D. Payments</b>	130	0.003899	2,368.39	172.08	414.60
<b>Money Market Funds</b>					
E-Wallet Transactions	130	1.936873	57,316.49	3,963.17	9,190.04
Mobile App Transactions	130	2.741014	71,870.50	5,605.70	13,067.60
<b>Combined D. payments</b>	130	4.677887	129,187.00	9,568.87	22,257.64
<b>Overall</b>					
E-Wallet Transactions	520	2.130125	59,642.45	4,148.90	4,885.61
Mobile App Transactions	520	3.105146	74,970.88	5,856.25	6,942.99
<b>Combined D. Payments</b>	520	5.235271	134,613.33	10,005.15	16,546.66

SD=Standard Deviation, N=Sample Size, Min=Minimum, Max=Maximum

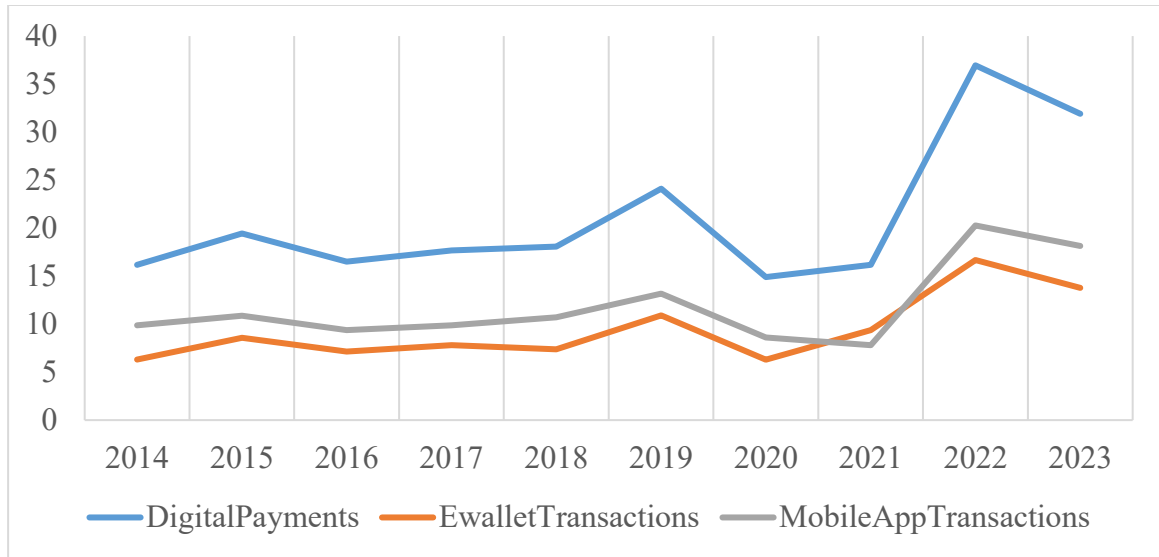
**Source: Researcher, (2024)**

The money Market Funds exhibited the highest average digital payment activity across both channels, with combined transactions averaging Ksh. 9,568.87 million. In contrast, for Balanced Funds, the mean E-Wallet transaction value is Ksh. 14.52 million, with a maximum of Ksh. 573.45 million and a standard deviation of Ksh. 53.18 million. Mobile App transactions average Ksh. 18.87 million, peaking at Ksh. 641.67M, and showing a standard deviation of Ksh. 63.23 million. The mean for the Combined Digital Payments across both channels stands at Ksh. 33.39 million. In Bond Fixed Funds, E-Wallet transactions average Ksh. 99.43M with a maximum of Ksh. 765.02 million and a S.D of Ksh. 188.44 million. Mobile App transactions report a mean of Ksh. 131.38 million, with the highest at Ksh. 1,077.81 million and a standard deviation of Ksh. 247.15 million. The mean for combined Digital Payments amount is Ksh. 230.81M.

Equity Funds record mean E-Wallet transactions of Ksh. 71.78 million, with the highest at Ksh. 987.49 million and a standard deviation of Ksh. 172.01 million. Mobile App transactions average Ksh. 100.30 million and reach a maximum of Ksh. 1,380.90 million,

with a standard deviation of Ksh. 242.59 million. The average digital payment is Ksh. 172.08 million. Money Market Funds show the highest digital engagement. E-Wallet transactions average Ksh. 3,963.17 million, reaching up to Ksh. 57,316.49 million, and exhibit high variability with a standard deviation of Ksh. 9,190.04 million. Mobile App transactions average Ksh. 5,605.70 million, maximum at Ksh. 71,870.50 million, with a standard deviation of Ksh. 13,067.60 million. The combined digital payments average is Ksh. 9,568.87 million, reflecting the highest digital transaction activity among all fund categories.

Across all funds combined, E-Wallet transactions range from Ksh. 0.00192 million to Ksh. 57,316.49 million, with an overall mean of Ksh. 1,037.23 million and a standard deviation of Ksh. 4,885.61 million. Mobile App transactions range from Ksh. 0.001979 million to Ksh. 71,870.50 million, with a total mean of 4,148.9 and E-wallet transactions a total mean of 5,856.25M and showing a total standard deviation of Ksh. 6,942.99 million. The mean for the total Combined Digital Payments across funds amounts to Ksh. 10,005.15 million, with a wide standard deviation of Ksh. 16,546.66 million. This confirms a highly skewed distribution driven primarily by the Money Market Funds category.



**Figure 2: Trend for Digital Payments**

The figure above illustrates the trend in digital payments, which reflects a modest upward adoption over time, highlighting the growing reliance on fintech for fund transactions.

#### 4.4.2.3 Convergence of Primary and Secondary Data on Digital Payments

The findings from both data sources show strong convergence, Primary data on responses by the key personnel of the UTFs demonstrated a high level of agreement that digital payment systems are in place demonstrated by a global mean of 3.84 with a general uptake percentage of 70.86%. This is consistent with secondary data which shows high transaction volumes, with combined digital payments for the four categories averaging Ksh.10,005.15 M. The high mean score for the primary data reflects positive perceptions from fund personnel towards fintech. This aligns with secondary data which shows increasing transaction volumes of actual performance. This alignment between perceived and actual data from fund activity indicates strong internal support and growth in fintech uptake working towards enhancing fund performance.

A clear contrast emerges in secondary data across fund categories. Money Market and Equity Funds show significantly higher digital transaction volumes compared to Balanced and Bond Fixed Funds. For instance, Combined Digital Payments average KES 9,568.87 in Money Market Funds versus only KES 33.39 in Balanced Funds. This contrast indicates differing adoption levels possibly due to the investor profile, Money Market Funds typically serve more retail clients who prefer mobile and e-wallet convenience. In contrast, primary data does not reflect such variance, suggesting a generally optimistic view across all fund types from staff perspectives.

The findings align with Ndichu, Kariuki, and Kariuki (2021), in a study on the effect of fintech predictive modelling on performance of investment firms in Kenya. The results showed a significantly positive effect of fintech predictive modelling on the performance of investment firms in Kenya. This aligns directly with the current study's findings, as digital payments, one core element of fintech, were shown to enhance Unit fund performance both in terms of accessibility and transaction efficiency. Similarly, Kariuki (2021) affirmed that fintech investment financing mechanisms (including digital tools like P2P lending and crowdfunding) are significantly associated with improved financial outcomes in Kenyan investment firms. Aicha, (2023) also lends empirical support, noting a positive relationship between fintech services and financial inclusion, which ultimately translates into enhanced performance for financial institutions. Given that digital payments increase accessibility, lower transaction costs, and promote transparency, they are a key driver of financial inclusion and hence, of better fund performance.

Limna et al. (2022), through a narrative synthesis of digital economy literature, reinforced the growing role of digital platforms in economic development. Their findings broadly support this study's conclusions, especially the positive perceptions recorded in the primary data, though their study was not empirical in nature and did not isolate digital payments as a performance determinant.

Conversely, Yasir et al. (2020) focused on Unit fund performance in Pakistan and emphasized traditional valuation models (CAPM, Fama-French, Carhart) without directly attributing performance variations to fintech tools. While their study found significance in model-based evaluations, it did not explore digital payments, indicating a limitation in generalizability to digital finance. This divergence does not directly contradict current findings, but it shows the gap in older or traditional analyses that did not integrate fintech as a variable.

The findings are well-grounded in Technology Acceptance Theory (TAM). This theory postulates that the perceived ease of use and usefulness of a technology significantly influence its acceptance and, by extension, its impact on performance. In this study, the higher global mean for digital payments in the primary data descriptive statistics underscores a strong perceived usefulness of digital payments among stakeholders. Respondents believed that digital payments enhance fund accessibility, reduce operational friction, and improve investor satisfaction. This perception supports TAM's notion that behavioral intentions are shaped by beliefs about a technology's efficacy. Average mean in combined digital payments data reveals the actual financial impact, which is significant. This is consistent with TAM which states that while perception drives adoption, actual

benefits may depend on contextual factors such as infrastructure maturity, integration efficiency, and user behaviour.

In conclusion, both data sources show that digital payments significantly transform fund performance through accessibility and efficiency. The consistency between perceptions and practice supports validity and robustness of the findings and highlights the central role of digital payments in the modernization of Unit funds operations. The convergence underscores the growing reliance on mobile platforms and digital structures and systems in the financial operations and management of Unit funds in Kenya.

#### **4.4.3 Descriptive Statistics on Digital Deposits**

This section discusses the findings on digital deposits first using primary data then next using secondary data and lastly a discussion on the convergence point for the dual data sources.

##### **4.4.3.1 Descriptive Statistics on Digital Deposits using Primary data.**

Using primary data, the study examined the proportion of total annual deposits processed through digital channels such as mobile money, online transfers, smart apps, contactless transactions, and e-wallets. The findings revealed that half of the respondents (50.0%) reported that between 51-75% of their total deposits were made digitally. Additionally, 43.8% indicated that 76-100% of their deposits were conducted through digital means, demonstrating a high reliance on digital financial services. A smaller proportion (6.2%) reported that only 26-50% of their deposits were digital. These results highlight the

growing adoption of digital deposit methods among Unit funds, signifying a shift towards more technology-driven financial transactions. This is summarized in the table 13 below.

**Table 13: Descriptive Statistics on Fintech adoption levels for digital Deposits using primary data**

Range	Midpoint	Score	weights/ Decimal	Weighted Average %
1-25%	13	0	0	0
26-50%	38	6.3%	0.0630	2.394
51-75%	63	50%	0.5000	31.5
76-100%	88	43.8%	0.4380	38.544
				<b>72.44%</b>

Table 13 above table shows fund personnel perceptions on fintech use in UTFs. Using the average weighted approach, the digital deposits uptake level was highest at 72.44%, suggesting that deposits are done remotely signifying high dependency on technology.

Furthermore, respondents' views on digital deposits using six items on a 5-point Likert scale as Strongly Agree (5), Agree (4), Neutral (3), Disagree (2) and Strongly Disagree (1). The results are shown in the table below.

**Table 14: Descriptive Statistics on Digital Deposits using Primary Data.**

	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>Standard Deviation</b>
1 The funds have enabled its clients to remotely make deposits into their investment accounts using a set up digital platform.	1	5	3.70	1.250
2 There is a notable improvement in customer deposits transactions done remotely on the digital platform	1	5	3.61	1.316
3 The use of digital platforms is convenient for investors	1	5	3.64	1.080
4 The investors dominantly use digital platform to make deposits into client investment	1	5	3.61	1.061
5 The use of digital platform to make deposits into investor accounts is accurate, preferred as simple	1	5	3.93	1.149
6 The use of digital deposits has caused a significant decrease in the processing costs.	1	5	3.84	1.238
<b>Overall Mean Score</b>			<b>3.72</b>	

**Source: Researcher (2024)**

As shown in Table 14, the first statement, “The funds have enabled its clients to remotely make deposits into their investment accounts using a set up digital platform,” had a mean of 3.70 and a standard deviation of 1.250. This suggests that, on average, respondents agreed that remote deposit services are available, although the relatively high standard deviation reflects differing levels of adoption or awareness across firms. The implication is that while digital deposit infrastructure exists, it may not be uniformly accessible or well-utilized, signaling a need for broader rollout or client education initiatives.

The second statement, “There is a notable improvement in customer deposit transactions done remotely on the digital platform,” received a mean of 3.61 and a standard deviation of 1.316, showing moderate agreement with relatively high variability. This indicates that while some firms noted improvements in remote deposits, others may not have experienced the same benefits. The high deviation suggests disparities in technology performance, digital literacy, or customer uptake that need to be addressed.

For the third item, “The use of digital platforms is convenient for investors in making deposit transactions,” the mean was 3.64 and the standard deviation was 1.080. This reflects general agreement with a slightly lower deviation than previous items, implying a growing consensus that digital channels have a positive effect on transaction volumes. The implication is that digital transformation in deposit handling is gaining traction, likely due to enhanced customer convenience and time efficiency.

The fourth statement, “The investors dominantly use digital platform to make deposits into their investment accounts” recorded a mean of 3.61 and a standard deviation of 1.061. This suggests cautious optimism among respondents about the strategic benefits of digital deposits on investment outcomes. The relatively consistent views imply that most Unit funds recognize some link between deposit accessibility and performance, although quantifying this effect might still be evolving.

In the fifth statement, “The use of digital platform to make deposits into investor accounts is preferred, accurate and simple’ had a mean of 3.93 and standard deviation of 1.149 were observed. This is the highest mean in the group, indicating strong agreement that digital deposits is liked by investors. However, the slightly high deviation reveals that not all firms

have experienced these preference & benefits equally, potentially due to differences in scale, customer base, or efficiency of digital integration.

Lastly, the sixth statement, “The use of digital deposits has caused a significant decrease in the processing costs.” had a mean of 3.84 and standard deviation of 1.238. Respondents largely agreed that digital systems reduce costs, but variability remains relatively high, suggesting responses varied widely, thus very low and very high responses, not closely rated thus operational efficiencies vary across firms. The implication is that cost benefits are attainable but depend on how well the technology is implemented and aligned with internal processes. In conclusion, the primary data findings reflected in respondents’ perception of digital deposits show a positive trend in fintech uptake as mirrored in their responses.

#### **4.4.3.2 Descriptive Statistics on Digital Deposits using Secondary Data.**

For secondary data, the findings are presented in Table 15, which provides the descriptive statistics for digital deposits measured using the Value of deposit transactions done through the Fintech Apps and Electronic transfers representing 72.44% of the total transactions.

**Table 15: Descriptive Statistics on Digital Deposits for Secondary Data**

		<b>Balanced Funds</b>			
	<b>N</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>S.D</b>
Fintech App Deposits	130	0.072913	13,093.64	192.12	1,245.83
Electronic transfers deposits	130	0.109052	11,419.86	204.25	1,185.82
<b>Combined D. Deposits</b>	130	0.181965	24,513.50	396.38	2,423.18
		<b>Bond Fixed</b>			
Fintech App Deposits	130	0.26257	1,020.30	128.50	209.38
Electronic transfers	130	0.409716	1,427.30	154.25	252.25
<b>Combined D. Deposits</b>	130	0.835512	2,447.60	282.75	461.63
		<b>Equity Funds</b>			
Fintech App Deposits	130	0.014082	2,489.28	129.04	275.98
Electronic transfers	130	0.015391	3,212.71	160.63	346.04
<b>Combined D. Deposits</b>	130	0.029472	5,701.98	289.67	620.52
		<b>Money Market Funds</b>			
Fintech App Deposits	130	1.589524	165,531.20	4,745.35	18,152.90
Electronic transfers	130	1.558692	154,713.40	6,266.06	22,198.84
<b>Combined D. Deposits</b>	130	3.148216	320,244.60	11,011.40	40,351.74
		<b>Total</b>			
Fintech App Deposits	520	1.939089	182,134.42	5,195.01	19,884.09
Electronic transfers	520	2.092851	170,773.27	6,785.19	23,982.95
<b>Combined Digital Deposits</b>	520	4.03194	352,907.90	11,980.20	43,867.04

SD=Standard Deviation, N=Sample Size, Min=Minimum, Max=Maximum

**Source: Researcher, (2024)**

The table above presents the descriptive statistics for digital deposits, measured through Fintech App Deposits and Electronic Transfers across different fund categories. Data in table 15 was obtained from cashflow statements, statement of financial position, statement of changes in equity and statement of income and notes to the financial statements. For

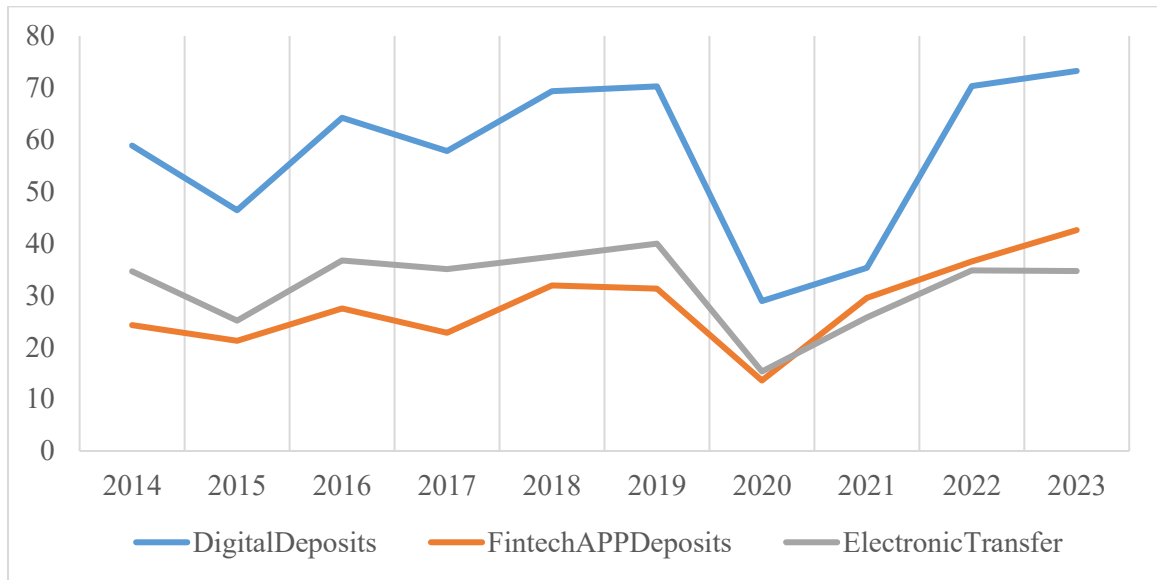
Balanced Funds, the mean value of Fintech App Deposits stands at Ksh. 192.12 million, ranging from a minimum of Ksh. 0.0729 million to a maximum of Ksh. 13,093.64 million, with a standard deviation of Ksh. 1,245.83 million. Electronic Transfers in this category average Ksh. 204.25 million and range up to Ksh. 11,419.86 million, with a standard deviation of Ksh. 1,185.82 million. The combined average for digital deposits is Ksh. 396.38 million, with a maximum of Ksh. 24,513.50 million.

In Bond or Fixed Funds, the Fintech App Deposits an average of Ksh. 128.50 million and reach a maximum of Ksh. 1,020.30 million, with a standard deviation of Ksh. 209.38 million. Electronic Transfers record a slightly higher mean of Ksh. 154.25 million and a maximum of Ksh. 1,427.30 million, with a standard deviation of Ksh. 252.25 million. Combined deposits average Ksh. 282.75 million. Equity Funds show a mean Fintech App Deposit of Ksh. 129.04 million, with a maximum value of Ksh. 2,489.28 million and a standard deviation of Ksh. 275.98 million. Electronic Transfers average Ksh. 160.63 million, with the highest at Ksh. 3,212.71 million and a standard deviation of Ksh. 346.04 million. Combined digital deposits reach an average of Ksh. 289.67 million.

Money Market Funds report the highest digital deposit activity. Fintech App Deposits average Ksh. 4,745.35 million, ranging up to Ksh. 165,531.20 million, with a substantial standard deviation of Ksh. 18,152.90 million. Electronic Transfers average Ksh. 6,266.06 million, with a peak of Ksh. 154,713.40 million and a standard deviation of Ksh. 22,198.84 million. The combined deposits average a notable Ksh. 11,011.40 million.

For all funds combined, Fintech App Deposits range from Ksh. 0.0141 million to Ksh. 165,531.20 million, with a mean of Ksh. 1,298.75 million. Electronic Transfers range from

Ksh. 0.0154 million to Ksh. 154,713.40 million. Overall, the combined digital deposits for all funds average Ksh. 11,980.20 million and vary widely, with a maximum value of Ksh. 352,907.69 million and a standard deviation of Ksh. 43,867.04 million, reflecting high dispersion due to large deposits in Money Market Funds.



**Figure 3: Trend for Digital deposits**

The above figure shows the trend in digital deposits, showing consistent growth, particularly in funds with higher liquidity requirements.

#### **4.4.3.3 Convergence point for findings on Digital deposits of Unit Trust Funds.**

The analysis of digital deposits using both primary and secondary data sources reveals consistent patterns with positive trends implying strong convergence and therefore reinforcing the validity of the findings. Primary data shows that 72.44% of Unit fund deposit transactions are done digitally. Furthermore, the Likert scale reflects an overall mean score of 3.72 across six statements about digital deposits, indicating general agreement on the use of technology and its benefits.

Primary data supports the secondary data findings with high volume transactions suggesting that digital deposits are widely adopted. The secondary data shows mean deposits by fintech apps to be Ksh. 5,195.01M while for electronic transfers at Ksh. 6,785.19M and the total of digital deposits at 11,980.02. The notable growth trends over time are shown in the graphical presentation of trend analysis. The corroboration witnessed by qualitative feedback from primary data reinforces the quantitative trend in the secondary data, validating the steady and notable growth in digital deposits.

On the benefits derived from the use of digital deposits, primary data shows a strong agreement that digital deposits contribute to enhanced firm earnings. These sentiments corroborate the implication in secondary data that firms experience profitability from embracing digital solutions. However there is notable variability in adoption and performance whereby primary data shows standard deviations (ranging from 1.06 to 1.32), indicating differences in how firms experience the benefits of digital deposits. This is mirrored in secondary data where not all firms fall in the highest adoption or growth categories. While fintech adoption is high, both findings confirm uneven experiences, likely due to differences in digital infrastructure, client engagement, or firm size.

Empirical literature lends strong support to these findings. For instance, Ndichu and Kariuki (2021) found a significant positive link between fintech innovations, including digital deposits, and investment firm performance in Kenya. Their findings align well with the results from both datasets in this study, affirming that digital financial mechanisms improve efficiency and financial returns. Similarly, Siska (2022) and Salman (2021) report that digital services and fintech tools, such as digital deposits, contribute significantly to

enhanced financial performance, especially through increased return on assets and improved client satisfaction.

Further corroboration comes from Tshukudu et al. (2022), who concluded that digital banking tools lead to improved performance in commercial banks due to wider customer reach and better transaction handling. Ndede (2020) supports this view by showing that digital deposit platforms directly contribute to increased deposits and improved loan disbursements in commercial banks, thereby boosting profitability. These findings closely mirror descriptive statistics from the secondary data in this study, where actual transaction values show higher financial performance associated with greater digital deposit uptake. Rono and Munene (2023) agrees with these findings in their study on the effect of mobile banking on performance of Sacco's in Meru County. The study concluded that mobile banking in SACCOs' improves the financial performance in terms of productivity, efficiency and convenience

However, not all studies agree, Gichana, Nyakundi, and Muturi (2016) identified a negative correlation between technology-enabled banking services and bank performance in a localized case study. This suggests that the effectiveness of digital innovations such as deposits may depend on the strategic alignment of technology with business models, staff readiness, and client digital literacy. Similarly, Yударuddin (2023) reported detrimental effects of fintech start-ups on traditional bank performance in Indonesia, hinting that poorly integrated digital systems or rapid fintech growth may sometimes disrupt rather than enhance performance.

#### 4.4.4 Descriptive Statistics on Digital Portfolio Management.

This section discusses the findings on the effect digital portfolio management on fund performance, first using primary data then next using secondary data and lastly a discussion on the convergence point.

##### 4.4.4.1 Descriptive Statistics on Digital Portfolio Management using Primary Data.

Using primary data, the study sought to determine the proportion of assets managed by Unit funds that are handled and analyzed digitally using digital investment platforms, data analytics tools, AI, and robotic technologies. The findings revealed that 50.0% of the respondents indicated that 76-100% of their assets are managed digitally, while 37.5% reported a digital management proportion of 51-75%. Additionally, 6.3% of the respondents stated that only 26-50% of their assets are managed digitally, and another 6.3% indicated a digital management proportion of 1-25%

**Table 16: Descriptive statistics on fintech uptake levels for DPM**

Range	Midpoint	Score	As Decimal	Weighted %	Average
1-25%	13	6.30%	0.0630	0.0819	
26-50%	38	6.30%	0.0630	2.394	
51-75%	63	37.50%	0.3750	23.625	
76-100%	88	50%	0.5000	44	
				<b>70.10%</b>	

**Source: Researcher (2024)**

The above table shows responses on fintech uptake levels in percentages for digital portfolio management calculated using the weighted average approach, the levels stood at 70.10%, slightly lower than digital deposits and digital payments. This suggest that most fund managers engage technology to manage assets and build optimal portfolios for high returns. This is quite encouraging, meaning majority of them rely heavily on digital platforms to handle and analyze their assets.

Furthermore, the study examined the effect of digital portfolio management on fund performance using seven statements on a 5-likert Scale which was rated as Strongly Agree (5), Agree (4), Neutral (3). Disagree (2) and Strongly Disagree (1) as shown in Table below

**Table 17: Descriptive Statistics on Digital Portfolio Management using primary data**

	Min	Max	Mean	Standard Deviation
1 The fund employs financial technology platforms and tools in performing data analysis	1	5	3.48	.952
2 Digital tools are used by the fund in the decision-making process	1	5	3.59	.996
3 The automation of business transactions improves the growth through remote engagement of clients	1	5	3.66	1.033
4 Provision of investment advice to its clients remotely using digital tools like chatbots helps to expand the fund AUM	1	5	3.84	1.010
5 The use of digital tools and machines to respond to customer query's and offer advisory services remotely	1	5	3.80	1.002
6 The use of digital tools and platforms to access portfolio reports and statements online enhances efficiency in data analysis process	1	5	3.84	.987
7 The use of modern digital tools and machines to perform duties and roles previously done by human personnel enhances cost cutting	1	5	3.80	.978
<b>Overall Mean</b>			<b>3.72</b>	

**Source: Researcher (2024)**

“The fund employs financial technology platforms and tools in performing data analysis” recorded a mean of 3.48 and a standard deviation of 0.952. This reflects moderate agreement among respondents. The relatively lower standard deviation implies consistent views among firms. The implication is that while fintech tools are increasingly being used for data analysis, their integration may still be developing or not yet maximized across all firms. The Statement, “Digital tools are used by the fund in the decision-making process to achieve efficient outcomes” had a mean of 3.59 and a standard deviation of 0.996. This indicates a general acknowledgment of the role of digital tools in improving investment decisions, though slight variations exist across respondents. The implication is that while most firms recognize the benefits of digital decision-support systems, actual usage and impact may differ depending on system sophistication or staff capacity.

“The automation of business transactions improves growth through remote engagement of clients” yielded a mean of 3.66 and a standard deviation of 1.033. However, the slightly higher variability signals differing implementation levels of automation across firms. “Provision of investment advice to clients remotely using digital tools like chatbots helps expand the fund's AUM had a mean of 3.84 and a standard deviation of 1.010. The relatively high mean implies that remote advisory services are instrumental in attracting and retaining investors. The implication is that digital advisory tools promote fund expansion strategies, depending on user experience and client trust in automated systems.

“The use of digital tools and machines to respond to customer queries and offer advisory services remotely” showed a mean of 3.80 and standard deviation of 1.002. This supports the role of digital customer service in fostering fund growth, indicating that automation

contributes to customer satisfaction, thereby enhancing loyalty and portfolio expansion. “The use of digital tools and platforms to access reports online enhances efficiency in the data analysis process” also reported a mean of 3.84 with a standard deviation of 0.987. The high mean reflects improved analytical efficiency through digital platforms, while the low deviation suggests consensus on this point among respondents.

“The use of modern digital tools and machines to perform duties previously done by human personnel enhances cost-cutting” registered a mean of 3.80 and a standard deviation of 0.978. Respondents largely agreed that automation results in significant operational cost savings. The relatively low variability indicates a shared view across Unit funds on the value of digital transformation in reducing overheads.

#### **4.4.4.2 Descriptive statistics on digital portfolio management using secondary data.**

Table 16 below provides the descriptive statistics for Digital Portfolio Management which was conceptualized using Portfolio Return and Portfolio Turnover. Portfolio return was measured using Sharpe ratio and portfolio turnover was measured using the ratio of lower of total sales or total purchases to average asset under management. Portfolio turnover was calculated from the value of new investments and value of securities sold. From the cash flow statement.

**Table 18: Descriptive Statistics on Digital Portfolio Management-secondary data**

		<b>Balanced Funds</b>			
	<b>N</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>S.D</b>
Portfolio Return	130	0.4941201	0.499962	0.118941	0.244022
Portfolio Turnover	130	0.0000837	298.5436	2.455873	26.17088
		<b>Bond Fixed</b>			
Portfolio Return	130	0.48907	0.499794	0.09146	0.233092
Portfolio Turnover	130	0.000182	1.592668	0.152765	0.208695
		<b>Equity Funds</b>			
Portfolio Return	130	0.494935	0.498871	0.08357	0.272817
Portfolio Turnover	130	0.000217	2.768503	0.163977	0.307027
		<b>Money Market Funds</b>			
Portfolio Return	130	0.4748245	0.499374	0.09985	0.224735
Portfolio Turnover	130	0.0000981	1.340685	0.168149	0.221936
		<b>For All</b>			
Portfolio Return	520	0.488237	0.499962	0.098455	0.243991
Portfolio Turnover	520	0.0001452	76.06136	0.735191	6.727135

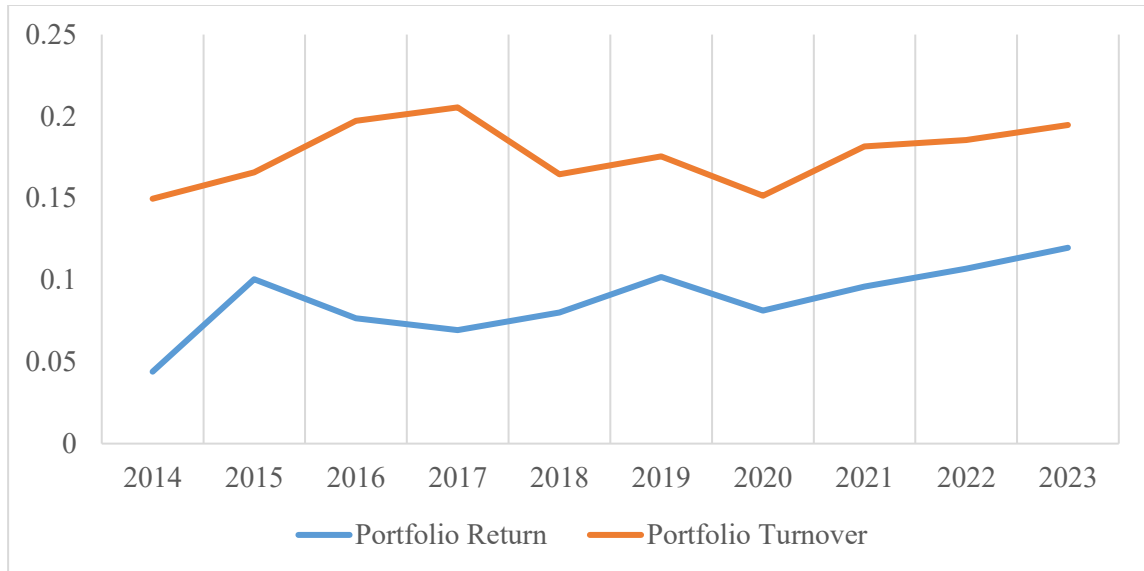
**Source: Research study (2024)**

Table 16 above presents the descriptive statistics using secondary data for Digital Portfolio Management, which was assessed using two key measures: Portfolio Return, captured through the Sharpe Ratio, and Portfolio Turnover, measured as the ratio of the lower of total sales or total purchases to the average AUM.

For Balanced Funds, the mean Portfolio Return was 0.1189, indicating that these funds, on average, generated a modest risk-adjusted return. This suggests a relatively effective balancing of risk and return within their digital portfolios. The mean Portfolio Turnover for Balanced Funds was 2.456, the highest among all fund types, suggesting a highly active trading strategy where assets were frequently reallocated, potentially to optimize returns in response to market dynamics.

In Bond Fixed Funds, the mean Portfolio Return was 0.0915, reflecting a more conservative risk-adjusted return profile, consistent with the typically lower risk exposure in bond investments. The Portfolio Turnover was much lower, averaging 0.1528, which implies a more passive investment strategy with limited trading activities, aligning with the long-term and stable nature of bond holdings. Equity Funds registered the lowest mean Portfolio Return at 0.0836, indicating comparatively less efficient conversion of risk into returns. Despite being traditionally more volatile and return-driven, the equity funds in this case demonstrated low average Portfolio Turnover at 0.1640, suggesting that these portfolios were not frequently traded and likely adopted a long-term investment strategy.

For Money Market Funds, the mean Portfolio Return was 0.0999, which, while modest, is relatively efficient given the low-risk nature of such investments. Portfolio Turnover was also low, with a mean of 0.1681, reflecting the characteristic stability of money market portfolios where assets are typically held to maturity or rotated infrequently. Overall, the aggregate mean Portfolio Return across all fund types was 0.0985, illustrating a moderate level of risk-adjusted returns from digital portfolio management strategies. Meanwhile, the mean Portfolio Turnover across all funds was 0.7352, a value significantly influenced by the high turnover in Balanced Funds, suggesting that while most funds practiced conservative asset rotation, the Balanced Funds skewed the total mean due to their aggressive trading approach.



**Figure 4: Trend for Digital Portfolio Management**

**Source: Researcher (2024)**

The above figure shows the trend in digital portfolio management, showing both performances as reflected in the portfolio return and portfolio turnover.

#### **4.4.4.3 Convergence of Primary and Secondary Data on Digital Portfolio Management**

Primary data comprising of perceptions from respondents showed a common agreement on use of automated tools in processes as represented by a global mean of the overall mean score is 3.72 while the uptake levels was 70.10%, this shows a positive perception of digital portfolio management tools. All the statements on the Likert scale registered positive response while the standard deviation ranges from 0.9 to 1.0. This implies respondents perceive fintech tools contribute significantly to fund growth, efficiency, and customer satisfaction which eventually translate to enhanced performance.

This supports secondary data findings using Performance Indicators as portfolio Return & Turnover in Balanced Funds showing both the highest return and turnover, hinting at digital tools aiding active portfolio decision-making. Secondary data findings point to Digital Gaps noticed across the funds i.e., Bond and Money Market Funds, though stable, likely due to limited portfolio turnover, suggesting they could be using digital tools mainly for operational efficiency (data analysis, compliance), rather than active management. This is mirrored in Primary data's strong mean scores in automation and analytics of 3.84

Primary data show that digital tools enable dynamic decision-making (71.8%), supporting secondary findings of high portfolio turnover in Balanced Funds (2.456). Further, perceptions reveal that Automation improves customer engagement & fund growth supporting secondary findings with a higher average return in Balanced Funds (11.89%) indicating possible digital influence. Perceptions on digital tools enhance data analysis by 76.8% support secondary findings that all fund types have relatively stable returns, suggesting improved efficiency. Lastly, perceptions on digital methods cut costs at 76% supports secondary findings on high turnover with good returns reflecting reduced costs.

For the Bond and Equity Funds, the secondary data shows mixed results where returns and turnover are relatively lower implying underutilization or conservative use of digital tools. Balanced Funds, show the highest return (11.89%) and turnover (2.456), correlating strongly with primary views on digital portfolio tools aiding in decision-making and client engagement. However, Bond and Equity Funds, while stable, show limited turnover, suggesting partial digital integration. The data converge to show that while digital portfolio tools are broadly appreciated and adopted, their practical performance impact is strongest

where active management strategies are combined with fintech, indicating an evolving but uneven implementation across fund types.

The findings of this study agree with a number of empirical studies regarding the positive influence of portfolio management on financial performance, particularly where digital tools enhance efficiency, decision-making, and responsiveness in investment strategies. According to Rop, Tibet, and Bokongo (2016), who evaluated the impact of portfolio diversification on the financial performance of Kenyan commercial banks and concluded that diversification significantly enhances performance. Their study supports the current findings by emphasizing the value of dynamic portfolio strategies, principles that are increasingly enabled by digital technologies in modern Unit fund management.

Similarly, Makhoha, Namusonge, and Sakwa (2016) found that portfolio diversification had a significant and positive impact on financial performance among commercial banks. They observed that banks employing diversified investment strategies experienced consistent growth in returns and overall financial health. This complements the current findings where Unit fund managers reported using digital tools to automate and optimize asset allocation, which in turn showed measurable improvements in fund performance. The study findings agree with the findings of a study by Musembi and Jagongo (2018) on investment firms listed on the Nairobi Securities Exchange (NSE). They concluded that portfolio diversification leads to improved long-term financial performance, reinforcing the idea that a diversified and actively managed portfolio, especially one supported by real-time digital analysis, can yield significant financial benefits.

Osewe (2020) agrees with the study findings by showing that investment portfolio diversification has a positive and statistically significant effect on the financial performance of listed investment firms at the NSE. Using ten years of data, the study confirmed that careful portfolio construction contributes to profitability, which aligns well with this study's conclusion that digital portfolio management contributes directly to fund performance by supporting dynamic allocation and real-time strategy adjustment.

However, divergence emerges in the findings of Mulwa and Kosgei (2016). Their study on commercial bank diversification and financial performance. Their study confirmed that geographical diversification had a positive impact on returns while income and asset diversification negatively affected return on assets. This contrast can be attributed to the difference in how diversification is implemented. In the current study, digital portfolio management likely enhances precision, monitoring, and risk assessment, making diversification more strategic and less arbitrary.

Theoretically, the study's results align with the Technology Acceptance Model (TAM), which posits that users adopt technology when they perceive it to be useful and easy to use. The fund managers' responses indicate not only high adoption of digital portfolio management tools but also strong belief in their positive impact, thus validating the behavioral intention component of TAM. The model helps explain why such digital solutions have become central to financial decision-making in the Unit fund sector.

Moreover, the findings reflect the principles of the Mutual Fund Theory (MFT), particularly the notion of constructing optimal portfolios to reduce risk while maximizing return. The theory's emphasis on holding appropriate asset ratios mirrors the study's insight

into how Unit funds are leveraging digital platforms for efficient asset allocation, and performance monitoring. By helping fund managers choose between risk-free and risky assets more accurately, digital portfolio tools effectively operationalize the utility-maximizing behaviour described by MFT.

#### **4.4.5 Descriptive statistics on effect of Digital Risk Management on Unit fund performance**

This section discusses the findings on digital risk management first using primary data followed by discussion on secondary data and lastly on the convergence point for the dual data sources. The responses showed that 12.5% were of the opinion that fintech use in digital portfolio was between 1-25%, while 25% of the responses were of the view that percentage of fintech uptake was between 26%-50%. Majority perceived that fintech uptake is between 76-100%. This is summarized in the table below

**Table 19: Descriptive statistics on Fintech adoption levels for Digital Risk Management**

Range	Midpoint	Score	Weights/ Decimal	Weighted Average %
1-25%	13	12.5%	0.125	1.625
26-50%	38	25.0%	0.2500	9.5
51-75%	63	25.0%	0.2500	15.75
76-100%	88	38%	0.38	33.44
				<b>60.32%</b>

Researcher,2024

Primary data showed an overall uptake level of 60.32% indicating moderate emphasis on use of technology to manage risks compared to other functional areas, this gap shows potential area for policy and strategic focus.

Furthermore, the study examined the effect of digital risk management on fund performance using seven statements on a 5-likert Scale which was rated as Strongly Agree (5), Agree (4), and Neutral (3). Disagree (2) and Strongly Disagree (1). The findings for the Likert scale are summarized in the table showing the minimum, maximum, mean and standard deviation as shown in Table below.

**Table 20: Descriptive statistics on digital Risk management using primary data.**

	Min	Max	Mean	Standard Deviation
1 The fund has put in place digital systems to manage and track risks real time.	1	5	3.32	1.394
2 There is engagement of techno savvy experts to manage the funds systems	1	5	3.77	1.428
3 There is a significant reduction in risk relayed-costs since the uptake of fintech tools	1	5	3.34	1.363
4 The use of automated risk assessment system and models enhances risk management process	1	5	3.36	1.382
5 The fund is duly compliant with the relevant data protection regulatory framework.	1	5	3.52	1.191
6 The firm has experienced significant positive trends in risk management due to engagement of qualified techno-savvy personnel	1	5	3.48	1.355
7 The use of digital tools to manage risks proves to be more effective than the traditional ways	1	5	3.50	1.303
<b>Overall Mean Score</b>			<b>3.47</b>	

**Source: Researcher (2024)**

The descriptive statistics in the Table above provide important insights into the adoption and perceived effectiveness of digital risk management practices among Unit funds in

Kenya. The overall mean score is 3.47, suggesting a moderately positive perception of digital tools in enhancing risk management processes. However, the relatively high overall standard deviations across items, ranging from 1.191 to 1.428, indicate significant variability in how different funds experience and apply these technologies.

The statement, “The fund has put in place digital systems to manage and track risks real time” recorded a mean of 3.32 and a standard deviation of 1.394. This suggests a moderate agreement among respondents on the use of digital tools for risk control. The high standard deviation shows variability in practice due to differing levels of digital adoption and investment in cybersecurity across firms. “There is engagement of techno savvy experts to manage the funds systems” had the highest mean score of 3.77 and a standard deviation of 1.428., this means technical expertise significantly enhances risk oversight. However, the relatively high standard deviation implies that not all firms have access to or have equally benefited from such skilled personnel.

Among the specific indicators, the engagement of techno-savvy experts recorded the highest mean score of 3.77 with a standard deviation of 1.428, reflecting broad agreement among respondents that involving qualified personnel improves risk management, although the wide variation suggests that not all firms have equally embraced this practice. The statement on compliance with data protection regulations also scored relatively high, with a mean of 3.52 and a lower standard deviation of 1.191, indicating that digital tools are generally viewed as effective in helping funds meet regulatory standards.

The statement, “There is a significant reduction in risk-related costs since the uptake of fintech tools” had a mean of 3.34 and a standard deviation of 1.363, indicating cautious

optimism. The moderately high variability suggests inconsistent experiences some firms may be seeing benefits, while others have yet to fully realize cost reductions from digitization. “The use of automated risk assessment systems and models enhances the risk management process” had a mean of 3.36 and a standard deviation of 1.382. This reflects moderate agreement, suggesting that while automation in risk evaluation is recognized, its full effectiveness may not yet be realized across the sector.

The statement, “Digital tools contribute to compliance with the relevant data protection regulatory framework on data privacy” received a mean score of 3.52 and a standard deviation of 1.191. This reflects a relatively stronger and more consistent belief that digital platforms support regulatory compliance in data security and privacy management. “The firm has experienced significant positive trends in risk management due to engagement of qualified techno-savvy personnel” showed a mean of 3.48 and a standard deviation of 1.355. This suggests a generally positive perception of the benefits of skilled ICT staff on overall risk strategy, though experiences still vary across firms.

“The use of digital tools to manage risks proves to be more effective than the traditional ways” reported a mean of 3.50 with a standard deviation of 1.303. Respondents moderately agree that digitization surpasses traditional risk management methods. However, the variability shows differing levels of success depending on implementation and systems used. In contrast, items related to cost reduction due to fintech (mean = 3.34, SD = 1.363) and the use of automated risk assessment systems (mean = 3.36, SD = 1.382) scored lower, suggesting that the perceived financial and operational gains from digital risk tools are not as universally acknowledged. Likewise, the perception that digital tools outperform

traditional methods (mean = 3.50, SD = 1.303) reflects moderate agreement but still with noticeable divergence across firms.

#### 4.4.5.1 Descriptive statistics on digital risk management using secondary data.

Descriptive statistics for Digital-risk management was conceptualized using Portfolio-Volatility and Risk-Management Reserves. Portfolio-Volatility was measured using standard deviation of Unit Fund returns and risk management reserve was measured using Funds set aside to cover potential losses, arising from financial operations.

**Table 21: Descriptive Statistics on Digital-risk management using secondary data**

		<b>Balanced Funds</b>			
	<b>N</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>S.D</b>
Portfolio-Volatility	130	0.002985	0.529249	0.239705	0.189381
Risk-Management Reserves (Million)	130	0.334932	8570.086	192.0976	1016.464
		<b>Bond Fixed</b>			
Portfolio-Volatility	130	0.000111	0.256142	0.055131	0.058442
Risk-Management Reserves (Million)	130	11.02478	5137.596	912.4212	1374.606
		<b>Equity Funds</b>			
Portfolio-Volatility	130	0.004823	0.344276	0.122528	0.099282
Risk-Management Reserves (Million)	130	0.189454	2197.668	189.1059	338.8533
		<b>Money Market Funds</b>			
Portfolio-Volatility	130	0.002868	0.494398	0.141864	0.141239
Risk-Management Reserves (Million)	130	16.21167	319483.1	10853.18	42412.06
		<b>Total (averaged)</b>			
Portfolio-Volatility	520	0.0026968	0.406016	0.139807	0.122086
Risk-Management Reserves (Million)	520	6.940209	83847.11	3036.701	11282.5

**Source: researcher, (2024)**

The effect of digital Risk Management on fund performance has been assessed using two indicators, portfolio volatility and risk management reserves. Portfolio Volatility was

measured by the standard deviation of Unit fund returns, and Risk Management Reserves, denoting funds set aside to mitigate potential financial losses.

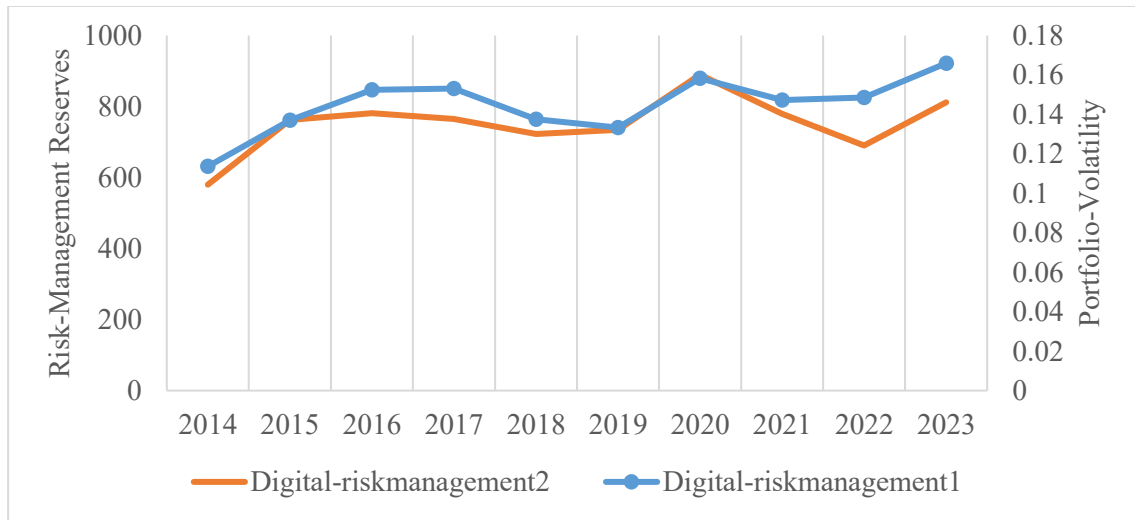
For Balanced Funds, the mean Portfolio Volatility was 0.2397, suggesting that these funds experienced the highest return variability among the four categories, indicative of a more aggressive investment profile. Despite this higher risk exposure, the average Risk Management Reserves were relatively modest at KES 192.10 million, implying limited financial buffers relative to the potential volatility. In contrast, Bond Fixed Funds showed a significantly lower mean Portfolio Volatility of 0.0551, consistent with the typically stable nature of fixed income investments. However, the mean Risk Management Reserves were notably higher at KES 912.42 million, indicating a more conservative and cautious approach to managing financial uncertainties despite the lower inherent risk.

Equity Funds exhibited a moderate mean Portfolio Volatility of 0.1225, reflecting the usual price fluctuations associated with equity markets. These funds held average Risk Management Reserves of KES 189.11 million, comparable to those of Balanced Funds, suggesting a lean reserve allocation strategy in spite of market volatility. For Money Market Funds, the mean Portfolio Volatility was 0.1419, slightly higher than Equity Funds, possibly due to short-term market shifts or changes in interest rates. Remarkably, these funds maintained the highest mean Risk Management Reserves at KES 10,853.18 million, with a very high standard deviation, indicating a wide disparity in reserve allocation practices among different fund managers.

Across all fund types, the overall mean Portfolio Volatility was 0.1398, pointing to moderate return variability on average. The total mean Risk Management Reserves stood

at KES 3,036.70 million, heavily influenced by the substantial reserves held by Money Market Funds. This suggests a generally cautious risk management culture within the digital fund management ecosystem, albeit with considerable variation in reserve allocation practices.

Below is a figure presenting the trend for digital risk management.



**Figure 5: Trend for Digital-risk management**

The above figure shows the trend in digital risk management using both risk management reserves and portfolio volatility as indicators. It reflects a wide disparity in reserve allocation practices among different fund managers.

In conclusion, the perceptions from primary data reveal that 60.327% of the risk management functions are done digitally. This is quite modest compared to the other three functional areas which showed fintech uptake levels of more than 70% averagely. The measurement of the Likert scale expressed in seven statements had a global mean of 3.47 which is quite low in comparison the other functional areas. The standard deviation

was generally above 1 suggesting variations in adoption of fintech possibly due to varied capabilities in terms of resources both financial and human resource expertise.

#### **4.4.5.2 Convergence for effect of Digital Risk Management on performance.**

The primary data supports and explains several patterns observed in the secondary data. Adoption of digital tools explains improved risk awareness. The fintech uptake level of 60.32% overall agreement that digital tools are in use for risk management aligns with the fact that all fund types maintain some level of risk reserves. The global mean of 3.47 is the lowest compared to other variables signifying fund personnel have not invested as much in digital risk management tools. Possibly due to uncertainties in compliance requirements of the high installation and maintenance costs or possibly due to perceived difficulties or resistance to change.

This supports the secondary data findings, which shows modest risk reserves reflecting the negative perceptions on ease and usefulness of fintech in risk management. the costs may make the upcoming funds to shy-off fintech due to limited resources available., this is mirrored in funds with stronger digital capabilities such as Money Market Funds which are capable of maintaining substantial risk reserves (KES 10.85B) despite moderate volatility. Conversely, the variability in adoption reported in primary data explains why some funds with high volatility (e.g., Balanced Funds at 0.2397) hold relatively low reserves (KES 192.1M). Both findings imply that digital risk management is being implemented, but with uneven depth and effectiveness across fund types. This suggests that fund managers should consider tailor-made fintech solutions to match their financial capacity and capability

The study's findings on the significant positive effect of digital portfolio risk management on the financial performance of Unit funds in Kenya converge with several prior empirical studies but also highlight key areas of divergence in the context and methodology. Cirappa (2023) found that portfolio risk characteristics, such as volatility and beta, are central to performance outcomes in Indian Unit funds. Large funds, in particular, were associated with higher returns at lower risk, consistent with the present study's finding that effective digital risk management (reflected in lower volatility and higher reserves) supports better financial performance. This underscores the idea that digital tools that enhance precision in monitoring and hedging risk can improve performance outcomes across different fund sizes.

Alvi and Rehan (2020) also support this conclusion, showing that fund risk is a significant predictor of fund performance in Pakistani Unit funds. Their findings align closely with the current study, which found both perceived and actual digital risk practices to be statistically significant predictors of Unit fund performance. This convergence reinforces the notion that risk management, especially when supported by technology, enhances decision-making and improves portfolio outcomes.

Sawant, Amonkar, and Melo (2023) offer partial convergence. Their study found that most Indian Unit funds underperformed their benchmarks, though performance varied significantly by fund type. While this contrasts with the current study's generally positive findings, it may be attributed to differences in market maturity, regulation, or the depth of digital tool adoption. Nonetheless, their use of risk-return models (Treynor, Sharpe, Jensen)

echoes the current study's use of portfolio volatility and reserves, reinforcing a shared methodological foundation for assessing the risk-performance link.

In contrast, Amira et al. (2023) present a notable divergence, liquidity risk management had an insignificant negative relationship with performance in Kenyan commercial banks. This suggests that not all forms of risk management translate into improved returns, particularly when risk mitigation comes at the cost of reduced investment agility. The divergence may stem from differences in sector (banking vs. Unit funds), risk type (liquidity vs. portfolio), and the degree to which digital tools enhance risk responsiveness, something more prevalent in Unit fund management per the current study.

Theoretically, the study's findings align strongly with the Technology Acceptance Model (TAM). Fund managers' high rating of digital risk tools, especially around regulatory compliance and expert engagement, reflects positive perceptions of usefulness and ease of adoption, core tenets of TAM. Their belief in the value of these tools, highlights how perceived efficacy can drive adoption and organizational change, even ahead of proven quantitative results. The findings are in line with the models' key beliefs of perceived usefulness and perceived ease of use especially in minimizing losses and enhancing risk response and preparedness.

The findings also resonate with the Capital Asset Pricing Model (CAPM), particularly in how portfolio volatility was used as a proxy for risk. CAPM's reliance on systematic risk (beta) as a determinant of expected return parallels the study's use of portfolio standard deviation and risk reserves. This reflects the theoretical idea that managing risk effectively can bring actual returns closer to expected (risk-adjusted) returns, supporting the role of

digital risk management in stabilizing and enhancing Unit fund performance. Where CAPM assumes rational market behaviour and uniform risk preferences, the current study adds nuance by showing how digital tools can reshape risk perception and management behavior, especially in emerging markets. Digital innovation may not just reflect market risk (as in CAPM), but actively mitigate it and enhance the impact of both the theory and the observed data.

#### **4.4.6 Descriptive statistics on effect of Fund size on funds' performance in Kenya**

This section discusses the findings on fund size of Unit funds in Kenya, which serves as the moderating variable for the study. The analysis includes key measures such as the mean, maximum, minimum and standard deviation. This offers insights into the scale of operations among the funds. These statistics form the basis for further analysis on whether and how fund size moderates the effect of fintech practices on fund performance in Kenya. Due to the triangulation approach, primary data will be discussed first, the secondary data and lastly discussion on convergence.

##### **4.4.6.1 Descriptive statistics on effect of fund size on performance using Primary data.**

Using primary data for the moderating variable, the respondents were asked to rate seven statements in regards to fund size and the responses were rated as Strongly Agree (5), Agree (4), Neutral (3), Disagree (2) and Strongly Disagree (1) as shown in Table 20.

**Table 22: Descriptive Statistics for Fund Size using primary data**

	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>Standard Deviation</b>
1 The size of our Unit fund affects us in adjusting to changing market conditions.	1	5	4.07	1.189
2 The size of our fund has enabled us hire and retain talented professionals.	1	5	3.70	1.250
3 The Investment decisions we make depends on the size of our fund.	1	5	3.48	.952
4 Large funds allow for access to superior technology and digital investment strategies	1	5	3.32	1.394
5 Unit fund size affects the diversification opportunities and suitable portfolio management strategies	1	5	3.84	1.238
6 The use of digital tools and platform leads to fund growth.	1	5	3.82	1.225
<b>Overall Means Score</b>			<b>3.71</b>	

**Source: Researcher (2024)**

The statement “The size of our Unit fund affects us in adjusting to changing market conditions” recorded the highest mean score of 4.07 with a standard deviation of 1.189, indicating strong agreement among respondents. This suggests that larger Unit funds are perceived to have greater agility and flexibility in responding to market fluctuations due to their resource base and market leverage. The second statement, “The size of our fund has enabled us hire and retain talented professionals.” received a mean of 3.70 and standard deviation of 1.250. This reflects general agreement that fund size has implications for human capital, particularly in hiring skilled labour although experiences vary slightly across firms.

For the statement “The Investment decisions we make depends on the size of our fund,” a mean of 3.48 and standard deviation of 0.952 were reported. The moderate agreement

and lower variability suggest that investors consider fund size as a factor in decision-making, with relatively consistent perceptions across the sample. The statement “Large funds allow for access to superior technology and digital investment strategies” showed the lowest mean score of 3.32 but the highest standard deviation of 1.394, pointing to moderate agreement with wide variation. This implies that while some funds benefit from economies of scale, others may not experience such cost advantages to the same extent.

The fifth statement, “Unit fund size may advise on the diversification opportunities and suitable portfolio management strategies,” recorded a mean of 3.84 and a standard deviation of 1.238, reflecting strong agreement. Respondents acknowledged that larger fund sizes offer more room for portfolio diversification and strategic asset allocation. Finally, “The use of digital tools and platform enhances growth” had a mean of 3.82 and standard deviation of 1.225, indicating considerable agreement. Respondents recognized the role of fintech in driving fund growth, though the standard deviation highlights differences in digital adoption and integration among firms.

Overall, the mean score of 3.71 suggests that fund size is generally seen as a positive attribute that influences operational agility, investor behaviour, cost efficiency, and strategic portfolio decisions. However, the relatively high standard deviations indicate that these perceptions are not universally shared and may differ depending on firm size, structure, and technological capabilities.

#### **4.4.6.2 Descriptive statistics on fund size using secondary data.**

Table 21 provides descriptive statistics for secondary data on Fund size measured using Assets under management.

**Table 23: Descriptive Statistics on Fund size using Secondary data**

<b>Category</b>	<b>N</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>Sd</b>
Balanced Funds	130	1.11644	28,566.96	640.3254	3,388.214
Bond Fixed	130	36.74926	17,125.32	3,041.404	4,582.019
Equity Funds	130	0.631513	73,25.559	630.3529	1,129.511
Money Market Fund	130	54.0389	106,944	36,177.25	1,473.5
<b>Total</b>	<b>520</b>	<b>92.53611</b>	<b>152,636</b>	<b>40,489.33</b>	<b>10,573.24</b>

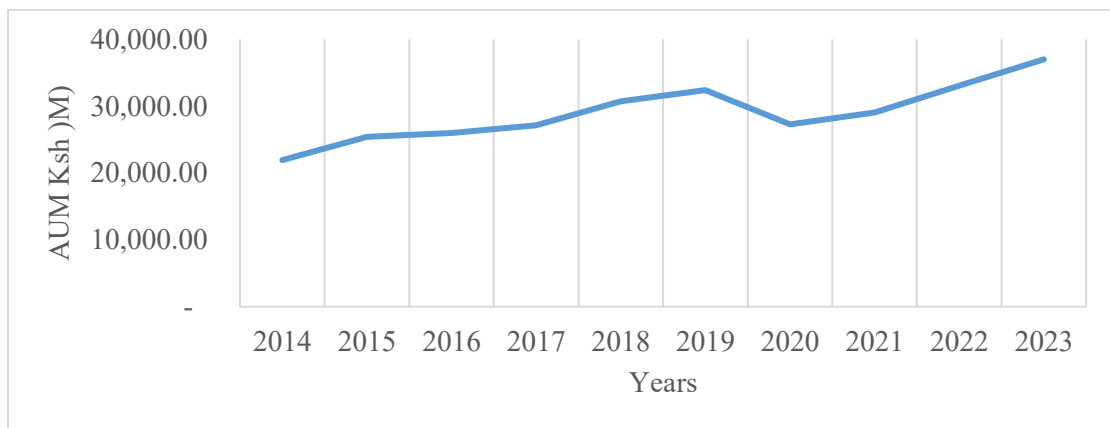
**Source: Researcher, (2024)**

Table above presents the descriptive statistics for Fund Size, measured through Assets under Management (AUM) across various fund categories. The mean provides a central tendency indicator, reflecting the average capital managed by each fund type. For Balanced Funds, the mean AUM is KES 640.33 million, suggesting moderate fund sizes in this category. The relatively high S.D (KES 3,388.21 million) implies significant variability, with some outlier funds holding disproportionately large assets. Bond Fixed Funds exhibit a higher mean AUM of KES 3,041.40 million, indicating stronger investor allocations toward fixed-income securities. The standard deviation (KES 4,582.02 million) also suggests high variation, revealing the presence of both mid-size and significantly large bond funds. In Equity Funds, the average AUM is KES 630.35 million, quite similar to Balanced Funds. However, with a lower standard deviation (KES 1,129.51 million), equity fund sizes appear more consistent and less skewed by large outliers.

Money Market Funds stand out with a markedly high average AUM of KES 36,177.25 million, underscoring their popularity among investors seeking lower-risk, highly liquid investment options. However, the reported standard deviation (KES 1,473.5 million)

seems disproportionately low compared to the mean this may suggest a possible data entry error or formatting issue, as the variability is expected to be much larger given the high maximum value (KES 106,944 million).

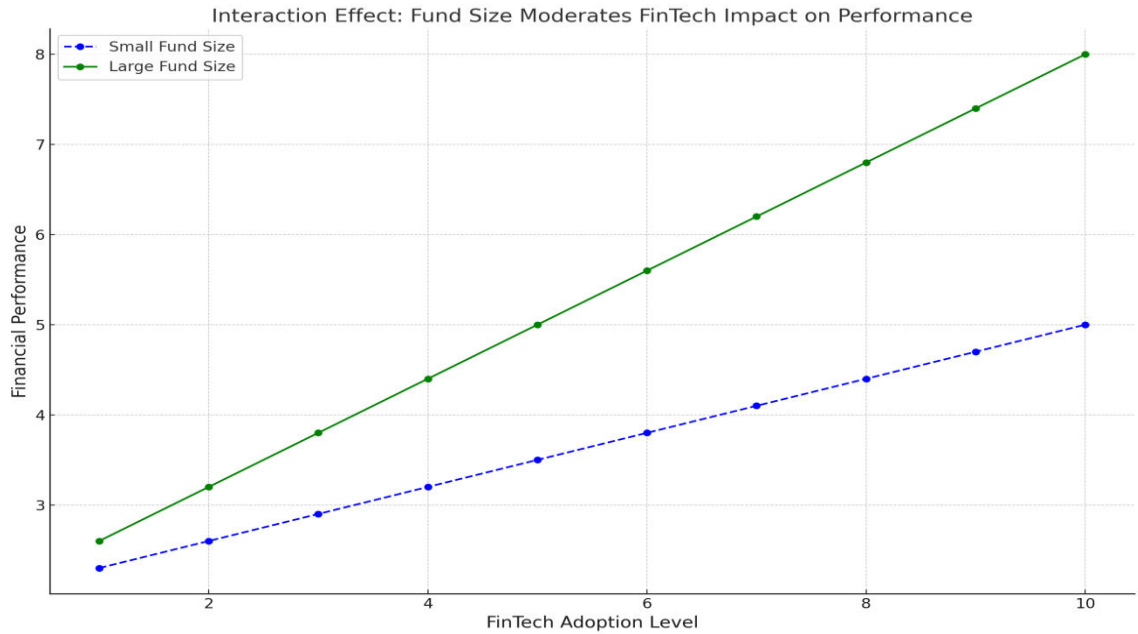
Across all fund categories, the overall mean AUM is KES 40,489.33 million, with a total standard deviation of KES 10,573.24 million, reflecting considerable dispersion. This implies that while many funds are relatively small, a few very large funds (especially in the Money Market category) significantly increase the overall average and spread. The figure below is a graphical presentation of the trend for fund size over the ten years.



**Figure 6: Trend for Fund size**

The figure above is a graphical presentation of the descriptive statistics on fund size showing a steady and significant rise in fund size over the years.

This is further presented in the graph below showing the interaction effect of fund size and fintech adoption in a comparative way among the large and small funds and the effect on financial performance of Unit funds in Kenya.



**Figure 7: Interaction effect of fund size on performance of Unit funds in Kenya**

The above figure shows how the uptake of fintech in large and small funds affects the financial performance of the funds. Large funds record a steep slope signifying high uptake levels possibly due to resource availability, expertise support and their capability to invest in tailor made fintech solutions that suite and rhyme with business models and strategies. Large funds present a clear picture of fintech as a strategic enabler as opposed to small funds which may experience it as a disrupter, represented by a gradual but steady slope possibly due to limited resources that hinder customized and well aligned fintech solutions.

**4.4.6.3 Convergence and corroboration on fund size and fund performance**

Both primary and secondary findings reveal a high degree of convergence. Secondary data objectively demonstrate that certain categories of Unit funds, particularly Money Market and Bond Funds, possess significantly larger AUMs as witnessed in the objective

performance and size distribution from the secondary data. Primary data reflects thus in the subjective perceptions of industry practitioners who affirm that larger funds enjoy operational agility, human capital advantages, and technological growth potential since they are well equipped to respond to market changes, implement technology-driven strategies, attract skilled personnel, and manage diversified portfolios. This structural advantage positions them to potentially derive greater value from digital technologies through economies of scale, better resource allocation, and strategic investments.

Primary data shows global mean score of 3.71 suggesting that fund size is generally seen as a positive attribute that influences operational agility, investor confidence, operational efficiency, and strategic portfolio decision making. The relatively high standard deviations denote the varying perceptions across fund categories meaning the benefits are not universally shared and may differ depending on firm size, structure, and technological capabilities. This is mirrored in the secondary data which shows, global mean AUM as KES 10,122.33 million, with a standard deviation of KES 72,137.48 million, reflecting considerable dispersion. This implies that while many funds are relatively small, a few very large funds (especially in the Money Market category) significantly increase the overall average and spread

Larger funds are perceived to have both the resource base and strategic capacity to capitalize on financial technology innovations, consistent with the secondary data's demonstration of their superior AUM and implied market influence. However, primary data responses regarding cost reduction benefits yielded mixed perceptions. This may suggest that not all large funds experience similar efficiencies, potentially due to

management practices, or differential access to digital platforms. These interpretive nuances highlight the importance of considering both quantitative performance data and practitioner perspectives when evaluating the strategic impact of fund size.

This triangulation of quantitative and qualitative data underscores the importance of considering fund size as a strategic moderator in the Kenyan Unit fund industry's digital transformation journey. The primary data provides important subjective validation of the secondary data's objective measures, suggesting that fund size is not merely a quantitative attribute but a critical enabler of technological adoption and performance. Furthermore, the alignment between perceived advantages and empirically observed fund sizes reinforces the proposition that fund size not only enables more effective adoption of digital tools but also amplifies the financial performance outcomes associated with such adoption.

The study's finding that fund size significantly moderates the relationship between financial technology and Unit fund performance aligns with several empirical studies but also reveals nuanced contradictions. The study converges with findings by Alvi and Rehan (2020) and Patil et al. (2022), who observed a positive and significant influence of fund size on performance, confirming the idea that larger funds benefit from economies of scale, resource availability, and better access to digital infrastructure. Similarly, Yasir et al. (2020) confirmed that fund size positively influences adjusted returns, reinforcing the conclusion that scaling up can enhance the performance benefits of digital financial innovations. Further convergence is found with Simiyu, Yugi, and Alala (2023), whose study explicitly explored the moderating role of fund size. They found that fund size can significantly shape behavioral biases and portfolio outcomes.

However, there are notable divergences from Farid and Warbha (2022) who found a negative relationship between fund size and performance in Egyptian Unit funds, suggesting that oversized funds may face diseconomies of scale, such as bureaucratic inefficiencies or diluted investment agility. Similarly, Indro et al. (2019) and Kiran and Naka (2023) showed that beyond a certain threshold, larger fund sizes result in diminishing or even negative marginal returns, largely due to increased complexity, overinvestment in information acquisition, and inefficiency in deploying capital or diseconomies of scale.

Also diverging is Muthomi and Muturi (2019), who found no effect of fund size on Unit fund performance in Kenya. This contradiction could stem from methodological differences, the time period analysed, or insufficient fund heterogeneity in their sample. However, their conclusion underscores the need to contextualize fund size effects within broader strategic and operational dynamics, which the current study does by isolating fintech interactions. There is also a divergence according to Chibole, Lyani and Musiega (2022), in their study on moderating effect of bank size on financial performance of commercial banks, they concluded that firm size has no influence on performance of banks. That small banks can still have an opportunity to perform equally with large banks.

The findings strongly align with the Technology Acceptance Model (TAM). Stakeholders' perceptions that larger funds better leverage fintech tools echo TAM's proposition that perceived usefulness and ease of use drive technology adoption. Fund managers may perceive that larger asset bases support more robust digital infrastructure, enhancing trust and commitment to fintech adoption. This supports the finding that perceived moderation

effects were stronger in primary data than in empirical measures. TAM also helps explain the variance in adoption based on the perceived accessibility.

The Classical Profit Maximization Theory also converges with the study's results. It implies that firms, especially larger Unit funds, seek to maximize profits by optimizing operational inputs, including technology. The moderation of fintech impact by fund size reflects this strategic behavior: larger funds optimize fintech usage to either cut costs (digital deposits) or improve returns (portfolio management). The diminishing returns observed in digital risk management for large funds fit well with this theory's assumption that beyond a certain point, marginal gains reduce if inputs (in this case, technology and fund size) are overextended.

#### **4.4.7 Descriptive statistics on Financial Performance of Unit funds**

This section discusses findings on descriptive statistics on financial performance of Unit funds in Kenya, based on both primary and secondary data. The descriptive analysis provides insights into the overall performance levels on the funds, measures such as mean, maximum, minimum, and standard deviation, were computed. These statistics offer a foundational understanding of how Unit funds in Kenya are performing, setting the target for further inferential statistics.

##### **4.3.7.1 Descriptive statistics on financial performance using primary data.**

On the dependent variable, the respondents were asked to rate seven statements in regards to financial performance, responses were rated as Strongly Agree (5), Agree (4), Neutral (3), Disagree (2) and Strongly Disagree (1) as shown below.

**Table 24: Descriptive Statistics on Fund Performance using primary data**

	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>Standard Deviation</b>
1 Digitally managed Unit funds consistently outperform the market over the long term	1	5	3.39	.970
2 The performance of the Unit fund with fintech is likely to exceed expectation	1	5	3.52	.952
3 Digital platforms enable the funds to deliver on its investment mandate and objectives as expected by investors	1	5	4.18	.786
4 The performance of digitally enabled Unit funds compares favorably to similar funds in the market with traditional approach	1	5	4.23	.937
5 Fintech enables Unit fund to adapt to changing market conditions and deliver competitive returns	1	5	4.00	1.239
6 Financial technology gives a fund competitive advantage over its peers within the same investment category	1	5	3.50	1.191
7 Fintech has enabled our fund to report attractive performance returns over its peers	1	5	3.82	.896
<b>Overall Mean Score</b>			<b>3.81</b>	

**Source: Researcher (2024)**

Respondents moderately agreed (mean = 3.39, SD = 0.970) that digitally managed Unit funds consistently outperform the market over the long term. Although the agreement is not overwhelming, it suggests a cautious optimism about long-term gains derived from digital integration. The moderate standard deviation implies some variation in perception, which could stem from differing levels of technological maturity and performance across funds. There was slightly stronger agreement (mean = 3.52, SD = 0.952) that fintech-enabled Unit funds are likely to exceed performance expectations. This shows an encouraging belief in the potential of financial technology to drive superior outcomes, though the moderate variability again points to differences in actual experiences or execution.

A standout finding was that digital platforms were seen as significantly enabling Unit funds to meet their investment mandates and objectives (mean = 4.18, SD = 0.786). The high mean and relatively low standard deviation reflect a strong and consistent belief that fintech supports the core mission of Unit funds effectively. Similarly, respondents strongly agreed that digitally enabled Unit funds compare favorably to those using traditional approaches (mean = 4.23, SD = 0.937), reinforcing the idea that technology can offer a competitive edge in performance delivery.

Furthermore, the study revealed that fintech allows Unit funds to better adapt to changing market conditions and deliver competitive returns (mean = 4.00, SD = 1.239). Although the agreement was solid, the relatively higher standard deviation indicates a wider range of experiences, perhaps due to differing adaptability or investment in responsive technologies. The belief that financial technology provides Unit funds with a competitive advantage was moderately supported (mean = 3.50, SD = 1.191). This suggests that while fintech is seen as beneficial, its ability to deliver competitive advantage may vary depending on strategic use, fund size, or market positioning. Lastly, there was considerable agreement (mean = 3.82, SD = 0.896) that fintech use contributes to attractive performance returns compared to its peer, with moderate consensus among respondents.

#### **4.4.7.2 Descriptive statistics on fund performance using secondary data.**

The table below provides descriptive statistics for financial performance of Unit funds firms which was measured using return on assets (Ratio of PAT to total Assets).

**Table 25: Descriptive Statistics on Financial Performance of Unit funds using Secondary data**

Category	N	Min	Max	Mean	S.D
Balanced funds	130	-0.1964	0.16304	0.049742	0.052609
Bond fixed	130	-0.04228	0.13196	0.045144	0.034994
Equity funds	130	-0.17352	0.20212	0.023105	0.089863
Money market fund	130	0.006155	0.23808	0.070999	0.039491
<b>Total</b>	<b>520</b>	<b>-.40605</b>	<b>0.7352</b>	<b>0.18899</b>	<b>0.21696</b>

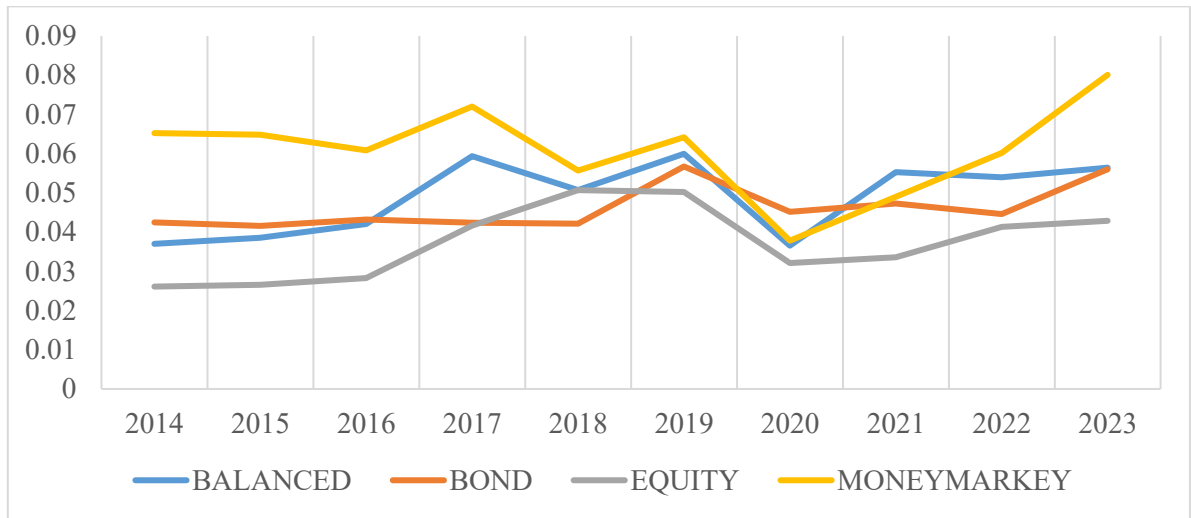
**Source: Researcher, (2024)**

The table above presents descriptive statistics for the financial performance of Unit funds, measured using Return on Assets. This ratio reflects the ability of a fund to convert its assets into profit. Balanced Funds have a mean of 0.0497, suggesting that on average, they generate 4.97% return on total assets. The minimum value is -0.1964, indicating that some funds in this category experienced losses, while the maximum value is 0.1630, reflecting the best performing fund. The standard deviation of 0.0526 shows moderate variation in profitability.

Bond Fixed Funds exhibit a mean of 0.0451, implying an average return of 4.51% on assets. The lowest observed value is -0.0423, while the highest is 0.1320, indicating relatively stable returns. The standard deviation is 0.0350, suggesting low volatility among these funds. Equity Funds show a lower average return of 0.0231 or 2.31%, with returns ranging from a minimum of -0.1735 to a maximum of 0.2021. This wide range and S.D of 0.0899 reflect significant volatility typical of equity investments.

Money Market Funds have the highest average return at 0.0710 or 7.10%, with performance ranging between 0.0062 and 0.2381. The standard deviation of 0.0395 indicates that these returns are relatively consistent and low-risk. Overall, across the 520 observations, Unit funds have an average financial performance of 0.18899(18.89%), with values ranging from a minimum of -0.1964 to a maximum of 0.2381. The overall standard deviation is 0.21696, pointing to moderate dispersion in profitability across fund types.

The figure below is the graphical presentation of the trend for financial performance for all the categories of over the ten years under study.



**Figure 8: Trend for Financial Performance**

The above figure reflects a graphical presentation of financial performance for all the categories of funds that is seen to be growing steadily with time across different categories of Unit funds for the ten years under study.

#### 4.4.8 Convergence Using Descriptive statistics

The convergence matrix is used to compare descriptive statistics from primary Likert-based data and secondary actual transaction data as shown in the table below.

**Table 26**Convergence Matrix for descriptive statistics from primary and secondary data

Construct	Primary Data statistics			Secondary Data		Convergence interpretation
	Global Mean	Std Deviation	%age uptake	Global Mean	Standard Deviation	
Digital Payments	3.84	1.2	70.86%	2501.29	11795.9	strong convergence
Digital Deposits	3.72	1.52	72.44%	2995.05	20406.2	strong convergence:
DPM: a).P.Return	3.72	0.994	70.10%	0.098455	0.24399	strong convergence:
b). P. Turnover				0.735191	13.0872	
DRM a) Volatility	3.47	1.345	60.32%	0.139807	0.14678	strong convergence
b) Reserves				3036.7	21641.2	Strong convergence

**Source: Researcher, (2024)**

The table above shows a convergence matrix comparing descriptive statistics from primary and secondary data across the four core constructs of financial technology representing study variables. Digital payments and digital deposits have strong convergence denoted by positive perception from fund personnel matching high fund activity. Digital portfolio management also has a strong convergence with positive perceptions matching the positive portfolio return of 0.9846% with fluctuations of 24.4%

and a high portfolio turnover of 73.5% denoting high activity. Digital risk management has a convergence as revealed by the Positive perception and low volatility index denoting less risky or moderate fluctuation and high reserves.

According to Creswell and Clark, (2018), the convergence matrix is used as a visual and analytical tool to provide a snapshot of central trend and variability of perceptions, it's used to assess consistency between perceived and actual fintech use in Unit fund operations. Where convergence is strong, it validates the robustness of the findings and enhances credibility. Where divergence exists, it opens opportunities for deeper inquiry into contextual, operational, or perceptual differences between stakeholder views and real-world performance.

According to Okeke and Ezeh, (2022), global mean and global standard deviation are used to capture extent and variation of fintech adoption in empirical fintech studies. In this study it has been to provide a single summary indicator of overall fintech uptake. A higher global mean denotes strong overall adoption and positive perception or implementation across funds. A lower global mean denotes limited uptake or resistance to fintech uptake which could be attributed to possible infrastructure gaps or even gaps in user awareness.

According to Hair, Black and Barbin (2019), averaging standard deviations across constructs provides a general view of the response variability and can signal consistency of adoption or performance across funds. Standard deviation reflects variability and consistency of fintech uptake. A low standard deviation ( $<1$ ) indicates consistent adoption or perception while a high standard deviation ( $>1$ ) indicates variability or disparity

meaning some funds adopt fintech more than others possibly suggesting inequality in access. According to Sekaran and Bougie (2019), standard deviation reflects the spread of responses around the mean and helps in interpreting how fintech uptake is distributed among funds

Digital payments show a strong convergence, where primary data show high overall mean score of 3.84 (on a 5-point scale), and suggesting positive perception on uptake of digital payment platforms among respondents. This perception was corroborated by secondary data, which showed substantially high transactional volumes especially in money market funds with a mean of Ksh 9,568.87. This alignment supports the interpretation that fintech-driven payment systems have been widely adopted and operationalized within the sector.

#### **4.5 Inferential analysis**

This section presents the inferential statistical methods employed to examine the effect of financial technology, moderated by fund size, on performance of Unit funds in Kenya. While descriptive statistics provided an overview of the data, inferential analysis allows for testing hypotheses, establishing the significance of observed patterns, and making generalizations beyond the sample. (Field, 2018). Appropriate statistical techniques, such as regression analysis and hypothesis testing have been used. However, before conducting inferential statistics, diagnostic tests were carried out to determine whether the data met key assumptions for multiple regression analysis.

### 4.5.1 Correlation Analysis

According to Creswell & Creswell, (2018), Pearson correlation (r) is used to determine the degree of linear associations between two variables before conducting more complex models like linear regression models. This section presents correlation analysis findings on both primary and secondary data subsequently.

#### 4.5.1.1 Correlation analysis on effect of fintech on fund performance using Primary data

Correlation analysis using primary data showed a strong correlation exists if the results are greater than 0.9 and a weak correlation if the results are less than 0.

**Table 37: Pearson Correlation Analysis of effect of fintech on fund performance using Primary Data**

		DP	DD	DPM	DRM	FS
Digital Payment	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	44				
Digital Deposit	Pearson Correlation	.486**	1			
	Sig. (2-tailed)	.001				
	N	44	44			
Digital Portfolio Management	Pearson Correlation	-.065	.095	1		
	Sig. (2-tailed)	.677	.542			
	N	44	44	44		
Digital Risk Management	Pearson Correlation	-.095	.128	.489**	1	
	Sig. (2-tailed)	.539	.407	.001		
	N	44	44	44	44	
Fund Size	Pearson Correlation	.545**	.615**	.510**	.497**	1
	Sig. (2-tailed)	.000	.000	.000	.001	
	N	44	44	44	44	44
Financial Performance	Pearson Correlation	.459**	.536**	.513**	.527**	.770**
	Sig. (2-tailed)	.002	.000	.000	.000	.000
	N	44	44	44	44	44

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

Source: Researcher, (2024)

The results indicated that all independent variables are positively and significantly correlated with financial performance, suggesting that improvements in these areas are associated with enhanced financial outcomes. Specifically, digital payment exhibited a moderate positive correlation with financial performance, with a Pearson correlation coefficient of 0.459 and a significance level of 0.002. Digital deposit demonstrated a strong positive correlation with financial performance, with a coefficient of 0.536 and a significance level of  $p_v = 0.000$ .

Similarly, digital portfolio management had a strong positive correlation of 0.513, with a significance level of 0.000. Digital risk management also showed a moderate positive correlation of 0.527, with a significance level of 0.000. Among all the variables, fund size had the strongest correlation with financial performance, with a Pearson correlation coefficient of 0.770 and a significance level of  $P_v = 0.000$ , indicating a very strong relationship between fund size and financial performance.

#### **4.5.1.2 Correlation analysis on effect of fintech on fund performance using Secondary data**

Correlation analysis was used to assess the linearity association among the variables. There is a strong correlation if the results are greater than 0.9 and a weak correlation if the results are less than 0. Table below presents summary of findings on linear association between performance and several digital financial variables using Pearson correlation analysis.

**Table 38: Pearson Correlation Analysis of effect of fintech on fund performance using Secondary Data**

	Performance	DP	DD	DPM	DRM
--	-------------	----	----	-----	-----

Performance	Pearson					
	Correlation	1				
	Sig. (2-tailed)					
	N	520				
Digital Payment	Pearson					
	Correlation	0.5660	1			
	Sig. (2-tailed)	0.000				
	N	520	520			
Digital Deposits	Pearson					
	Correlation	0.5158	0.6454	1		
	Sig. (2-tailed)	0.000	0.5055			
	N	520	520	520		
Digital Portfolio Management	Pearson					
	Correlation	0.5921	0.3488	0.2915	1	
	Sig. (2-tailed)	0.000	0.1967	0.000		
	N	520	520	520	520	
Digital Risk Management	Pearson					
	Correlation	0.6222	0.6328	0.6034	-0.3348	1
	Sig. (2-tailed)	0.000	0.000	0.7463	0.4314	
	N	520	520	520	520	520
Fund Size	Pearson					
	Correlation	0.4513	0.299	0.2549	-0.325	0.2317
	Sig. (2-tailed)	0.000	0.000	0.0235	0.9637	0.018
	N	520	520	520	520	520

**Source: Research study (2024)**

The study investigated the linear association between performance and several digital financial variables using Pearson correlation analysis. The results reveal that all variables have positive and statistically significant correlation. Digital payment has a positive and statistically significant correlation with performance ( $r = 0.5660$ ,  $p = 0.000$ ), indicating that increased usage of digital payments is associated with improved performance. Similarly, digital deposits show a positive and significant correlation with performance ( $r = 0.5158$ ,  $p = 0.000$ ), suggesting a modest contribution of digital deposit services to performance outcomes. Furthermore, digital portfolio management is positively and significantly correlated with performance ( $r = 0.5921$ ,  $p = 0.000$ ), implying that improved

management of digital investment portfolios is linked with better organizational performance.

Digital risk management exhibited a statistically significant correlation with performance ( $r = 0.622$ ,  $p = 0.000$ ), suggesting meaningful linear association between risk management practices and performance in this context. Notably, fund size shows a statistically significant positive correlation with performance ( $r = 0.4513$ ,  $p = 0.000$ ), indicating that larger fund sizes are closely associated with higher levels of financial performance. Of importance to note is the correlation between the independent variables which is insignificant. The p-values are above the 0.05 threshold, confirming that the independent variables are not linearly related. This supports the assumption of no multicollinearity, thereby justifying their simultaneous inclusion in the regression model as separate constructs influencing Unit fund performance.

In conclusion both the primary and secondary data findings reveal consistent and statistically significant positive relationship between all the independent variables and financial performance. Additionally, fund size is positively correlated with financial performance. The key converging findings are summarized in the table below.

**Table 39: Convergence Matrix for correlation analysis results on performance**

Variable	Correlation With-Financial Performance	Primary Data ( r )	Secondary Data ( r )	Consistency
Digital payment	Moderate, positive, significant	0.459	0.566	Consistent
Digital deposit	Moderate, positive, significant	0.536	0.516	Consistent

Variable	Correlation With-Financial Performance	Primary Data ( r )	Secondary Data ( r )	Consistency
Digital portfolio management	Moderate, positive, significant	0.513	0.592	Consistent
Digital-risk management	Moderate, positive, significant	0.527	0.622	Consistent
Fund size	Strong (for primary) Moderate, (for sec) positive, significant	0.770	0.451	Consistent

The findings in the table above show all variables had positive correlation, but digital Risk Management emerged as the strongest fintech-related predictor of financial performance across both datasets, especially in secondary data ( $r = 0.622$ ). Digital Payments and Deposits are moderately and positively associated with performance in both cases, suggesting the foundational importance of transaction-level technologies. Digital Portfolio Management consistently shows a positive impact, reinforcing its strategic value in asset allocation and investment decisions. Fund Size, while showing a very strong correlation in primary data ( $r = 0.770$ ), had a moderate but still significant correlation in secondary data ( $r = 0.451$ ). This indicates that larger Unit funds tend to perform better, likely due to economies of scale and resource advantages.

The converged analysis from both primary and secondary data strongly supports the hypothesis that financial technology adoption enhances the financial performance of Unit funds in Kenya. The consistency in the positive and significant relationships across all fintech constructs especially digital risk management and digital portfolio management underscores their critical role. While fund size contributes positively to performance, its

impact varies, potentially reflecting different operational scales and efficiencies among fund types.

#### **4.5.2 Simple Linear Regression Analysis**

The study analyzed the effect of financial technology and fund size on the financial performance of Unit Trust Funds in Kenya using panel regression techniques. Given the nature of the data, comprising four types of Unit Trust Funds observed over ten years, panel regression was preferred to effectively capture both time dynamics and fund-specific differences. Preliminary tests for multicollinearity, heteroscedasticity, and serial correlation were conducted to ensure model reliability. The Hausman test determined the appropriate estimation method between Fixed Effects and Random Effects models.

Simple linear regression analysis was used to determine the predictive relationship between a single independent variable and a dependent variable, in this case to explain the effect of each of the constructs of financial technology on the performance of Unit funds and bring out its predictive power and implication on performance (Field, 2018). Discussion was done thematically using both primary and secondary findings and presented in tables and models as below. The fixed effects model was used as recommended by the Hausman test to be more appropriate for the analysis when correlating between individual effects and explanatory variables.

##### **4.5.2.1 Simple linear regression effect of Digital payments**

The panel regression results for digital payments using primary data are shown in table 40

**Table 40: Panel Regression results for Fixed Effect of Digital payments on fund Performance- primary Data**

<b>Model Summary</b>						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.459 <sup>a</sup>	.210	.192	.6975		
a. Predictors: (Constant), Digital Payment						
b. Dependent Variable: Financial Performance						
<b>ANOVA<sup>a</sup></b>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.447	1	5.447	11.194	.002 <sup>b</sup>
	Residual	20.435	42	.487		
	Total	25.881	43			
a. Dependent Variable: Financial Performance						
b. Predictors: (Constant), Digital Payment						
<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.
1	(Constant)	2.524	.397		6.355	.000
	Digital Payment	.334	.100	.459	3.346	.002
a. Dependent Variable: Financial Performance						

**Source: Researcher, (2024)**

The R-squared value of 0.210 implied that digital payment explained 0.21 of the variance in financial performance, while the adjusted R-squared value of 0.192 suggested minimal loss of explanatory power after adjusting for the number of predictors in the model. The low R<sup>2</sup> of 0.21, though modest still is acceptable especially within the context of behavioral research which involves many other external factors, especially when dealing with studies on real world data in a highly volatile markets like Unit funds. According to Wooldridge (2019), a low R-square doesn't undermine the validity of the model as long as the beta coefficients are statistically significant ( $\beta=0.459$ ). Frost (2020) emphasizes that in social sciences and finance, a small R-square can still yield meaningful insights especially when used as an explanatory power on real-world data studies from dynamic markets.

The ANOVA results showed that the regression model was statistically significant, with an F-value of 11.194 and a significance level of 0.002, which is below the 0.05 threshold. This indicates that digital payment has a statistically significant effect on financial performance. Digital payment had an unstandardized coefficient of 0.334 meaning that a one-unit increase in digital payment was associated with a 0.334 increase in financial performance which is significant at the 5% level.

$$Y = 2.524 + 0.334 X_1$$

### Effect of digital payments on fund performance using Secondary data

Based on the Hausman test results presented in Table 36, the fixed effect model was found to be appropriate. The panel regression results for digital payments are shown in table 41.

**Table 41: Panel Regression results for Fixed Effect of Digital Payments on Fund Performance-secondary data**

Fixed-effects (within) regression	Number of obs	=	520		
Group variable: Fund	Number of groups	=	52		
R-sq:	Obs per group:				
within = 0.3263	min	=	10		
between = 0.3252	Avg	=	10		
overall = 0.3204	max	=	10		
	F(1,467)	=	226.2		
corr(u <sub>i</sub> , X <sub>b</sub> ) = -0.3985	Prob > F	=	0.000		
<b>Performance</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>t</b>	<b>P&gt;t</b>	<b>[95% Conf. Interval]</b>
Digital Payments	0.09716	0.00646	15.04	0.000	0.08446 0.10985
cons	-4.59416	0.10955	-41.94	0.000	-4.80944 -4.37889

**Source: Researcher, (2024)**

As shown in the table above, the within R-squared is 0.3263, indicating that about 32.63% of the variation in financial performance within the same Unit fund over time is explained

by changes in digital payments. This value reflects the explanatory power of the model based on deviations from each entity's average and is most relevant in a fixed effects model, which focuses on within-group variation. The between R-squared is 0.3252, meaning that 0.3252 of the variation in average financial performance between different Unit funds is explained by differences in their average levels of digital payments.

Although this value is informative, it is less critical in fixed effects estimation since this model controls for time-invariant characteristics across groups. The overall R-squared is 0.3204, indicating that the digital payment variable explains 0.3204 unit change in the total variation in financial performance across all observations both within and between Unit funds. This provides a general measure of the model's explanatory power, but it combines both types of variation and thus may underrepresent the model's strength in panel data.

The significant F-statistic  $F(1,467) = 226.2, p = 0.000$  confirms the model's overall validity. However, the relatively low R-squared values indicate that while digital payments have a measurable impact, the majority of performance variation is driven by other factors not captured in this model. The coefficient for digital payments is 0.0972 with a standard error of 0.00646. The corresponding t-statistic is 15.04 and the p-value is 0.000, indicating that the effect is statistically significant at the 5 percent level. This suggests that a unit increase in digital payment adoption leads to a 0.0972 unit increase in the performance of Unit funds, holding other factors constant.

$$Y = -4.59416 + 0.097158X_1$$

In conclusion, the regression analysis from both primary and secondary data demonstrates a consistent, positive relationship between financial technology adoption and the financial performance of Unit funds in Kenya.

$$Y = 2.524 + 0.334 X_1, \dots \text{Primary data}$$

$$Y = -4.59416 + 0.097158 X_1, \dots \text{Secondary data}$$

The primary data model, expressed as  $Y = 2.524 + 0.334 X_1$ , indicates that a one-unit increase in digital payment adoption is associated with a 0.334-unit increase in financial performance, this shows a moderate and meaningful effect implying that digital payments have a practical and visible impact on performance according to the respondents. The model also exhibits a strong explanatory power, with an R-squared value of 0.210.

The secondary data model expressed as  $Y = -4.59416 + 0.097158 X_1$ , confirms a positive relationship, though the magnitude of the effect is more modest. The slope coefficient of 0.097158 suggests that 0.097158 unit increase in digital payment uptake is associated with one unit increase in financial performance, thus a positive but modest effect in reality meaning that digital payments play a role but other factors also contribute to performance. Its explanatory power, reflected in an R-squared of  $R^2 = 0.3204$ , indicates that while the relationship is statistically significant, other factors may also be influencing fund performance.

The two models demonstrate a difference in coefficient strength and baseline values, reinforcing the conclusion that financial technology adoption positively influences Unit fund performance. The primary data reflects stakeholder perceptions of strong FinTech

impact, while the secondary data offers empirical support, albeit at a more conservative level. This dual evidence strengthens the validity of the study's findings and highlights the need for strategic FinTech integration across operational and investment functions.

The study findings support several empirical studies. For example, Ndichu, Kariuki, and Kariuki (2021) found a significantly positive effect of fintech predictive modelling on the performance of investment firms in Kenya. This aligns directly with the current study's findings, as digital payments were shown to enhance Unit fund performance. Similarly, Kariuki (2021) affirmed that fintech investment financing mechanisms (including digital tools like P2P lending and crowdfunding) are significantly associated with improved financial outcomes in Kenyan investment firms. This again supports the study conclusions that idea that digital financial systems improve, which validates the regression results that show high explanatory power of digital payments on Unit fund performance.

Aicha (2023) also lends empirical support, noting a positive relationship between fintech services and financial inclusion, which ultimately translates into enhanced performance for financial institutions. Given that digital payments increase accessibility, lower transaction costs, and promote transparency, they are a key driver of financial technology, hence, better fund performance. This aligns with the dual findings of this study. Limna et al. (2022), through a narrative synthesis of digital economy literature, reinforced the growing role of digital platforms in economic development. Their findings broadly support this study's conclusions, especially the positive perceptions recorded in the primary data, though their study was not empirical and did not isolate digital payments as a performance determinant.

The findings are however in divergence with the FSD, Kenya report (2023) that digitization and payments uptake of digital finance for business transactions has grown exponentially. Alongside this, businesses are becoming more formalized, increasing their visibility to financiers and other market actors. However, FSD, Kenya reveals that majority of transactions are still cash-based, indicating that digitization is far to be a game changer for the majority of MSE's. Qualitative research finds that barriers to digitization include cost and price transparency; increased exposure and cost of compliance; lack of open data protocols; and systems to support customer ownership and control over data.

The findings are well anchored on the Technology Acceptance Theory (TAM). This theory postulates that the perceived ease of use and usefulness of a technology significantly influence its acceptance and, by extension, its impact on performance. In this study, the higher coefficient for digital payments in the primary data regression model underscores a strong perceived usefulness of digital payments among stakeholders. Respondents believe that digital payments enhance fund performance and improves investor satisfaction, supporting TAM's notion that behavioural intentions are shaped by beliefs on technology's efficacy. However, the lower coefficient in the secondary data reveals that actual financial impact, though significant, is more modest, while perception drives adoption, actual benefits may depend on other factors.

The Financial Intermediation Theory also supports the study findings. Digital payments reduce transaction costs and improve information flow, thereby enhancing the intermediation function of Unit funds. This aligns with the theory's premise that intermediaries (like Unit funds) enhance efficiency in financial systems. The significant

results from secondary data, with higher digital payment volumes shows good fund performance, thus, digital tools enable efficient capital allocation and investor interaction.

#### 4.5.2.2 Simple linear regression Effect of Digital deposits on fund performance

##### Primary data

The panel regression results for digital deposits using primary data are presented in table below

**Table 42: Panel Regression results for Fixed Effect pf Digital deposits on Fund Performance-primary Data**

Model Summary <sup>b</sup>						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.536 <sup>a</sup>	.287	.270	.6626		
a. Predictors: (Constant), Digital deposits						
b. Dependent Variable: Financial Performance						
ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Squar e	F	Sig.
1	Regression	7.440	1	7.440	16.944	.000 <sup>b</sup>
	Residual	18.442	42	.439		
	Total	25.881	43			
a. Dependent Variable: Financial Performance						
b. Predictors: (Constant), Digital deposits						
Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.
1	(Constant)	2.188	.405	Beta	5.398	.000
	Digital deposits	.434	.106	.536	4.116	.000
a. Dependent Variable: Financial Performance						

**Source: Researcher (2024)**

The R-squared value of 0.287 implied that digital deposits accounted for approximately 0.287 of total variation in financial performance. The adjusted R-squared value of 0.270 indicated a slight reduction in explanatory power when adjusted for the number of

predictors in the model. The ANOVA results showed that the regression model was statistically significant, with an F-value of 16.944 and a p-value of 0.000, which is below the 0.05 threshold. This confirms that digital deposits have a statistically significant impact on financial performance. Digital deposits had an unstandardized coefficient of 0.434, implying that a one-unit increase in digital deposits resulted in 0.434 units increase in financial performance. The standardized coefficient of 0.536 means that 1 standard deviation increase in digital deposits leads to 0.536 S.D increase in financial performance which is a moderately strong positive effect. The t-value of 4.116 and a p-value of 0.000 indicated that the effect of digital deposits was statistically significant at the 5% level.

$$Y = 2.188 + 0.434 X_2$$

These findings suggest that digital deposits have a significant positive effect on financial performance. The strong explanatory power of digital deposits in the model highlights their importance in influencing financial outcomes.

### Using Secondary data

The panel regression results for digital deposits using secondary data are presented in table below.

**Table 43: Panel Regression results for Fixed Effect of Digital deposits on fund performance-secondary data**

Fixed-effects (within) regression	Number of obs	=	520
Group variable: Unit Fund	Number of groups	=	52
R-sq:	Obs per group:		
within = 0.2111	Min	=	10
between = 0.3838	Avg	=	10
overall = 0.2660	Max	=	10

corr(u <sub>i</sub> , X <sub>b</sub> ) = 0.0851		F(1,467)	=	124.97		
		Prob > F	=	0.000		
<b>Performance</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>t</b>	<b>P&gt;t</b>	<b>[95% Conf.Interval]</b>	
Digital						
Deposits	0.10275	0.00919	11.18	0.000	0.084685	0.12081
_cons	-4.78684	0.16271	-29.42	0.000	-5.10658	-4.46711

**Source: Researcher, (2024)**

The results presented in Table above are for secondary data showing the within R-squared is 0.2111, indicating that digital deposits explain about 0.211 of the variation in financial performance within Unit funds over time. The between R-squared is 0.3838, suggesting that 38.38% of the variation between Unit funds is accounted for by digital deposits. The overall R-squared of 0.2660 indicates that digital deposits explains 0.266 of the total variation in financial performance across all observations is explained by the model.

The coefficient for digital deposits is 0.1027 with a standard error of 0.00919. The t-statistic is 11.18, and the corresponding p-value is 0.000, which is statistically significant at the 5% level. This implies that a one-unit increase in digital deposits is associated with an approximate 0.1027 units increase in performance of Unit funds in Kenya, holding other factors constant. Therefore, digital deposits are found to have a positive and statistically significant effect on the financial performance of Unit funds in Kenya, albeit with a modest explanatory power.

$$Y = -4.78684 + 0.102746 X_2$$

In conclusion, both primary and secondary data findings suggest that digital deposits have a significant positive effect on financial performance. The moderate explanatory power of digital deposits highlights their importance in influencing financial outcomes. These study

findings align with empirical literature in the study done by Ndichu and Kariuki (2021) which reported a significant positive relationship between digital deposits, and investment firm performance in Kenya. This alignment affirms that digital financial mechanisms improve efficiency and financial returns. Similarly, a study by Siska (2022) and Salman (2021) reported that digital services and fintech tools, such as digital deposits, contribute significantly to enhanced financial performance, especially through increased return on assets and improved client satisfaction.

Additionally, a study by Tshukudu et al. (2022), made conclusions that digital banking tools lead to improved performance in commercial banks due to wider customer reach and better transaction handling. In the Kenyan context, Ndede (2020) supports this view in his study that revealed that digital deposit platforms directly contribute to increased deposits and improved loan disbursements in Kenyan commercial banks, thereby boosting profitability. These findings closely mirror those from the secondary data in this study, where actual transaction values show higher financial performance associated with greater digital deposit uptake.

However, a study by Gichana, Nyakundi, and Muturi (2016) reported a negative correlation between technology-enabled banking services and bank performance in their study. This implies that the effectiveness of digital innovations such as deposits may depend on the strategic alignment of technology with business models, staff readiness, and client digital literacy. Similarly, Yudaruddin (2023) reported a negative effect of fintech start-ups on traditional bank performance in Indonesia. This implies that poorly

integrated digital systems or rapid fintech growth may sometimes disrupt rather than enhance performance.

Furthermore, the FSD Kenya report (2023) states that the Central Bank of Kenya reported that the cash agent transactions in the 11 months leading up to November 2023 registered a 0.5% decrease compared to the corresponding period in 2022. This decline needs to be further explored. This is in divergence to the study findings which reported 26% explanatory power by the digital online deposits. This could be attributed to low value transactions done by majority of investors who are likely low-income earners.

Theoretically, the Technology Acceptance Model (TAM) explains the high perception scores observed in the primary data. TAM posits that perceived usefulness and ease of use drive technology adoption. In this study, Unit fund personnel generally believe that digital deposits improve operational performance and client convenience. This perception is evident in the higher coefficients observed in primary data regression models. The Financial Intermediation Theory further reinforces the role of digital deposits in enhancing performance.

As financial intermediaries, when Unit funds use technology like digital deposits, this lowers the transaction costs and improve capital mobilization. This enhances the ability of Unit funds to allocate resources efficiently and at scale. The widespread uptake of digital deposits among Money Market Funds, as seen in the secondary data, supports this theoretical perspective. It indicates that digital channels enable Unit funds to efficiently perform their intermediary role by broadening access to investment and pooling mechanisms.

### 4.5.2.3 Simple linear regression effect of Digital Portfolio Management on Unit fund performance

Using Primary data

The results for primary data panel regression for digital portfolio management are presented in the table below.

**Table 44: Panel Regression results for Fixed Effect DPM on Fund Performance using primary Data**

<b>Model Summary</b>						
<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>		
1	.513 <sup>a</sup>	.263	.246	.6739		
a. Predictors: (Constant), Digital portfolio management						
b. Dependent Variable: Financial Performance						
<b>ANOVA<sup>a</sup></b>						
<b>Model</b>		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
1	Regression	6.809	1	6.809	14.994	.000 <sup>b</sup>
	Residual	19.072	42	.454		
	Total	25.881	43			
a. Dependent Variable: Financial Performance						
b. Predictors: (Constant), Digital portfolio management						
<b>Coefficients<sup>a</sup></b>						
<b>Model</b>		<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>		<b>Sig.</b>
		$\beta$	Std. Error	Beta	<b>t</b>	
1	(Constant)	2.162	0.436		4.953	.000
	D.P.M	0.442	0.114	0.513	3.872	.000
a. Dependent Variable: Financial Performance						

**Source: Researcher, (2024)**

The R-squared value of 0.263 suggested that approximately 26.3% of the variance in financial performance could be explained by digital portfolio management. The adjusted R-squared value of 0.246 accounted for the number of predictors, slightly reducing the explanatory power. The ANOVA results confirmed that the regression model was statistically significant, with an F-value of 14.994 and a p-value of 0.000, which is below

the 0.05 threshold. Thus, digital portfolio management has a significant impact on financial performance.

The coefficients table showed that the constant term had an unstandardized coefficient of 2.162 with a t-value of 0.4.953 and a p-value of 0.000 suggested that the intercept was statistically significant at the 5% level. Digital portfolio management had an unstandardized coefficient of 0.442, meaning that a one-unit increase in digital portfolio management resulted in a 0.442 increase in financial performance. The t-value of 3.872 and a p-value of 0.000 indicated that the effect of digital portfolio management was statistically significant at the 5% level. The regression model is as shown below

$$Y = 2.162 + 0.442X_3$$

These findings suggest that digital portfolio management has a significant and positive effect on financial performance. The model highlights the importance of digital portfolio management in enhancing financial outcomes through automation.

### **Effect of digital portfolio management using secondary data**

The study evaluated the regression effect of digital portfolio management the results are presented in the Table below.

**Table 45: Panel Regression results for Fixed Effect of DPM on financial performance- using sec data**

Fixed-effects (within) regression	Number of obs	=	520
Group variable: Unit Fund	Number of groups	=	52
R-sq:	Obs per group:		
within = 0.2330	Min	=	10
between = 0.7284	Avg	=	10
overall = 0.3506	Max	=	10

corr(u <sub>i</sub> , X <sub>b</sub> ) = -0.0127		F(1,467)	=	141.87		
		Prob > F	=	0.000		
<b>Performance</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>t</b>	<b>P&gt;t</b>	<b>[95% Conf.Interval]</b>	
Digital Portfolio						
Management	0.25478	0.02139	11.91	0.000	0.21681	0.29275
cons	-3.43236	0.04654	-73.75	0.000	-3.52381	-3.3409

**Source: Researcher, (2024)**

The results show the models' within R-squared value is 0.2330, indicating that digital portfolio management explains 0.233 of the variability in financial performance within Unit funds over time. The between R-squared stands at 0.7284, suggesting that 72.84% of the variation between Unit funds can be attributed to digital portfolio management differences. The overall R-squared of 0.3506 implies that 0.350 of the total variance in financial performance across all observations is accounted for by the model.

The study reveals that the coefficient of digital portfolio management is 0.2548 with a standard error of 0.0214. The corresponding t-statistic is 11.91, and the p-value is 0.000, indicating that the relationship is statistically significant at the 5% level. This implies that an increase in digital portfolio management is associated with 0.2548 units increase in financial performance, holding other variables constant. Digital portfolio management is shown to have a statistically significant and positive influence on fund.

$$Y = -3.43236 + 0.25478X_3$$

In conclusion, the explanatory powers of both models are closely related, whereby for primary data, 0.263 of variations are explained by the model while the secondary data model explains 0.350 of the variations in financial performance, additionally from the secondary data model, 0.724 of the variations between funds is attributed to digital

portfolio management suggesting that digital portfolio management contributes to enhancement of Unit fund returns. Both models have a closely related explanatory power, suggesting that the primary data findings reinforce the secondary results confirming the importance of digital portfolio management in improving financial performance of Unit funds in Kenya.

Empirical literature lends strong support to these findings. For instance, Ndichu and Kariuki (2021) found a significant positive link between fintech innovations, including digital deposits, and investment firm performance in Kenya. Their findings align well with the results from both datasets in this study, affirming that digital financial mechanisms improve efficiency and financial returns. Similarly, Siska (2022) and Salman (2021) report that digital services and fintech tools, such as digital deposits, contribute significantly to enhanced financial performance, especially through increased return on assets and improved client satisfaction.

Further corroboration comes from Tshukudu et al. (2022), who argue that digital banking tools lead to improved performance in commercial banks due to wider customer reach and better transaction handling. In the Kenyan context, Ndede (2020) supports this view by showing that digital deposit platforms directly contribute to increased deposits and improved loan disbursements in commercial banks, thereby boosting profitability. These findings closely mirror those from the secondary data in this study, where actual transaction values show higher financial performance associated with greater digital deposit uptake.

However, not all studies agree. For instance, Gichana, Nyakundi, and Muturi (2016) identified a negative correlation between technology-enabled banking services and bank

performance in a localized case study. This outlier suggests that the effectiveness of digital innovations such as deposits may depend on the strategic alignment of technology with business models, staff readiness, and client digital literacy. Similarly, Yudaruddin (2023) reported detrimental effects of fintech start-ups on traditional bank performance in Indonesia, hinting that poorly integrated digital systems or rapid fintech growth may sometimes disrupt rather than enhance fund performance.

#### 4.5.2.4 Simple linear regression effect of Digital-risk management on financial performance of Unit funds in Kenya

This section discusses the panel regression results of digital risk management using first primary data and then secondary data and finally a conclusion of both findings.

##### Using Primary data

Using primary data, the findings are presented in the table below.

**Table 46: Regression Fixed Effect of Digital risk management on Financial Performance using primary Data**

<b>Model Summary<sup>b</sup></b>						
<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>		
1	.527 <sup>a</sup>	.278	.261	.6669		
a. Predictors: (Constant), Digital risk management						
b. Dependent Variable: Financial Performance						
<b>ANOVA<sup>a</sup></b>						
<b>Model</b>		<b>Sum-of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
1	Regression	7.200	1	7.200	16.189	.000 <sup>b</sup>
	Residual	18.681	42	.445		
	Total	25.881	43			
a. Dependent Variable: Financial Performance						
b. Predictors: (Constant), Digital risk management						
<b>Coefficients<sup>a</sup></b>						
<b>Model</b>		<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>

		<b>β</b>	<b>Std. Error</b>	<b>Beta</b>		
1	(Constant)	2.657	.303		8.784	.000
	Digital risk management	.331	.082	.527	4.024	.000

a. Dependent Variable: Financial Performance

**Source: Researcher (2024)**

The R-squared value of 0.278 implies that digital risk management accounted for approximately 0.278 of the variance in financial performance. The adjusted R-squared value of 0.261, which adjusts for the number of predictors, showed a slightly lower explanatory power. The ANOVA results confirmed that the regression model was statistically significant, with an F-value of 16.189 and a p-value of 0.000, which is below the 0.05 significance threshold. Thus digital risk management has a statistically significant impact on financial performance of Unit funds in Kenya.

The coefficients table revealed that the constant term had an unstandardized coefficient (β) of 2.657 with a t-value of 8.784 and a p-value of 0.000 suggested that the intercept was statistically significant. Digital risk management had an unstandardized coefficient of 0.331, meaning that a one-unit increase in digital risk management resulted in a 0.331 increase in financial performance. The t-value of 4.024 and a p-value of 0.000 indicated that the effect of digital risk management on financial performance was statistically significant at the 5% level. The regression model is as shown below

$$Y=2.657+0.331 X_4$$

These findings suggest that digital risk management plays a crucial role in improving financial performance. Effective digital risk management strategies, such as automated

risk assessment systems and compliance with data protection frameworks, enhance financial stability and operational efficiency. According to FSD, Kenya report (2023), there is need to check on risks associated with digital business. Emerging trends in business landscape include the use of advanced analytics for more effective decision making and blockchain for securing the data but come with inherent risks of cybersecurity threats and data protocols. Continuous monitoring and evaluation of data quality and system and managing the inherent risks are pertinent in achieving enhanced performance.

### **Regression effect of digital risk management using Secondary data**

Using secondary data, the study sought to determine the effect of digital risk management on the financial performance of Unit funds in Kenya. The results of the fixed effect model are presented in the table below.

**Table 47: Regression Fixed Effect of Digital-risk management on Financial Performance using secondary data**

Fixed-effects (within) regression	Number of obs	=	520		
Group variable: Unit Fund	Number of groups	=	52		
R-sq:	Obs per group:				
within = 0.3580	min	=	10		
between = 0.4513	avg	=	10		
overall = 0.3871	max	=	10		
	F(1,467)	=	260.42		
corr(u <sub>i</sub> , X <sub>b</sub> ) = -0.4829	Prob > F	=	0.000		
<b>Performance</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>t</b>	<b>P&gt;t</b>	<b>[95% Conf. Interval]</b>
Digital Risk					
Management	0.092345	0.005722	16.14	0.000	0.081101 0.10359
_cons	-2.54613	0.038477	-66.17	0.000	-2.62174 -2.47052

**Source: Researcher, (2024)**

As shown in the above table, the within R-squared value is 0.3580, indicating that digital risk management explains about 033580 of the variation in financial performance within

Unit funds over time. The between R-squared is 0.4513, suggesting that 0.4513 of the variance between Unit funds is attributable to differences in digital risk management practices. The overall R-squared is very low at 0.3871, implying that only 38.71% of the total variation in financial performance is explained by the model.

The coefficient of digital risk management is 0.09235, with a standard error of 0.00572. The t-statistic of 16.14 and the corresponding p-value of 0.000 indicate that the effect is statistically significant at the 5% level. A one-unit increase in the digital risk management index is associated with a 0.0923 increase in financial performance, holding other factors constant.

The regression model is  $Y = -2.54613 + 0.092345 X_4$

The study's findings on the significant positive effect of digital risk management on the financial performance of Unit funds in Kenya converge with several prior empirical studies but also highlight key areas of divergence in the context and methodology. Cirappa (2023) found that portfolio risk characteristics such as volatility and beta are central to performance outcomes in Indian Unit funds. Large funds, in particular, were associated with higher returns at lower risk, consistent with these findings that effective digital risk management supports better financial performance. This underscores the idea that digital tools help in monitoring and hedging risk so as to improve performance outcomes across different fund sizes.

A study by Alvi and Rehan (2020) also supports this conclusion, showing that fund risk is a significant predictor of fund performance in Pakistani Unit funds. Their findings align

closely with the current study, which found both perceived and actual digital risk practices to be statistically significant predictors of Unit fund performance. This convergence reinforces the notion that risk management through technology enhances decision-making and improves portfolio outcomes.

Sawant, Amonkar, and Melo (2023) offer partial convergence. Their study found that most Indian Unit funds underperformed their benchmarks, though performance varied significantly by fund type. While this contrasts with the current study's generally positive findings, it may be attributed to differences in market maturity, regulation, or the depth of digital tool adoption. Nonetheless, their use of risk-return models (Treynor, Sharpe, Jensen) echoes the current study's use of portfolio volatility and reserves, reinforcing a shared methodological foundation for assessing the risk-performance link.

In contrast, Amira et al. (2023) present a notable divergence, having found that liquidity risk management had an insignificant negative relationship with performance in Kenyan commercial banks. This suggests that not all forms of risk management translate into improved returns, particularly when risk mitigation comes at the cost of reduced investment agility. The divergence may stem from differences in sector (banking vs. Unit funds), risk type (liquidity vs. portfolio), and the degree to which digital tools enhance risk responsiveness, something more prevalent in Unit fund management per the current study.

IIFA Industry report (2025) emphasizes the need for random trainings on security Awareness to Unit fund personnel in order to tackle the chronic problem of attackers who frequently invade systems during interaction with third party service providers. The

report recommends on-going and engaging trainings which are random for effective defense and maximum impact. This will help sensitize institutions on the need for digital risk management thereby upscale the fintech intake levels in the function of risk management. Further, the report recommends establishing a monitor for normal network Activity to monitor employee behavior and interaction with the systems. This involves making sure that the employees have limited access only to arears related to their assignments and also perform their duties fully. Also monitoring peak and off peak traffic loads to understand, monitor and identify anomalies that should be investigated.

Maniagi, Olweny, Mukanzi and Mbithi, (2017) in their study on Influence of Liquidity Risk on Performance of Commercial Banks in Kenya, recommended that the negative relationship between credit risk and performance of banks requires mangers to improve come up with strategies and methods that adhere to credit policies in order to enhance performance. This aligns with this study where digital risk a management could be utilized in credit control and management to enhance the performance

The study's findings align with the Technology Acceptance Model (TAM). Respondents reported a high rating of digital risk tools in expert engagement. This reflects positive perceptions of usefulness and ease of adoption, core tenets of TAM. Their belief in the value digital tools, shows how perceived efficacy can drive adoption and organizational change, even ahead of proven quantitative results.

The findings also resonate with the Capital Asset Pricing Model (CAPM), particularly in how portfolio volatility was used as a proxy for risk. CAPM's reliance on systematic risk (beta) as a determinant of expected return parallels the study's use of portfolio standard

deviation and risk reserves. This reflects the theoretical idea that managing risk effectively can bring actual returns closer to expected (risk-adjusted) returns, supporting the role of digital risk management in stabilizing and enhancing Unit fund performance.

The profit maximization theory states that the main object of Unit funds is to maximize the difference between total revenue and total cost (profits.) digital risk management involves the use of modern technology to identify, assess and reduce risks associated with business operations. Digital risk tools minimize potential losses associated with cyber-attacks, data handing and data fraud, compliance, this in turn enhances profits. Digital risk management supports the theoretical assumption that sound risk controls are integral in achieving enhanced profits in Unit funds

The table 48 presents a convergence matrix comparing the simple linear regression results from both primary and secondary data sources. Key indicators including regression coefficients ( $\beta$ ), standard errors (SE),  $R^2$ , p-values, effect and direction, and convergence status have been evaluated to determine consistency across data sources. The table shows that all four fintech predictors; Digital Payments, Digital Deposits, Digital Portfolio Management, and Digital Risk Management, demonstrated consistent positive effects on Unit fund performance across both primary and secondary data. All results were statistically significant ( $p < 0.05$ ), indicating strong model reliability. While coefficients from the primary data were higher, secondary data showed smaller standard errors, suggesting more precise estimates. This reinforces the robustness of findings and supports the convergence between perceived and actual fintech performance impacts.

Predictor	Data source	Coefficient $\beta$	Std error	R <sup>2</sup>	p-value	Effect/Direction	Convergence
Digital payments	Primary	0.459	0.6975	0.210	0.002	Positive	Yes
	Secondary	0.097158	0.00646	0.3204	0.000	Positive	
Digital deposits	Primary	0.536	0.106	0.287	0.000	Positive	Yes
	Secondary	0.102746	0.00919	0.2660	0.000	Positive	
Digital portfolio mgmt	Primary	0.513	0.114	0.263	0.000	Positive	Yes
	Secondary	0.25478	0.02139	0.3506	0.000	Positive	
Digital risk mgmt	Primary	0.527	0.082	0.278	0.000	Positive	Yes
	Secondary	0.092345	0.00572	0.3871	0.000	Positive	

**Table 48: Convergence Matrix for Simple Linear Regression results**

**Source: Researcher, (2024)**

### 4.5.3 Multiple Linear Regression effect of Fintech

Following the simple linear regression analysis which examined individual effect of each fintech construct, the researcher proceeded to multiple linear regression to assess the combined effect of all predictors simultaneously. Given the nature of the data, comprising four types of Unit Trust Funds observed over ten years, panel regression was preferred to effectively capture both time dynamics and fund-specific differences.

Multiple linear regression analysis was used to explain the effect of financial technology on the performance of Unit funds, to bring out its predictive power and implication on performance (Hair et al., 2022). This gives a more comprehensive view accounting for possible interactions or shared variances among predictors (Field, 2018). It also improves model precision and helps understand the holistic effect of fintech on fund performance.

The results are presented in tables and models as below

### 4.5.3 Panel regression effect of fintech using Primary data

Panel regression analysis was used to estimate the effect of financial technology (using all the fintech constructs) on the financial performance of Unit Trust funds.

**Table 49: Multiple Linear Regression of fund performance on Fintech-primary data**

<b>Model Summary<sup>b</sup></b>				
<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted Square</b>	<b>R Std. Error of the Estimate</b>
1	.828 <sup>a</sup>	.685	.4571	.828 <sup>a</sup>

a. Predictors: (Constant), Digital Payment, Digital risk management, Digital Payment Digital Deposits, Digital portfolio management  
b. Dependent Variable: Financial Performance

<b>ANOVA<sup>a</sup></b>						
<b>Model</b>		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
1	Regression	17.732	4	4.433	21.213	.000 <sup>b</sup>
	Residual	8.150	39	.209		

		Total	25.881	43		
a. Dependent Variable: Financial Performance						
b. Predictors: (Constant), Digital Payment, Digital risk management, Digital Payment Digital Deposits, Digital portfolio management						
<b>Coefficients<sup>a</sup></b>						
		<b>Unstandardized</b>		<b>Standardized</b>		
		<b>Coefficients</b>		<b>Coefficients</b>		
		<b>Std.</b>				
<b>Model</b>		<b>β</b>	<b>Error</b>	<b>β Beta</b>	<b>t</b>	<b>Sig.</b>
1	(Constant)	.053	.426		0.125	.901
	Digital Payment	.279	.076	.383	3.659	.001
	Digital Deposits	.220	.085	.271	2.581	.014
	Digital portfolio management	.287	.089	.333	3.225	.003
	Digital risk management	.230	.066	.366	3.504	.001

a. Dependent Variable: Financial Performance

**Source: Researcher (2024)**

This model summary provides insights into the combined effect of financial technology variables; digital payments, digital deposits, digital portfolio management, and digital risk management; on financial performance of Unit funds. The R-squared value of 0.653 indicates that approximately 0.653 of the variation in financial performance can be explained by these digital financial tools. The F-statistic (21.213, p = 0.000) confirms the model's overall significance, suggesting that fintech adoption significantly impacts Unit fund performance.

$$Y=0.053+0.279X_1+0.220X_2+0.287X_3+0.230X_4$$

Where Y is financial performance

X<sub>1</sub> is digital payments

X<sub>2</sub> is Digital Portfolio Management

X<sub>3</sub> is Digital deposits

X<sub>4</sub> is Digital-risk management

Digital Payments with ( $\beta = 0.279$ ,  $p = 0.001$ ), a one-unit increase in digital payments adoption leads to a 0.279 increase in financial performance. This suggests that automating and expanding digital payment solutions contributes positively, albeit with a smaller impact compared to other variables. Digital Deposits with ( $\beta = 0.220$ ,  $p = 0.014$ ), a one-unit increase in digital deposits usage leads to a 0.220 increase in financial performance. This indicates that digital deposits have the strongest impact, likely due to improved cash flow management, increased liquidity, and ease of transactions.

Digital Portfolio Management with ( $\beta = 0.287$ ,  $p = 0.003$ ), a one-unit increase in digital portfolio management adoption results in a 0.287 increase in financial performance. This means that Unit funds utilizing AI, machine learning, and automated portfolio optimization tools can experience moderate improvements in returns and efficiency. Digital Risk Management with ( $\beta = 0.230$ ,  $p = 0.001$ ), a one-unit increase in digital risk management adoption leads to a 0.230 increase in financial performance, making it the most significant predictor. This suggests that funds with strong risk mitigation frameworks, cybersecurity tools, and predictive analytics experience greater financial stability and resilience.

#### **4.5.3 Panel Regression results for Fixed Effect of Fintech**

Regression analysis was used to examine the hypothesis about the link between independent and dependent variables. The primary objective of regression analysis was to demonstrate the effect and magnitude of each independent variable on the dependent variable. Regression analysis has used to estimate the influence of financial technology factors on the financial performance.

### 4.5.3.1 Model Summary

The model summary illustrates the proportion of the dependent variable (financial performance of Unit funds in Kenya) that can be elucidated by variations in the independent variables (Financial technology conceptualized as Digital payments, Digital deposits, Digital Portfolio Management and Digital-risk management). The four independent variables were included into the regression as a single block. The table below presents the model summary of the selected fixed effects model.

**Table 50: Multiple Linear Regression of fund performance on Fintech- Secondary data**

Fixed-effects (within) regression	Number of obs	=	520
Group variable: Fund	Number of groups	=	52
R-sq:	Obs per group:		
within = 0.5238	Min	=	10
between = 0.6591	Avg	=	10
overall = 0.5669	Max	=	10
	F(4,464)	=	127.6
corr(u <sub>i</sub> , Xb) = -0.5484	Prob > F	=	0.000

**Source: Researcher (2024)**

The model comprises 520 observations across 52 Unit funds, with an average of 10 observations per fund. The within R-squared value is 0.5238, indicating that approximately 0.5238 of the variation in financial performance within individual Unit funds over time is explained by the four independent variables. The between R-squared is 0.6591, reflecting that 0.6591 of the variance across different Unit funds is accounted for by differences in the independent variables. The overall R-squared is 0.5669, suggesting that the model explains 0.5669 of the total variability in financial performance. The F-statistic (4,464) of 127.6 and a p-value of 0.000 confirm that the model is statistically significant, indicating that the joint contribution of the four predictors is not due to random chance.

### 4.5.3.2 Regression Coefficients

Regression coefficients are estimates of the unknown population parameters describing the relationship between a predictor variable and the response (Gujarati & Porter, 2009). In linear regression, coefficients are the values that multiply the predictor values. P-values and coefficients in regression analysis work together to tell which effect in the model are statistically significant and the nature of those effects. The coefficients describe the mathematical relationship between each independent variable (financial technology) and the dependent variable (Financial performance). The p-values for the coefficients indicate if they're statistically significant. The results are presented in the table below.

**Table 51: summary of Multiple Regression Coefficients**

Performance	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
Digital Payment	0.04084 7	0.00719	5.68	0.000	0.026718	0.054975
Digital Deposit	0.01844 6	0.009143	2.02	0.044	0.000479	0.036413
Digital Portfolio Management	0.16416	0.017805	9.22	0.000	0.12914	0.19917
Digital Risk Management	0.05122 9	0.006581	7.78	0.000	0.038296	0.064161
cons	-4.01971	0.188975	-21.27	0.000	-4.39106	-3.64835

**Source: Researcher, (2024)**

The study regression model obtained from the table above is as shown below.

$$Y = -4.01971 + 0.040847X_1 + 0.018446X_2 + 0.16416X_3 + 0.051229X_4$$

Where Y is financial performance

X<sub>1</sub> is digital payments

X<sub>2</sub> is Digital deposits

X<sub>3</sub> is Digital Portfolio Management

X<sub>4</sub> is Digital-risk management

Digital payments have a strong and statistically significant effect on financial performance, with a coefficient of 0.04085 and a p-value of 0.000. This implies that, holding all other variables constant, a one-unit increase in digital payment usage leads to a 0.04085 Unit change in financial performance of Unit funds. The highly significant p-value suggests this relationship is unlikely to be due to chance.

Digital deposits also exhibit a positive and statistically significant effect on financial performance, with a coefficient of 0.01845 and a p-value of 0.044. This means that a one-unit increase in the adoption of digital deposit systems improves financial performance by 0.185, all factors held constant. The significance of the p-value confirms the reliability of this relationship. Digital portfolio management emerges as the most influential factor, with a coefficient of 0.1642 and a p-value of 0.000. This indicates that a one-unit increase in digital portfolio management practices leads to a 0.164 rise in financial performance, assuming other variables remain constant. This strong effect suggests that the use of digital tools for investment decisions, risk diversification, and real-time asset tracking plays a crucial role in enhancing fund performance.

The statistical significance reinforces confidence in this finding. Digital risk management also has a statistically significant positive effect on financial performance, with a coefficient of 0.05123 and a p-value of 0.000. This means that a one-unit increase in digital risk management leads to a 0.512 improvement in financial performance, keeping all other factors constant. This result highlights the value of adopting advanced digital tools to

identify, monitor, and mitigate financial and operational risks, which in turn strengthens the stability and profitability of Unit funds.

In conclusion, the multiple linear regression for both primary and secondary data findings confirm that fintech has a positive significant effect on fund performance. There is a convergence in the direction of all effects (with positive in both models) strengthening the credibility of the findings. While the perceived impact is stronger, the actual validates its positive role in strategic decision-making. The table below shows the convergence matrix.

Predictor	Data source	Unstandardized $\beta$ Coefficient	Std error (SE)	p-value	Effect/Direction	Convergence
Digital payments	Primary	0.279	0.076	0.001	Positive	Aligned, weak in sec data
	Sec.	0.040847	0.00719	0.000	Positive	
Digital deposits	Primary	0.220	0.085	0.014	Positive	Aligned weak in sec data
	Sec.	0.018446	0.009143	0.044	Positive	
Digital portfolio management	Primary	0.287	0.089	0.003	Positive	Aligned, strong effect in both data
	Sec.	0.16416	0.017805	0.000	Positive	
Digital risk management	Primary	0.230	0.066	0.001	Positive	Aligned strong effect in pry data
	Sec.	0.051229	0.006681	0.000	Positive	

**Table 52: Convergence Matrix for Multiple linear Regression effect**

**Source: Research study (2024)**

The above table shows convergence matrix indicating how the coefficients are aligned for the two data sources, the alignment denotes that the perceptions from primary data amplify the actual performances emphasizing the role of fintech while the actual performances confirm the effect of fintech in enhancing performance.

#### **4.5.3 Hierarchical Regression on Moderating effect of fund size**

To further assess the incremental contribution of fintech dimensions to Unit fund performance, Hierarchical regression was done. It is a stepwise modelling technique where predictor variables are introduced in stages. According to Field, (2018) Hierarchical regression analysis is useful in testing theoretical models and nested relationships to reveal unique variance explained by each block of variables introduced. The change in  $R^2$  is used to evaluate the added value of fintech in predicting fund performance. The study noted that there are three steps involved in testing the moderating effect as discussed below.

#### **4.5.4 Moderating Effect of fund size using Primary Data**

**Step One** involved testing the effect of independent variables on the dependent variable.

**Step Two** entailed testing the effect of independent variables and moderating variable- fund size- on dependent variable-fund performance.

**Finally step Three:** Testing the effect of, independent variable, moderating variable and the interactive term (product of independent and moderating variable) on dependent variable. Moderating effect happens if the effect of interaction is significant in the 3rd step.

The three steps involved in hierarchical regression analysis for moderating effect are;

$$\text{Step One: } Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \varepsilon$$

$$\text{Step Two: } Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 M + \varepsilon$$

$$\text{Step Three: } Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 M + \beta_6 X_{1i} M + \beta_7 X_{2i} M + \beta_8 X_{3i} M + \beta_9 X_{4i} M + \varepsilon$$

Where,  $\beta_0$  represented Constant Term (predicted value of Y when X=0)

$\beta_i = 1$  to 9 is the regression coefficients that measured the change in variables.

$X_1$ = Digital Payments

$X_2$ = Digital deposits

$X_3$ = Digital portfolio management

$X_4$ = Digital risk management

M=Fund size;

$X_{i..n} * M$ =Interaction term between financial technology; and Fund size;

Y=Financial performance and;

$\varepsilon$ =Error/disturbance.

The relevant results are summarized in the Table below.

**Table 53 Table: Model Summary for Moderating Variable - Fund size -primary data.**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.828 <sup>a</sup>	.685	.653	.4571	.685	21.213	4	39	.000
2	.833 <sup>b</sup>	.694	.653	.4569	.009	1.046	1	38	.313
3	.895 <sup>c</sup>	.801	.748	.3895	.107	4.573	4	34	.005

---

key:

a. Predictors: (Constant), Digital payments (DP), Digital deposits (DD), Digital portfolio management (DPM), Digital risk management (DRM),

b. Predictors: (Constant), Digital payments, Digital deposits, Digital portfolio management, Digital risk management, Fund size (FS)

c. Predictors: (Constant), Digital payments, Digital deposits, Digital portfolio management, Digital risk management, Fund size, DP\*FS, DD\*FS, DPM\*FS, DRM\*FS

In the first step, the regression model that included digital payments, digital deposits, digital portfolio management, and digital risk management as predictors showed a correlation coefficient (R) of 0.828, with an R-squared value of 0.685. This indicated that 0.685 of the variation in financial performance is explained by the four Fintech variables. The model is statistically significant with an F-statistic of 21.213 and a p-value of 0.000, demonstrating that financial technology had a significant influence on financial performance.

In the second step, fund size was introduced as an additional predictor in the model. This increased the correlation coefficient (R) to 0.833, while the R-squared value improved to 0.694, indicating that 0.694 of the variation in financial performance was now explained by financial technology and fund size. The change in R-squared (0.009) was not statistically significant, with an F-statistic of 1.046 and a p-value of 0.313, suggesting that fund size does not have a significant effect on financial performance.

In the third step, the interaction terms between financial technology variables and fund size were included in the model. This resulted in a further increase in the correlation coefficient (R) to 0.895, with an R-squared value of 0.801, meaning that 80.1% of the variance in financial performance was now explained by the combined effect of financial

technology, fund size, and the interaction terms. The change in R-squared (0.107) was statistically significant, with an F-statistic of 4.573 and a p-value of 0.005, confirming the presence of a moderating effect.

These findings indicate that fund size significantly moderates the relationship between financial technology and financial performance. The significant increase in R-squared across the three models suggests that firms with larger fund sizes can leverage on technology more effectively to enhance their financial performance. This may be due to the advantages that come along with economies of scale.

However, this contradicts with Chibole, Lyani and Musiega (2022), in their study on moderating effect of bank size on financial performance of commercial banks, they concluded that firm size has no influence on performance of banks. That small banks can still have an opportunity to perform equally with large banks. Possibly the divergence may be due to the contextual difference between the studies, thus banks as opposed to Unit funds or due to differences in variable measurements and definitions.

**Table 54: Regression Coefficients for Moderating effect of Fund size-Primary Data**

Model		Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.
1	(Constant)	.053	.426		.125	.901
	Digital payments	.279	.076	.383	3.659	.001
	Digital deposits	.220	.085	.271	2.581	.014
	Digital portfolio management	.287	.089	.333	3.225	.003
	Digital risk management	.230	.066	.366	3.504	.001

		Unstandardized Coefficients		Standardized Coefficients		
Model			Std. Error	Beta	t	Sig.
2	(Constant)	.119	.430		.276	.784
	Digital payments	.216	.098	.297	2.212	.033
	Digital deposits	.168	.099	.208	1.698	.098
	Digital portfolio management	.228	.106	.265	2.158	.037
	Digital risk management	.190	.076	.302	2.483	.018
	Fund size	.202	.198	.196	1.023	.313
3	(Constant)	-5.013	1.334		-3.758	.001
	Digital payments	.672	.414	.925	1.626	.113
	Digital deposits	-1.459	.646	-1.801	-2.258	.030
	Digital portfolio management	3.203	.742	3.713	4.314	.000
	Digital risk management	-.515	.540	-.822	-.955	.347
	Fund size	1.918	.470	1.854	4.081	.000
	DP*FS	-.175	.117	-1.195	-1.490	.145
	DD*FS	.458	.191	3.048	2.397	.022
	DPM*FS	.837	.209	5.596	4.010	.000
	DRM*FS	.177	.156	1.326	1.139	.262

a. Dependent Variable: Financial performance

**Source: Researcher, (2024)**

In the first model, without the moderating variable, the independent variables (digital payments, digital deposits, digital portfolio management, and digital risk management) significantly influenced financial performance. The regression coefficients indicated that digital deposits ( $\beta = 0.220$ ,  $p = 0.014$ ) and digital risk management ( $\beta = 0.230$ ,  $p = 0.001$ ) while digital payments ( $\beta = 0.279$ ,  $p = 0.001$ ) and digital portfolio management ( $\beta = 0.287$ ,  $p = 0.003$ ) also contributed significantly to financial performance. In the second model,

fund size was introduced as a predictor alongside the financial technology variables. The results showed that fund size does not have a significant positive effect on financial performance ( $\beta = 0.202$ ,  $p = 0.313$ ).

In the third model, interaction terms between financial technology variables and fund size were introduced. In this case, the results showed that fund size had a significant positive effect on financial performance ( $\beta = 1.918$ ,  $p = 0.000$ ). The results showed that the interaction between digital deposits and fund size (DD\*FS) was positive and significant ( $\beta = 0.458$ ,  $p < 0.05$ ), suggesting that fund size strengthened the positive effect of digital deposits on financial performance.

Similarly, the interaction term for digital portfolio management and fund size (DPM\*FS) was positive and significant ( $\beta = 0.837$ ,  $p = 0.000$ ), implying that fund size increases the effectiveness of digital portfolio management in enhancing financial performance. The interactions for digital payments (DP\*FS) and digital risk management (DRM\*FS) were not significant ( $p = 0.1465$  and  $p = 0.262$ , respectively), indicating that fund size did not significantly moderate their effects. These findings were also represented in the model 3 equation as shown in below.

$$Y = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 M + \beta_6 X_{1i} M + \beta_7 X_{2i} M + \beta_8 X_{3i} M + \beta_9 X_{4i} M + \varepsilon$$

$$Y = -5.013 + 0.672X_1 - 1.459X_2 + 3.203X_3 - 0.515X_4 + 1.918M - 0.175X_1M + 0.458X_2M + 0.837X_3M + 0.177X_4M$$

Where Y is the financial performance of Unit funds in Kenya (Dependent Variable)

X<sub>1</sub> is the digital payments (Independent Variable)

X<sub>2</sub> is the digital deposits (Independent Variable)

X<sub>3</sub> is the digital portfolio management (Independent Variable)

X<sub>4</sub> is the digital risk management (Independent Variable)

M is the fund size (Moderating Variable)

#### Moderating Effect of fund size using Secondary Data

The fifth objective of the study was to assess the moderating effect of fund size on the relationship between financial technology and the financial performance of Unit funds in Kenya. A hierarchical regression analysis was conducted, progressively introducing independent variables, the moderator (fund size), and interaction terms. The null hypothesis (H<sub>05</sub>) stated that fund size does not have a statistically significant moderating effect on this relationship. The analysis was conducted in three stages, with modifications in R<sup>2</sup>, F-statistic, and significance levels observed at each step.

In the first stage, the independent variables digital payments, digital deposits, digital portfolio management, and digital risk management were introduced into the model, producing Model 1.

$$Y = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon$$

Where;

Y = Financial Performance

B<sub>0</sub> = Constant

β<sub>1</sub> to β<sub>4</sub> = Regression Coefficients

X<sub>1</sub> to X<sub>4</sub> = Independent variables

$\varepsilon$  = the error of term.

In the second stage, the moderating variable, fund size, was introduced into the model, resulting in Model 2.

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 M + \varepsilon$$

Where;

Y = Financial Performance

$B_0$  = Constant

$\beta_1$  to  $\beta_9$  = Regression Coefficients

$X_1$  to  $X_4$  = Independent variables

M = Fund size (the moderating variable)

$\varepsilon$  = the error of term.

In the third stage, the interaction terms between the independent variables and fund size were incorporated to test for moderation. This resulted in Model 3.

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 M + \beta_6 X_{1it} M + \beta_7 X_{2it} M + \beta_8 X_{3it} M + \beta_9 X_{4it} M + \varepsilon$$

Where;

Y = Financial Performance

$B_0$  = Constant

$\beta_1$  to  $\beta_9$  = Regression Coefficients

$X_1$  to  $X_4$  = Independent variables

M = Fund size (the moderating variable)

$X_i * M$  = the interaction term between the  $i^{\text{th}}$  independent variable and the moderating variable

$\varepsilon$  = the error of term.

4.5.4.1 Model One: Financial Technology vs Fund Performance

The relationship between financial technology and financial performance was examined.

The results of model one are presented in the table below.

**Table 55: Model one: FinTech vs Fund Performance using Secondary data.**

Fixed-effects (within) regression	Number of obs	=	520			
Group variable: Fund	Number of groups	=	52			
R-sq:	Obs per group:					
within = 0.5238	Min	=	10			
between = 0.6591	Avg	=	10			
overall = 0.5669	Max	=	10			
	F(4,464)	=	127.6			
corr(u <sub>i</sub> , Xb) = -0.5484	Prob > F	=	0.000			
<b>Performance</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>t</b>	<b>P&gt;t</b>	<b>[95% Conf. Interval]</b>	
Digital Payment	0.040847	0.00719	5.68	0.000	0.026718	0.054975
Digital Deposit	0.018446	0.009143	2.02	0.044	0.000479	0.036413
Digital Portfolio Management	0.16416	0.017805	9.22	0.000	0.12914	0.19917
Digital Risk Management	0.051229	0.006581	7.78	0.000	0.038296	0.064161
cons	-4.01971	0.188975	-21.27	0.000	-4.39106	-3.64835

**Source: Researcher (2024)**

$$Y = -4.01971 + 0.040847X_1 + 0.018446X_2 + 0.16416X_3 + 0.051229X_4 + \dots \text{Model 1}$$

Where Y is performance

X<sub>1</sub> is digital payments

X<sub>2</sub> is Digital Portfolio Management

X<sub>3</sub> is Digital deposits

X<sub>4</sub> is Digital-risk management

In Model One, the model includes four independent variables: digital payments, digital deposits, digital portfolio management, and digital risk management. The results indicate

significant positive relationships for all four variables with financial performance. Specifically, digital payments show a strong positive coefficient of 0.04085, ( $p < 0.05$ ), suggesting that an increase in digital payment adoption positively influences the financial performance of Unit funds. Similarly, digital portfolio management (coefficient = 0.1642,  $p < 0.05$ ) and digital risk management (coefficient = 0.05123,  $p < 0.05$ ) also significantly enhance financial performance.

However, digital deposits have a smaller, yet significant, positive relationship (coefficient = 0.01845,  $p < 0.05$ ). The overall R-squared value of 0.5669 suggests that the model explains a modest portion of the variance in financial performance. The within-group R-squared value of 0.6591 indicates that the model captures within-group variation, which is crucial for Unit funds with differing characteristics. The significant F-statistic (127.6,  $p < 0.05$ ) implies that the model is statistically significant overall.

#### 4.5.4.2 Model Two: Financial technology, Fund size using Secondary data

In Model Two, the random-effects regression analysis examines the relationship between Fintech, Fund size and financial performance using. The results are shown in Table below.

**Table 56: Financial technology, Fund size and Fund Performance (Model 2)**

Fixed-effects (within) regression	Number of obs	=	520
Group variable: Unit Fund	Number of groups	=	52
R-sq:	Obs per group:		
within = 0.5960	Min	=	10
between = 0.6275	Avg	=	10
overall = 0.5946	Max	=	10
	F(5,463)	=	136.58
corr(u <sub>i</sub> , Xb) = -0.5147	Prob > F	=	0.000
<b>Performance</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>t</b>
			<b>P&gt;t</b>
			<b>[95% Conf. Interval]</b>

Digital Payment	0.037565	0.00664	5.66	0.000	0.024517	0.050612
Digital Deposit	0.014043	0.008445	1.66	0.097	-0.00255	0.030638
Digital Portfolio Management	-0.13849	0.01666	-8.31	0.000	-0.17122	-0.10575
Digital Risk Management	0.048634	0.006075	8.01	0.000	0.036696	0.060573
Fund Size	4.809058	0.528941	9.09	0.000	3.769636	5.84848
cons	-4.0852	0.17441	-23.42	0.000	-4.42793	-3.74246

**Source: Researcher, (2024)**

$$Y = -4.0852 + 0.037565X_1 + 0.014043X_2 - 0.13849X_3 + 0.048634X_4 + 4.809058M \dots \text{Model 2}$$

Where Y is financial performance

X<sub>1</sub> is digital payments

X<sub>2</sub> is Digital Portfolio Management

X<sub>3</sub> is Digital deposits

X<sub>4</sub> is Digital-risk management

M is the Fund Size

Model Two builds on the previous model by adding fund size as an independent variable. The introduction of fund size significantly improves the model, as seen in the change in R-squared values for both within-group (0.5960,  $p < 0.05$ ) and between-group (0.6275,  $p < 0.05$ ) variations. Including fund size results in a coefficient of (4.809058, ( $p < 0.05$ ), suggesting that larger Unit funds exhibit better financial performance, which makes intuitive sense due to more resources and greater economies of scale.

Digital payments and digital deposit retain their positive and statistically significant coefficients (0.037565 and 0.014043, respectively), but digital portfolio management now shows a negative relationship (coefficient = -0.13849,  $p < 0.05$ ), and digital risk management also a positive coefficient (coefficient = 0.048634,  $p < 0.05$ ). These changes may suggest that for larger Unit funds, some aspects of digital portfolio management might have diminishing returns or become less relevant.

The overall R-squared increases to 0.5946, indicating that fund size significantly contributes to explaining financial performance. The change in within-group R-squared (0.5960,  $p < 0.05$ ) and overall R-squared (0.5946,  $p < 0.05$ ) both confirm the model's improvement with the addition of fund size.

#### 4.5.4.3 Model Three: Financial technology, Fund size and Interaction Terms vs Fund Performance.

Model Three extends the analysis further by incorporating interaction terms between fund size and the financial technology variables to assess whether fund size moderates the relationship between financial technology and financial performance.

**Table 57: Model Three: Fintech, Fund size and Interaction Terms on Fund performance**

Fixed-effects (within) regression	Number of obs	=	520		
Group variable: Unit Fund	Number of groups	=	52		
R-sq:	Obs per group:				
within = 0.6343	Min	=	10		
between = 0.6121	Avg	=	10		
overall = 0.6094	Max	=	10		
	F(9,459)	=	88.48		
corr(u <sub>i</sub> , X <sub>b</sub> ) = -0.5287	Prob > F	=	0.000		
<b>Performance</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>t</b>	<b>P&gt;t</b>	<b>[95% Conf. Interval]</b>
Digital payments	0.02799	0.006905	4.05	0.000	0.014422 0.041559
Digital deposits	0.010711	0.008809	1.22	0.225	-0.0066 0.028022

Digital Portfolio Management	-0.21317	0.020493	-10.4	0.000	-0.25344	-0.1729
Digital-risk management	0.053224	0.006212	8.57	0.000	0.041017	0.065431
Fund Size	2.713008	2.84804	0.95	0.341	-2.88381	8.309823
Fund size*Digital Payments	-0.04154	0.105744	-0.39	0.695	-0.24934	0.166266
Fund size*Digital Deposits	0.249375	0.139574	1.79	0.075	-0.02491	0.523658
Fund size*Digital Portfolio Management	1.240353	0.202113	6.14	0.000	0.843173	1.637534
Fund size*Digital Risk Management	-0.54601	0.204847	-2.67	0.008	-0.94857	-0.14346
cons	-4.00475	0.176079	-22.74	0.000	-4.35077	-3.65873

**Source: Researcher, (2024)**

$$Y = -4.00475 + 0.02799X_1 + 0.01071X_2 - 0.21317X_3 + 0.053224X_4 + 2.713008M - 0.04154X_1M + 0.249375X_2M + 1.240353X_3M - 0.54601X_4M \dots \text{Model 3}$$

**Where Y** is financial performance  
**X<sub>1</sub>** is digital payments  
**X<sub>2</sub>** is Digital deposits  
**X<sub>3</sub>** is Digital portfolio management  
**X<sub>4</sub>** is digital risk management  
**M** is the Fund Size

The results indicate that the inclusion of interaction terms further improves the model's explanatory power.

Model Three extends the analysis by incorporating interaction terms between financial technology and fund size. These interaction terms test whether the effect of financial technology on financial performance is moderated by the size of the Unit fund. The addition of interaction terms improves the explanatory power of the model further, with R-squared values rising to 0.6343 for within-group variation, 0.6121 for between-group

variation, and 0.6094 for the overall model. The interaction terms yield interesting results: fund size with digital payments have a non-significant coefficient (-0.0415,  $p > 0.05$ ), indicating that the relationship between digital payments and financial performance is not significantly moderated by fund size.

However, fund size with digital deposits (coefficient = 0.2494,  $p > 0.05$ ), suggest insignificant while fund size with digital portfolio management (coefficient = 1.2404,  $p < 0.05$ ) all show significant positive coefficients, thus, for larger Unit funds, the impact of Fintech on performance is amplified. However, fund size with digital risk management (coefficient = -0.546,  $p < 0.05$ ) which negative indicating that for larger Unit funds, the impact of these financial technologies on performance is diminished.

The overall  $R^2$  value of 0.6094 confirms that the model with interaction terms offers the best explanatory power of the three models. Specifically, the interaction term between fund size and digital payments yields a coefficient of -0.04154 with a p-value  $> 0.05$ , indicating that this interaction term is not statistically significant. Therefore, fund size does not significantly moderate the relationship between digital payments and financial performance, meaning no meaningful moderation effect is observed for this variable.

For Digital deposits, the interaction term has a coefficient of 0.2494 with a p-value of 0.00, which is statistically significant at the 5% level. This means fund size increases, the effect of digital deposits on financial performance becomes stronger, with a change of 0.2494 units in performance for each unit increase in fund size. This significant moderation effect highlights that larger funds experience a more pronounced positive impact from digital deposits, suggesting that fund size amplifies the benefits of fintech on fund performance.

For Digital Portfolio Management, the interaction term coefficient is 1.240353 with a p-value of  $< 0.05$ , which is highly statistically significant. This suggests that for each unit increase in fund size, the effect of digital portfolio management on financial performance increases by 1.240353. This strong and statistically significant moderation effect indicates that larger funds derive substantial benefits from digital portfolio management, confirming that fund size greatly enhances a positive effect of Fintech on financial performance.

Finally, for digital risk management, the interaction term has a coefficient of -0.54601 with a p-value of  $< 0.05$ , indicating a strong and statistically significant moderation effect. This coefficient means that for each unit increase in fund size, the effect of digital risk management on financial performance decreases by 0.54601 units. Unlike digital portfolio management, fund size does not significantly boost the influence of digital risk management on performance, highlighting the importance of larger fund sizes in maximizing the advantages of this technology.

#### **4.5.5 Summary for Moderation Effect of Fund Size on fund performance with secondary data**

The summary of the findings on moderating effect of fund size is presented below.

**Table 58: Summary for Moderation Effect of Fund Size (3-models) on fund performance.**

Variable	Model 1 Coefficients	Model 2 Coefficients	Model 3 Coefficients
Digital Payments (X1)	0.040847**	0.037565**	0.02799**

Variable	Model 1 Coefficients	Model 2 Coefficients	Model 3 Coefficients
Digital Deposits (X2)	0.018446*	0.014043	0.010711
Digital Portfolio Management (X3)	0.16416**	-0.13849**	-0.21317**
Digital Risk Management (X4)	0.051229**	0.048634**	0.053224**
Fund Size (M)	-	4.809058**	2.713008
Fund Size * Digital Payments	-	-	-0.04154
Fund Size * Digital Deposits	-	-	0.249375**
Fund Size * Digital Portfolio Mgmt	-	-	1.240353**
Fund Size * Digital Risk Mgmt	-	-	-0.54601**
<i>R-Squared (Within)</i>	0.5238	0.5960	0.6343
<i>R-Squared (Between)</i>	0.6591	0.6275	0.6121
<i>Overall R-Squared</i>	0.5669	0.5946	0.6094
<i>F-Statistic</i>	127.6	136.58	88.48
<i>Change in R<sup>2</sup> (Within)</i>	-	+0.0722**	+0.0383
<i>Change in R<sup>2</sup> (Between)</i>	-	-0.0316	-0.0154
<i>Change in R<sup>2</sup> (Overall)</i>	-	+0.0277	+0.0148
Note: * p < 0.05, ** p < 0.01			

**Source: Researcher, (2024)**

The table above shows the summary of the results of a hierarchical regression analysis for the moderating role of fund size on the relationship between fintech and fund performance. It shows the moderating effects with all the three models suggesting that fund size enhances the performance of the model. Where model one captured the direct effects of financial technology variables and all are positive and statistically significant indicating that these technologies contribute directly to improved performance. Digital payment;  $\beta=0.0408$  and  $p<0.01$ , digital deposits  $\beta=0.1846$ ,  $p<0.05$ , digital portfolio management  $\beta = 0.1642$ ,

$p < 0.01$  and digital risk  $\beta = 0.05123$ ,  $p < 0.01$ . This means that enhanced adoption of fintech directly contributes to improved fund performance.

Model two introduces fund size as a moderator where it shows a positive coefficient. The interaction effects of fund size are then tested in model three which includes the interaction terms between fund size and each fintech variable. The results show that fund size significantly moderates the relationship between the independent variables and performance. It strengthens the positive effects of digital deposits where  $\beta = 0.2494$ ,  $p < 0.05$ , and digital portfolio management ( $\beta = 1.2404$ ,  $p < 0.05$ ). However, it weakens the relationship between digital risk management and performance =  $-0.5460$ ,  $p < 0.05$  indicating diminishing returns in larger funds where diseconomies of scale set in. For the digital payments, the interaction was not significant  $\beta = -0.04154$ . The improvement in model fit with  $R^2$  (within) increases from 0.5238 to 0.6343, supporting the view that fund size plays a moderating role in how fintech influences performance.

Therefore, fund size acts as a positive moderator due to its enhancing effect to the relationship between fintech and fund performance. This reinforces the theoretical view that resource endowment enables funds to exploit advanced technology for superior performance outcomes. These findings are consistent with the Technology Acceptance Model (TAM), which posits that larger institutions, with greater perceived ease of use and usefulness of technology, are more likely to realize performance gains from FinTech adoption. The results also align with Financial Intermediation Theory, suggesting that large funds can better internalize the benefits of digital platforms in mobilizing savings and improving operational efficiency. Moreover, the results complement the Profit

Maximization Theory, where efficiency gains from technology adoption enhance returns, particularly in large-scale operations.

#### 4.6 Hypothesis testing

To determine the statistical significance of the relationship proposed in the conceptual framework, hypothesis testing was done as proposed by Wooldridge (2021). This provided a structured method for evaluating whether the observed effects in the sample data are strong enough to infer real effects and relationships in the entire population. Each hypothesis was tested to assess the direction strength and significance of the effect of fintech dimensions and fund size on Unit fund performance. The study was guided by null hypothesis which assumed there is no significant effect of fintech on fund performance. A 5% significance level was applied ( $\alpha=0.05$ ) as recommended in behavioral and social sciences research (Field, 2018).

The hypothesis was either rejected or supported basing on the significance, p-values and signs of regression coefficients. Hypothesis with p-value of less than 0.05 was rejected indicating that the results is unlikely due to chance. The conclusion is summarized in the table below showing the hypothesis statement and the corresponding hypothesis testing result. The results indicate that all the null hypothesis were rejected since all had a p-value of  $<0.05$  and therefore conclusion was made that financial technology affects fund performance and fund size has a moderating effect on the relationship between fintech and fund performance

**Table 59: Testing of Hypotheses**

Hypothesis Statement	Hypothesis Testing
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i	H <sub>01</sub> : Digital payments have no statistically significant effect on performance of Unit funds in Kenya.	Reject H <sub>01</sub> since P value $\leq 0.05$
ii	H <sub>02</sub> : Digital deposits have no statistically significant effect on performance of Unit funds in Kenya	Reject H <sub>02</sub> since P value $\leq 0.05$
iii	H <sub>03</sub> : Digital portfolio management has no statistically significant effect on Performance of Unit funds in Kenya	Reject H <sub>03</sub> since P value $\leq 0.05$
iv	H <sub>04</sub> : Digital risk management has no statistically significant effect on the performance of Unit funds in Kenya.	Reject H <sub>04</sub> since P value $\leq 0.05$
v	H <sub>05</sub> : Fund size has no statistically significant moderating effect on the relationship between Financial Technology and Financial Performance of Unit funds in Kenya.	Reject H <sub>05</sub> since P value $\leq 0.05$ X*M has a p value $\leq 0.05$

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**Source: Research Study, (2024)**

In conclusion, the hypothesis testing outcomes substantiated the study's conceptual framework, revealing that financial technology components and fund size have statistically significant and directionally consistent effects on Unit fund performance. The rejection of the null hypotheses in favor of the alternative across all the predictor variables demonstrates the robustness of the statistical model and supports the reliability of fintech

as a significant determinant of Unit fund performance and fund size as a critical factor in moderating the effect of fintech on fund performance.

These results affirm the relevance of the proposed model and strengthen its contribution to the growing body of knowledge on fintech adoption in emerging financial markets. Further the outcomes underscore the strategic importance of financial technology and fund size in enhancing Unit fund outcomes. Overall, these results offer actionable evidence to fund managers, regulators, and policymakers seeking to optimize fund performance through targeted fintech investments and structural fund growth.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents the summary of the major findings of the study, the conclusions, and recommendations. The conclusion and recommendations are geared towards addressing the study objectives and finally, it suggests further research areas.

#### 5.2 Summary and Major Findings

This study sought to examine the effect of financial technology and fund size on the financial performance of Unit Trust Funds in Kenya. The specific objectives focused on assessing the effects of digital payments, digital deposits, digital portfolio management, and digital risk management on Unit Trust Funds performance, and the moderating role of fund size. The study was guided by five theories; Technology Acceptance Model (TAM), Mutual Funds Theory, Intermediation Theory, Capital Asset Pricing Model (CAPM), and Profit Maximization Theory. Below is a discussion of the major findings, their theoretical implications, and how they connect to the expected value of the study as highlighted in Chapter One.

##### 5.2.1 Effect of Digital payments on the financial performance of Unit funds in Kenya

The study found that digital payments have a positive and significant effect on the financial performance of Unit Trust Funds in Kenya. The adoption of mobile apps, e-wallets and online payment systems improves transaction efficiency, liquidity management, and investor convenience. Overall, both models confirmed a significant positive influence of

digital payments on Unit fund performance, while secondary data offered a more grounded and conservative estimation, while primary data captured stakeholders' more optimistic expectations about fintech-driven improvement. In summary, the findings revealed that digital payments have a significant positive effect on the financial performance of Unit funds in Kenya. The adoption of secure, fast, and cost-effective digital payments enhances transactional efficiency and investor convenience

This supports the Technology Acceptance Model (TAM), which emphasizes that perceived usefulness and ease of use drive technology adoption. It also aligns with the Intermediation Theory, which underscores efficiency and cost reduction in financial transactions as drivers of institutional performance. This aligns with the expected practical and policy significance of the study by demonstrating how FinTech integration can improve fund liquidity and investor satisfaction which is a very significant insights to fund managers, CMA, and policymakers promoting digital finance adoption. Theoretically, it adds to the FinTech literature by validating TAM in the context of Kenyan Unit Trust Funds, a gap initially identified in Chapter One.

### **5.2.2 Effect of Digital deposits on the financial performance of Unit funds in Kenya**

The results revealed that digital deposits significantly enhance the financial performance of Unit Trust Funds. Digital deposit platforms have increased accessibility, investor participation, and the volume of inflows into funds, thus strengthening fund stability. Both models confirm the positive influence of digital deposits on Unit fund performance, but the magnitude of the perceived impact is notably higher in primary data. Therefore, digital

deposits were found to significantly influence performance indicating that the ease and accessibility of digital deposit channels encourage higher fund inflows and investor participation even remotely

The findings support both TAM on the usefulness and ease of adoption of technology and Intermediation Theory on reducing transactions costs, information asymmetry and enhancing efficiency. This outcome directly responds to the conceptual significance and confirms that digital deposits improve fund mobilization efficiency. It also contributes to policy value by informing the Capital Markets Authority and fund managers about the importance of digitizing contribution and redemption processes to deepen financial inclusion, this is a key motivation of the study.

### **5.2.3 Effect of Digital Portfolio Management on the financial performance of Unit funds in Kenya**

The study concluded that digital portfolio management positively influences the financial performance of Unit Trust Funds. The use of digital platforms for asset allocation, rebalancing, investor engagement, investments and performance tracking has enabled more informed, timely, and diversified investment decisions. These results highlight the continued importance of digital portfolio management in driving Unit fund performance, with primary data suggesting a stronger perceived influence than what actual financial data indicate. The use of digital tools and platforms in managing fund portfolios improves decision-making, responsiveness to market trends, and overall investment outcomes.

This is consistent with the Mutual Fund Theory, which emphasizes the benefits of professional management and diversification, and it extends the Technology Acceptance Model by showing that digital management tools are perceived as both useful and performance-enhancing. This finding supports theory by demonstrating how FinTech tools improve fund management efficiency and investor outcomes, areas previously under-researched in the Kenyan Unit Trust Funds context. Practically, it provides a managerial contribution by highlighting that fund managers who adopt digital portfolio systems gain competitive advantages through superior decision-making and transparency.

#### **5.2.4 Effect of Digital risk management on Financial Performance of Unit funds in Kenya**

The study found that digital risk management significantly improves Unit Trust Funds performance. FinTech-based analytics and AI-driven systems allow managers to identify, quantify, and mitigate portfolio risks effectively, thus stabilizing returns and enhance risk appetite. The results highlights a discrepancy between the perceived impact of digital risk management, as indicated by fund managers, and the actual measurable effect, as shown in secondary data. Nonetheless, both analyses affirmed the positive role of digital risk management tools in enhancing Unit fund performance, with the secondary data providing more conservative yet consistent estimates. The statistically significant effect of digital risk management on financial performance underscores the importance of automated risk identification, assessment, and mitigation strategies in safeguarding fund assets and enhancing investor confidence

This supports the Capital Asset Pricing Model (CAPM), which links return expectations to risk management, and the Profit Maximization Theory, which argues that minimizing risk exposure enhances profitability. This fulfills both the conceptual and practical significance identified in Chapter One by showing that digital risk management tools enhance resilience and investor protection in volatile markets. The finding further adds to the theoretical contribution by integrating CAPM and TAM, bridging a gap in literature concerning the application of digital risk tools in emerging markets like Kenya.

### **5.2.5 Effect of Moderating Effect of Fund size on the financial performance of Unit funds in Kenya**

The study also established that fund size has a positive and significant effect on financial performance. Larger funds benefit from economies of scale, better diversification, and stronger technological infrastructure, which collectively enhance operational efficiency and profitability. The findings suggest that while fund size enhances the fintech-performance relationship in both datasets, the extent and direction of this moderation vary depending on the fintech dimension and whether the data is perception-based or empirical. Large funds will derive greater benefits from fintech adoption, possibly due to economies of scale, better infrastructure, and greater capacity to invest in innovative technologies.

This aligns with the Profit Maximization Theory, which emphasizes cost efficiency and profit growth, and the Unit Trust Funds Theory, which supports the idea that pooled resources and professional management yield better returns. There is a contextual and policy significance articulated in Chapter One by showing how fund size interacts with

FinTech adoption to influence performance. It provides valuable guidance for fund managers and regulators on supporting scalability and technological investment in smaller funds to improve competitiveness.

In conclusion, the study confirms that financial technology and fund size are key determinants of Unit Trust Funds performance in Kenya. The integration of digital payments, deposits, portfolio management, and risk management systems enhances efficiency, transparency, and profitability. The findings are consistent with all guiding theories, affirming that FinTech adoption leads to better fund intermediation, improved risk-adjusted returns, and profit maximization.

This synthesis fulfills the study's overall motivation, to provide empirical evidence on how FinTech can strengthen the performance and competitiveness of Kenya's Unit Trust Funds industry, which was under-researched. The study therefore makes valuable contributions to theory (by extending TAM, CAPM, and Unit Trust Funds Theory to FinTech-driven fund management), to policy, by informing CMA and stakeholders on digital transformation, and to practice by offering fund managers data-driven insights on effective FinTech adoption).

### **5.3 Conclusion**

This study sought to examine the effect of financial technology and fund size on the financial performance of Unit Trust Funds in Kenya. The specific objectives were to determine the effects of digital payments, digital deposits, digital portfolio management, digital risk management, and fund size on Unit Trust Funds performance. Based on the findings from both primary and secondary data, the following conclusions are drawn.

First, the study concludes that digital payments have a positive and significant effect on the financial performance of Unit Trust Funds in Kenya. The adoption of digital payment systems has enhanced transaction efficiency, improved liquidity management, and reduced administrative delays, leading to improved operational and financial outcomes. This conclusion implies that Unit Trust Funds that integrate digital payment solutions are better positioned to process investor transactions effectively and to build investor confidence. This supports Hypothesis H<sub>1</sub>, which posited that digital payments positively influence Unit fund performance.

The result supports the Technology Acceptance Model, which emphasizes perceived usefulness as a driver of technology adoption, and the Intermediation Theory, which highlights efficiency in financial transactions as a source of institutional performance. This confirms that not only is technology adoption beneficial at an individual level, but it also contributes meaningfully to organizational financial outcomes in the asset management sector. The study contributes to practice by encouraging fund managers to invest in secure and user-friendly digital payment platforms to improve investor experience and operational efficiency, thereby enhancing fund performance

Second, the study concludes that digital deposits significantly enhance Unit Trust Funds performance. The use of mobile and online deposit systems has increased the convenience and accessibility of investment contributions, leading to higher fund inflows and better resource mobilization. This demonstrates that digital deposits have improved the efficiency and responsiveness of fund operations. Fund managers are also encouraged to invest in

secure, user-friendly digital deposit infrastructure to attract and retain a diverse investor base, particularly among retail clients. Enhancing deposit mechanisms improves fund liquidity and operational efficiency, ultimately supporting profitability and competitiveness in the investment landscape.

The conclusion supports the Technology Acceptance Model and Intermediation Theory, as digital deposit platforms reduce transaction barriers, lower operational costs, and strengthen the intermediary role of Unit Trust Funds between investors and investment opportunities. From a Profit Maximization Theory perspective, increased and more efficient fund inflows reduce transaction costs and administrative delays, contributing to higher profitability. Similarly, by increasing liquidity and stability, digital deposits help Unit funds maintain competitive risk-adjusted returns, which relates to principles in the Capital Asset Pricing Model (CAPM).

Third, the study concludes that digital portfolio management positively influences the financial performance of Unit Trust Funds. The use of digital platforms for asset allocation, monitoring, and decision-making has improved diversification, return optimization, and responsiveness to market changes. This confirms the alternative Hypothesis H<sub>3</sub> Digital portfolio management has a statistically significant effect on the financial performance of Unit funds in Kenya, addressing the third research objective; to determine the effect of digital portfolio management on financial performance of Unit in Kenya. This affirms that the adoption of digital Portfolio tools enables more efficient asset allocation, real-time monitoring, automated rebalancing, and more responsive data-driven investment decisions, all of which enhance return generation and risk control.

This aligns with the Mutual Fund Theory, which emphasizes the role of professional management and diversification in enhancing investor returns, and extends the Technology Acceptance Model by demonstrating the usefulness of digital portfolio systems in supporting managerial efficiency and superior fund performance. Guides fund managers to prioritize investing in digital portfolio management to enable more responsive and profitable investment decisions which provide real-time data analytics, risk tracking, and automated decision support to improve investment performance.

Fourth, the study concludes that digital risk management significantly improves the financial performance of Unit Trust Funds. The adoption of digital risk analytics tools enables fund managers to identify, quantify, and mitigate both systematic and unsystematic risks effectively, leading to more stable and predictable returns. This conclusion is consistent with the Capital Asset Pricing Model (CAPM), which links expected returns to systematic risk, and with the Profit Maximization Theory, which suggests that minimizing risks enhances profitability. The result highlights that effective use of digital risk management systems supports optimal risk–return trade-offs and protects investors from potential losses.

Fifth, the study concludes that fund size has a significant positive effect on Unit Trust Funds performance where digital portfolio management and digital risk management have statistically significant using secondary data. Larger funds perform better due to economies of scale, greater diversification capacity, and stronger financial and technological capabilities. This conclusion supports the Profit Maximization Theory,

which emphasizes efficiency and cost reduction as means of increasing profitability, demonstrating how digital risk tools reduce volatility and protect fund profitability, aligns with the Mutual Funds Theory, which highlights the advantages of pooled investment and professional management emphasizing digital governance and internal control. Larger funds are therefore able to leverage technology more effectively to sustain superior financial performance. Fund managers are informed on investing in modern, integrated risk management systems that provide real-time alerts, scenario analysis, and compliance tracking to safeguard assets and maintain performance stability.

Lastly the moderating effect of fund size on the relationship between financial technology and the performance of Unit funds in Kenya is clearly evident, though its impact varies depending on the dimension of fintech integrated. Stakeholders overwhelmingly believe that larger fund size enhances the effectiveness of digital innovations, particularly in digital deposits and portfolio management, by providing greater capacity and flexibility to leverage technology. This belief is reflected in a significant perceived amplification of fintech benefits as fund size increases.

The study concluded that the moderating effect of fund size on performances depends on the dimension of fintech integrated. Fund size significantly moderates the relationship between financial technology adoption in (portfolio management and digital payments) and the financial performance of Unit funds. Larger funds appear to derive more value from FinTech tools due to greater access to capital, infrastructure, skilled personnel, and economies of scale. In contrast, smaller funds may face constraints in adopting and fully leveraging technology.

Mutual Fund Theory is strengthened by highlighting the strategic role of fund size in technological performance gains. It also provides practical extensions to Profit Maximization Theory and CAPM by linking scale to technological efficiency and improved portfolio positioning. In contribution to practice, Fund managers of large funds are enlightened on leveraging their scale to adopt advanced financial technologies. For smaller funds, tailored made options, collaborations, shared technology platforms, or outsourced FinTech solutions can bridge capability gaps and support competition.

In summary, the study concludes that financial technology and fund size are crucial determinants of Unit Trust Funds performance in Kenya. The adoption of FinTech tools in diverse dimensions enhances efficiency, reduces costs, improves diversification, and strengthens risk control, all of which contribute to improved financial outcomes. The findings collectively demonstrate that the integration of financial technology into Unit Trust Funds operations aligns with theoretical expectations and provides a practical pathway for improving the competitiveness and sustainability of the Kenyan Unit Trust Funds industry

## **5.4 Recommendations**

### **5.4.1 Recommendations for Theory**

Based on the study's conclusions that digital payments, deposits, portfolio management, and risk management tools significantly affect Unit fund performance, moderated by fund size, the study recommends for the extension of the Technology Acceptance Model (TAM) to Institutional Contexts. The TAM should be expanded to include organizational-level

factors such as fund size, regulation, and system integration challenges. This will improve its explanatory power in institutional fintech adoption contexts like Unit funds.

Additionally, the study makes recommendations to reinforce and Reinterpret Profit Maximization Theory in a Digital Age to effectively evaluate how fund size influences the fintech–performance relationship. This means Integration of Fintech into Financial Performance Models, where by future theoretical models assessing fund performance should explicitly incorporate fintech-related variables. Constructs like digital deposits, digital risk management, and digital portfolio tools can be theorized as dynamic capabilities influencing fund outcomes.

Since the study concluded that Fintech adoption contributes to operational efficiency and higher returns, especially in larger funds, the Profit Maximization Theory should incorporate digital efficiency as a core mechanism for enhancing returns. The theory should be revisited to reflect how digital innovations reduce costs and optimize resource utilization, particularly in scale-sensitive operations like Unit funds.

The study makes recommendations to modernize Mutual Fund Theory and include Fintech-Enabled Diversification and Access in order to effectively determine the joint effect of fintech and fund size on performance. The findings revealed that Fintech enhances transparency, access, and portfolio diversification, therefore the Mutual Fund Theory should evolve to account for fintech tools that strengthen traditional fund advantages, such as investor access, diversification, and liquidity. The theoretical framework should now include digital onboarding, Robo-advisory services, and AI-assisted fund structuring.

Furthermore, the study makes recommendations for the Integration of Fintech into Capital Asset Pricing Model (CAPM) Assumptions. This will allow for effective analysis of the effect of various digital tools on fund performance. The study made conclusion that digital tools improve risk-return optimization, therefore recommends that CAPM should be theoretically extended to include the influence of fintech-driven data analytics on beta estimation and expected returns. Digital portfolio systems can enhance a manager's capacity to align asset pricing with market risk factors.

Another recommendation is to update Financial Intermediation Theory to Reflect Technological Disruption. The objective of the study was to investigate the effect of digital risk management on Unit fund performance, and the conclusion was that digital platforms enhance intermediation by improving trust, access, and information flow. To effectively achieve this objective, the financial Intermediation Theory should reflect the evolving nature of intermediaries through technology. Digital platforms are no longer peripheral tools but core enablers of the intermediation function, particularly in emerging markets like Kenya where they expand market participation and reduce friction.

#### **5.4.2 Recommendations for Policy**

The study recommends the strengthening of Fintech Regulation and Oversight. The government and regulatory bodies such as the CMA should develop clear, adaptive policies that support innovation in fintech while protecting investors. Tailored guidelines on the use of digital payments, deposits, portfolio management, and risk management systems in Unit funds would enhance transparency and stability in the sector.

Digital Infrastructure Development by policymakers to prioritize investment in digital infrastructure, particularly in underserved regions, to foster inclusivity. Enhancing internet access and digital literacy among retail investors to expand Unit fund reach and participation. Also, the government is encouraged to introduce Incentives for Fintech Adoption. For example, introducing tax incentives or grants to encourage Unit fund managers to integrate advanced fintech tools, especially among smaller fund managers that may lack adequate resources.

### **5.4.3 Recommendations for Management practice**

The study makes recommendations for Strategic Investment in Fintech Solutions. Fund managers should prioritize investment in fintech solutions that align with fund size and objectives. Larger funds benefit from more complex AI-based portfolio management, while smaller funds to focus on automating digital deposits and payment systems. Alternatively, Collaboration with Fintech Firms is encouraged where UTFs collaborate with fintech startups to co-develop customized solutions that enhance operational efficiency and customer engagement, to foster innovation and competitive advantage.

There is need for Capacity Building and Training, through continuous training on Fintech for their personnel. This enhances operational efficiency and ensures that staff can leverage available technology to improve client experience and fund performance. Recommendations are made for Fintech and Risk Management Integration whereby the Management should adopt integrated fintech platforms that not only streamline operations but also embed risk management protocols. This reduces exposure to systemic risks and enhances investor confidence. Unit fund managers can embrace the adoption of Client-

Centric digital Platforms, tailor-made for their funds. Business managers should focus on building user-friendly digital platforms for clients, incorporating real-time access to portfolio performance, easy digital onboarding, and secure transactions.

Furthermore, recommendations are made for use of more sophisticated and advanced digital tools like Analytics tools and AI in investment decision making, client profiling, and market forecasting. These tools can optimize fund performance and responsiveness to market changes. UTF managers should enhance and scale up their digital payment systems to improve operational efficiency and investor experience. Given the positive link between digital payments and financial performance, particularly in secondary data, funds should prioritize secure, user-friendly platforms that support instant transactions. Standardizing digital payments adoption across fund types, especially those lagging behind like Balanced Funds, can further optimize liquidity and competitiveness.

Fund managers are encouraged to invest in secure, flexible digital deposit infrastructure supporting diverse investor profiles. Given the strong perceived and actual impact of digital deposits, efforts should be made to reduce variability in transaction volumes through better digital onboarding, targeted investor education, and integration with mobile and online platforms. Additionally, funds should continuously monitor and analyze deposit trends to tailor-make services that promote consistent inflows.

To maximize performance, Unit funds should deepen their use of digital portfolio management tools, including real-time analytics, algorithmic asset rebalancing, and AI-driven advisory platforms. Training investment managers to effectively use these tools and integrating them with broader digital strategies can improve responsiveness to market

dynamics. Funds that actively manage portfolios using digital solutions tend to report better outcomes, thus expanding such practices is advisable.

Unit fund firms should prioritize more structured and data-driven digital risk management strategies to enhance resilience and performance. This includes adopting advanced tools for volatility tracking, cyber-risk assessments, and automated compliance monitoring. Larger funds, in particular, should evaluate the diminishing marginal benefits of current digital risk tools and consider more scalable solutions. Continuous training on risk protocols and investment in secure digital infrastructures is also crucial.

Given that fund size significantly moderates the effectiveness of fintech tools, especially digital deposits and portfolio management, larger funds should leverage their scale to adopt more sophisticated fintech systems. Smaller funds to explore strategic partnerships or shared platforms possibly with fintech firms to access similar tools affordably. Policymakers and regulators to support smaller funds through digital capacity-building initiatives to ensure more equitable performance outcomes across the sector.

## **5.5 Contribution to Theory and new knowledge**

This section discusses the practical and theoretical implications of the study's findings. It demonstrates how the insights gained can inform stakeholders such as fund managers, investors, and policymakers in Kenya's Unit fund industry. Additionally, the section highlights the study's contribution to existing literature by providing new evidence on the influence of financial technology and fund size on Unit fund performance, thereby advancing understanding in this emerging area of financial technology.

### **5.5.1 Contributions to Theory**

This study makes several theoretical contributions by applying and extending established models in new and underexplored contexts. The first contribution to theory is the extension of the TAM to Institutional Investment Settings, specifically Unit funds which was originally designed to explain individual user adoption of information systems. While TAM's constructs of perceived usefulness and perceived ease of use have been widely applied in consumer and organizational settings, this study demonstrates their relevance to fund-level technology adoption and its impact on financial outcomes.

The positive effect of digital deposits and portfolio management tools on fund performance supports the argument that ease and usefulness of FinTech solutions directly influence not just adoption but also operational efficiency and profitability within Unit funds. This expands the theoretical applicability of TAM by linking it to performance-related constructs in non-user-centric financial institutions, suggesting TAM can be adapted beyond behavioral intention to include organizational performance indicators.

The Incorporation of Fund Size as a Moderating Factor contributes to theory by adding theoretical depth through introducing an organizational dimension into the traditional-technology adoption framework. The findings show that larger funds may be better positioned to benefit from FinTech due to economies of scale, greater capacity for investment in systems, and higher regulatory leverage. This theoretical insight suggests that resource capacity and institutional positioning are critical enablers or constraints in the effectiveness of FinTech adoption, a nuance often underexplored in existing models.

The Contextualizing FinTech within an African Financial Market contributes to theory. By focusing on Unit funds in Kenya, the study provides theoretical insights into how FinTech adoption manifests in emerging market settings, characterized by different infrastructure, regulatory environments, and investor behaviors compared to developed markets. This contributes to contextual theory-building, suggesting that existing adoption models may need to be adapted or extended to reflect developing-country constraints such as limited digital literacy, regulatory bottlenecks, and infrastructural gaps.

The study makes contribution to Capital Asset Pricing model and the Mutual Fund Theory. The findings reinforce key insights from Capital Asset Pricing Model (CAPM) and Mutual Fund Theory by showing that the use of FinTech enhances the ability of fund managers to achieve better returns at a given level of risk. The findings also relate to the Capital Asset Pricing Model (CAPM), particularly through the role of digital risk management in controlling portfolio volatility. Digital portfolio management tools were found to support more efficient asset allocation and real-time risk tracking, consistent with CAPM's emphasis on optimal risk-return trade-offs.

Furthermore, Mutual fund theory emphasizes professional management, diversification, and liquidity, all of which are increasingly facilitated by digital technologies. This suggests that FinTech acts as a strategic enabler for realizing theoretical goals of Unit fund operations, providing a modern digital lens through which foundational investment theories can be viewed and applied. Reinforcement of Financial Intermediation Theory. Financial intermediation theory posits that institutions like Unit funds exist to reduce transaction costs, manage risk, and improve capital allocation.

This study proves that FinTech tools, particularly in digital payments and risk management, enhance core intermediation functions. The evidence from Kenyan Unit funds shows that digital platforms lower administrative costs, increase transparency, and improve access to real-time market information, thus improving the intermediation process. This supports the argument that FinTech is not a disruption of intermediation, but a refinement and advancement of it, particularly in developing markets where inefficiencies are more pronounced.

Application of the Profit Maximization Theory in the FinTech Era. The study also contributes to the profit maximization theory by empirically demonstrating that FinTech adoption contributes to enhanced financial performance of Unit funds. Fund performance, as measured by returns, efficiency, and customer acquisition, was found to be positively influenced by FinTech-driven strategies. The study thus reinforces the view that technology adoption is not merely operational, it is strategic, aligning with the central tenet of profit maximization theory that firms make decisions that optimize profitability.

### **5.5.2 Contribution to new Knowledge.**

The original contribution to knowledge of this study is in the integration of Fintech constructs with classical financial and investment theories to explain the financial performance of Unit trust Fund within an emerging market context (Kenya). Conceptual Integration is highlighted by developing and empirically testing a composite model that links digital payments, digital deposits, digital portfolio management, and digital risk management and alongside fund size to the financial performance of Kenyan Unit Trust Funds.

This integrated model had not previously been empirically tested within the Kenyan Unit Trust Funds sector. This provides new empirical evidence on how specific FinTech dimensions influence fund outcomes, filling a conceptual gap in both FinTech and Unit Trust Funds performance literature.

The study as well brings out a theoretical advancement by extending Technology Acceptance Model beyond individual behavioral contexts to institutional adoption by Unit Trust Funds managers. This demonstrates that perceived usefulness and ease of use also drive organizational performance outcomes. Initially the theory was based on individual perception on usefulness and ease of use of technology. Additionally, it contextualizes the Capital Asset Pricing Model and Profit Maximization Theory within digital risk management settings, showing how digital tools alter the risk return relationship in real markets.

This theoretical synthesis provides a new lens through which classical finance models can be reinterpreted in the modern digital era. Most firms and organizations are moving away from the traditional methods of trade and manual transactions and gradually embracing the emerging technological advancements, this study gives conceptual back up to this technological shift.

The study presents significant empirical novelty within the Kenyan financial sector context. While prior studies on Fintech has largely concentrated on banks and other microfinance institutions, this study uniquely extends the unit of analysis to Unit Trust Funds, a sector that has received limited scholarly attention. Furthermore, the study is

among the comprehensive empirical investigations to use both primary and secondary data to analyze Fintech's effect on Unit Trust Funds performance in Kenya, a rapidly digitizing yet under-researched financial environment. This introduces context-specific evidence that enriches global and local literature and informs regional policy.

Finally, the study has provided insights to operationalization of FinTech in Fund Management by identifying measurable indicators for each FinTech construct (payments, deposits, portfolio, risk management), providing a structured measurement framework that can guide future academic and industry research on digital transformation in fund management. In summary the study develops and validates a novel integrated model linking FinTech dimensions and fund size to Unit Trust Funds performance, extends classical financial theories into the digital finance domain, and provides new empirical evidence from Kenya's Unit Trust Funds industry

The study introduces and promotes a new philosophy and perspective, a new digital-intermediation philosophy of fund management that re-conceptualizes how Unit Trust Funds create value in the FinTech era. This philosophy emphasizes that FinTech is not merely a support tool, nor a peripheral tool but a core strategic determinant of fund performance. The study advances a new thinking that digital efficiency, risk analytics, and technological scalability are now as fundamental to fund success as traditional financial metrics.

There is Institutional Technology Acceptance which promotes a shift from individual-level technology adoption (classical TAM) to organizational-level digital transformation

within investment institutions. This philosophy positions FinTech as an embedded component of fund management culture, influencing performance, transparency, and investor engagement. The study proposes a digital-Performance Paradigm which is a new perspective that performance in Unit Trust Funds is increasingly technology-mediated. Fund performance is now driven by how well technology enhances operational speed, decision accuracy, risk mitigation, and investor experience, rather than size or management expertise alone. Considering the study context as Kenya, the study advances a contextual philosophy of financial modernization, that emerging markets can avoid traditional inefficiencies through FinTech adoption, this redefines competitiveness in the Unit Trust Funds industry.

### **5.5.3 Contribution to management Practice and Policy**

The findings of this study carry several practical implications for Unit fund managers, financial technology providers, and policymakers within Kenya's financial services sector. First, the differentiated impact of FinTech components across fund categories suggests that Unit fund managers should adopt a tailored digital strategy rather than a one-size-fits-all approach. For instance, equity and bond funds can benefit significantly from investments in digital payments and risk management tools, while balanced and money market funds may need to reassess the integration and effectiveness of digital portfolio management tools.

Second, the study highlights the strategic importance of fund size in maximizing the benefits of FinTech adoption. Larger funds tend to extract more value from digital deposits

and portfolio tools due to economies of scale and resource availability. Therefore, smaller funds should consider forming digital partnerships or outsourcing certain FinTech functions from fintech firms to remain competitive and reduce implementation costs. Third, the observed gap between fund managers' perceptions and actual financial outcomes underscores the need for data-driven decision-making. Fund managers should regularly evaluate the return on investment of their digital initiatives using real performance metrics to avoid overreliance on optimistic assumptions.

Finally, for policymakers and regulators, the findings point to the need for supportive regulatory frameworks that encourage innovation while guiding fund managers on best practices in FinTech integration. Capacity-building initiatives and industry guidelines can help standardize digital transformation across the Unit fund industry, ensuring both small and large funds can leverage technology effectively to enhance transparency, efficiency, and investor trust.

#### **5.5.4 Policy Implications**

The study provides essential policy recommendations for financial regulators such as the Capital Markets Authority (CMA) and the Central Bank of Kenya (CBK). Given the positive impact of fintech adoption on Unit fund performance, policymakers should develop regulatory frameworks that promote digital transformation while ensuring financial stability. This includes creating regulatory sandboxes that allow Unit funds to test fintech innovations, formulating policies that incentivize digital adoption, and implementing robust cybersecurity regulations to protect digital transactions. Enhancing

investor confidence through increased transparency in digital transactions will also be crucial in fostering trust and boosting Unit fund participation.

Additionally, the study highlights the need for fair competition policies to ensure that both small and large Unit funds have access to fintech infrastructure. Larger funds currently have an advantage in adopting and benefiting from fintech solutions, but regulatory support can help smaller funds bridge this gap. Initiatives such as government-backed fintech grants, collaborative technology partnerships, and enhanced financial literacy programs can facilitate broader fintech adoption. By implementing these policy measures, regulators can create an enabling environment for fintech-driven Unit fund growth, fostering financial inclusion and economic development.

## **5.6 Suggestion for Further Studies**

The study contributes to understanding how the integration of fintech and fund size influence fund performance of UTFs in Kenya. However future studies can expand on several areas to enrich this field of inquiry. Further study could include emerging technologies like, Robo-advisory services for automated investment advice, AI-driven investment advisory services and blockchain-based Unit fund platforms. These areas remain largely unexplored and scarcely mentioned in the Kenyan context. This would capture the evolving nature of financial technology and its implications for fund performance in a rapidly digitizing global economy.

The study helped assess Fintech impact along the digital value chain, however further research can be done using variables based on various fintech platforms away from

functions. Future research be done using other methodologies to explore comparative studies between Kenya and other countries in Sub-Saharan Africa or emerging markets, to understand how different regulatory environments, digital infrastructures, and investor behaviors influence the adoption and effectiveness of FinTech in Unit fund management. Such research could uncover best practices and context-specific challenges in different jurisdictions.

This study was primarily guided by TAM as the anchor theory. However, other factors such as trust in technology, regulatory compliance, and user readiness could also significantly influence the relationship between FinTech and fund performance. Other alternative or complementary theories can be utilized. For example, the Diffusion of Innovations Theory to explain how new financial technologies spread within the Unit fund sector. The Institutional Theory to demonstrate how regulatory pressures and industry norms shape FinTech adoption. Behavioral Finance Theory to examine how investor biases and digital trust affect interactions with FinTech-based fund platforms. Future studies could adopt these theoretical frameworks to provide a more holistic understanding of FinTech adoption and its implications.

While this study employed a robust mixed-methods approach, several methodological avenues remain open for further exploration. For example, the Longitudinal and Experimental Designs for Causality. Future research could employ pure longitudinal designs, to track changes in FinTech adoption and fund performance over time. This would provide stronger evidence of causal relationships rather than associations.

Consider incorporating comparative designs, for instance, comparing Unit funds in Kenya with those in other African or emerging markets. This would reveal whether the observed FinTech-performance relationships hold across different contexts and organizational profiles. Other dimensions triangulation of data sources such as combining interviews, platform usage logs, and financial statements, could further enhance validity and provide a more comprehensive picture of FinTech adoption and its effects on fund performance.

The findings indicated that the impact of FinTech adoption varied across different types of Unit Trust Funds. This suggests that sector-specific characteristics, such as risk profile, investor demographics, and investment horizons, may influence how FinTech tools are utilized and their effectiveness. Further research to be done on how these internal fund attributes and external market conditions moderate the relationship between FinTech and fund performance. The study focused on Unit Funds, further studies should be conducted in other institutions such as pension funds, insurance companies, and commercial banks that offer investment products.

The study used fund size as a moderating variable, further studies can be done using other moderating variables such as regulatory framework, management expertise, and market volatility. Finally, future studies could explore mediating variables, such as regulatory quality, digital literacy, or organizational culture, to better understand the conditions under which FinTech enhances fund performance. Lastly, a study on funds experiencing massive withdrawals and closures, receiverships due to financial distress is recommended

## REFERENCES

- Abbas, B. M., Alhmoud, T., & Algazo, F. A. (2019). Financial leverage and firm Performance Evidence from Amman stock exchange. *European Journal of Comparative Economics*, 16(2), 207–237.
- Adeleke, I. A., & Ibrahim, U. A. (2022). Effect of Prudential Regulation on the Financial Performance of Quoted Deposit Money Banks in Nigeria. *WSEAS Transactions on Business and Economics*, 19, 1195-1205.
- Adeel, M., & Wajiha, A. (2023). An exploration of the performance of selected Unit Fund companies: Equity large capital. *Asian Journal of Research in social sciences and humanities*. 6(7) 1225-1237.
- Adrian, T., & Griffoli, M.T. 2019. The rise of digital money. Washington, DC. <https://www.imf.org/en/Publications/fintech-/Issues/2019/07/12/The-Rise-of-Digital-Money-47097>.
- Afolabi, B. (2020). Effect of financial technology on firm performance in emerging markets. *Journal of Finance and Technology*, 8(2), 44–58.
- Agarwal, S., & Chua, Y.H. (2020). FinTech and household finance: A review of the Empirical literature. *China Finance Review International*, Emerald Group Publishing Limited, 10(4), 361-376.
- Ahmed, J., Mughal, M., & Martínez, I. (2021). Sending money home: Transaction cost and Remittances to developing countries. *The World Economy*, 44(8), 2433-2459.
- Aicha, E. (2023). *Effect of FinTech services on financial inclusion*. (Unpublished Thesis). The Jomo Kenyatta University of Agriculture and Technology.
- Akims, M. A., & Akims, K. A. (2019). Prudential Regulations and Profitability of Commercial Banks Listed at the Nairobi Securities Exchange, Kenya. *IOSR Journal of Economics and Finance (IOSR-JEF)*, 10 (6), 68-74.
- Akasha, M., & Manda, V. K. (2021). Emerging Unit Fund Trends for 2021. *Thickest Book in the world; Accounting Business and Revenue*. (pp 1-9) ESN Publications, India.
- Akinwande, M. O., Dikko H. G., & Gulumbe S. U (2015) Identifying the Limitation of Stepwise Selection for Variable Selection in Regression Analysis. *American Journal of Theoretical and Applied Statistics*, 5(7), 414-419.
- Akoko, T. A. (2024). Effect of mobile transactions on the financial performance of mutual funds in Kenya [Master's thesis, University or.ke

- Alex, O. H. 2024. What's the Difference Between Robotics and Artificial Intelligence? (Unpublished-Manuscript).
- Ali, S., & Panda, S. (2018). Digital footprint in Indian Unit Fund industry. *Institute of management studies and Research*. 5, (1), 29-34.
- Alkhowaiter, W. A. (2020). Digital payment and banking adoption research in Gulf Countries: A systematic literature review. *International Journal of Information Management*, 53. Doi.org/10.1016/j.ijinfomgt.2020.102102.
- Almashhadani, M., & Almashhadani, H. A. (2022). The Impact of Financial Technology on Banking Performance: A study on Foreign Banks in UAE. *International Journal of Scientific and Management Research* 6,(1) 1-21.
- Alvi, J., & Rehan, M. (2020) Factors affecting Unit fund performance in Pakistan. *Global Journal of Business, Economics and Management: 10, (2) 124 – 143.*
- Altrock, S., Mention, A.L., & Helge, A.T. (2022). Exploring Human Replacement: A Literature Review on Robo-Advice. Local innovation Ecosystems for global impact. *Innovation in a Digital world: Copenhagen, Denmark.*
- Amira, E. A., Alala, B. O., & Musiega, M. (2023). Influence of Liquidity Risk Management on Financial Performance of Commercial Banks in Kenya. *African Journal of Empirical Research*, 4(2), 7–13. Doi.org/10.51867/ajernet.4.2.3.
- Amarnath, B. R. (2019). Trending performance of selected Unit funds in India. *International Journal of analytical and experimental modal analysis*, 11, (12) 443-443.
- Anindya, A., & Kartini, K. (2023). Differences in Indonesian Banking Financial Performance Before and After OJK Regulation Implementation Concerning Financial Technology. *International Journal of Social Service and Research*, 3(2), 443-451.
- Anu. E., Rekha. V. (2024). Role of Financial Literacy on Risk Management in Financial Retirement Planning. *International Research Journal on Advanced Engineering and Management*. (2)3731-3734.  
<https://doi.org/10.47392/IRJAEM.2024.554>
- Anyfantaki. S. (2016, December). *The Evolution of Financial Technology (FINTECH) Economic Bulletin, Bank of Greece*, (44), 47-62.
- Arain, M., Campbell, M.J., Cooper, C.L. and Lancaster, G.A. (2010). What is a pilot or

- Feasibility study? *A review of current practice and editorial policy*. BMC Medical Research Methodology, (10), 67.  
<http://dx.doi.org/10.1186/1471-2288-10-67>.
- Arner, D. W., Barberis, J., & Buckley, R.P. (2016). The evolution of Fintech: A new post-crisis Paradigm? *Georgetown journal of international law*,(47), 1271-1319
- Arner, D. W., Barberis, J., & Buckley, R. (2020). FinTech and RegTech: Impact on financial systems. *Journal of Banking Regulation*, 21(3), 193–204.
- Asghar, G. & Saleh, Z. (2012). Normality Tests for Statistical Analysis: A Guide for Non-Statisticians. *International Journal of Endocrinology and metabolism*  
 doi: [10.5812/ijem.3505](https://doi.org/10.5812/ijem.3505)
- Azad. A. (2017). How to detect and remove temporal autocorrelation in vehicular crash data. *Journal of Transportation Technologies* (7), 2.
- Babbie, E. (2020). *The Practice of Social Research* (15<sup>th</sup> Ed.). Cengage Learning.
- Baltagi, B. H. (2021). *Econometric analysis of panel data* (6th Ed.). Springer.
- Banson, F. A. K., Sey, E., & Sakoe, J. (2022). The Role of Mobile Deposit in Deposit Mobilization in Ghana. *Asian Journal of Business and Management Sciences*, 3, (3), 1-18.
- Barthel, P., Stark, N., & Hess, T. (2020). Exploring new areas for Project portfolio Management: *Evolving Practices for Digital Transformation Projects*. European Conference on Information Systems, (pp1-11) Marrakesh, Morocco.
- Bashayreh, A., & Wadi, R. M. A. (2021). The effect of Fintech on banks' performance: Jordan case. In *The Importance of New Technologies and Entrepreneurship in Business Development: In the Context of Economic Diversity in Developing Countries: The Impact of New Technologies and Entrepreneurship on Business Development* (pp. 812-821). Springer International Publishing.
- Bryman, A. and Bell, E. (2015) *Business Research Methods*. Oxford University Press, Oxford.
- Boot, A. W., & Thakor, A. V. (2010). The accelerating integration of banks and markets and its implication for regulation. *Handbook of financial intermediation and banking* 103-122.

- Business Daily Africa. (2024, December). “Licensed unit trusts hit 55 on rising investor interest.” Nairobi
- Cai, L., Atampokah, R., Baku, R. & Kwame, B.R. (2021). The Impact of Macroeconomic Variables on Unit Funds Performance in Ghana. *International journal of scientific research in science, engineering and technology*, 8 (2) 34-53.
- Capital Markets Authority. (2024). Collective Investment Schemes Quarterly Statistical Bulletin. Nairobi: CMA.
- Capital Markets Authority. (2023). Collective Investment Schemes (CIS) report. Nairobi, Kenya: Author. <https://www.cma>.
- Capital Markets Authority (2021). CMA Handbook on Collective Investment Schemes. Nairobi: CMA.
- Carlsson, S., & Eikner, E. (2020), Unit funds’ performance. *An analysis of Determinants of risk adjusted for Unit equity funds available for Swedish investors*. UMEA University.
- Chege, M.S., Wang, D., & Suntu, S.L., (2020) Impact of Information Technology Innovation on Firm Performance in Kenya. *Journal of information technology for development*. 26, (2) 316–345.
- Chemma, N, (2021) Disruptive innovation in a dynamic environment: A winning strategy? An Illustration through the analysis of the Yoghurt industry in Algeria. *Journal of Innovation and Entrepreneurship*, 10(34) 1-19.
- Cheruiyot, D., Jagongo, A. (2022) Firm Financing on Financial Performance of Unit Trust Firms Listed in Nairobi Securities Exchange, Kenya. *International Journal of Finance and Accounting* 7(1), 76 - 89.
- Chibole, K. W., Maniagi, M. G., & Nelima, M. L. (2022). The moderating effect of bank size on the relationship between financial distress factors and financial performance of commercial banks in Kenya. *The Strategic Journal of Business & Change Management*, 9 (4), 706-719.
- DOI:[10.61426/sjbc.v9i4.2443](https://doi.org/10.61426/sjbc.v9i4.2443)
- Chitavi, M., Cohen, L., & Hagist, C. N. S. (In press). *Kenya is becoming a global hub of FinTech innovation*.
- Cirappa, I. B. (2023). Risk management: A performance of a Unit fund industry-Evidence from different caps. *Journal of Historical Research*, 53(1), 106–115.

- Coombs, C., & Redman, A. (2018). The impact of Robo-advice on financial advisers: A qualitative case study. In *UK Academy for Information Systems Conference* (pp. 1–23).
- Cooper, D.R. and Schindler, P.S. (2014). *Business Research Methods. (12)*, McGraw Hill International Edition, New York.
- Creswell, J.W. (2018). *Research design: Qualitative, Quantitative, and mixed methods Approaches* (3<sup>rd</sup> ed.). SAGE Publishers.
- Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and Conducting Mixed Methods Research* (3rd ed.). SAGE Publications.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage Publications.
- Cuthbertson, K., Nitzsche, D., & O’Sullivan, N. (2023). UK Unit funds: performance persistence and portfolio size. *Journal of Asset Management*, 24(4), 284–298.
- Cytonn Investments. (2023, August 20). Unit trust funds performance-Q2.
- Cytonn Investments. (2024). Cytonn Q4’2024 Unit Trust Funds Performance Report. Nairobi, Kenya: Author. <https://cytonnreport.com>
- Cytonn Investments. (2024). Quarterly unit trust funds performance report: Q2 2024. Nairobi, Kenya: Author.
- Cytonn Research. (2024). Kenya Unit Trust Funds Report Q4’2024. Nairobi: Cytonn <http://cytonn.com/uploads/downloads/q32023-unit-trust-funds-performane-v5.pdf>.
- Deloitte. (2023). FinTech Trends and Investment Outlook 2023. Deloitte Insights.
- Denzin, N. K. (2012). *The Research Act: A Theoretical Introduction to Sociological Methods*. Routledge.
- Emara, N., & Zhang, Y. (2021). The non-linear impact of digitization on remittances Inflow: Evidence from the BRICS. *Telecommunications Policy*, 45 (4).
- Emeka, O., & Ufuoma E.O (2021) Digitalization as vehicle for Financial Institutions' Growth and Effectiveness. *International Journal of Science and Business* 5 (1) 105-114.
- Engku, M.E.A., Rahman, A., & Rahim, R. (2018). Adoption of financial technology (Fintech) in Unit fund/ unit Trust investment among Malaysians: *unified theory of acceptance and use of technology*. *International journal of engineering and technology*, 7(2), 110-118.

- Fama, E. F., & French, K.R (2004). The capital pricing model: theory and evidence. *Journal of econometric perspectives*, (18 (3), 25-46. <https://doi.org/10.1257/0895330042162430>.
- Farid, S., & Wahba, H. (2022). The effect of fund size on Unit funds' performance In Egypt. *Future Business Journal*, 8, 27.
- Fernando, D., Leora, F., Klapper, L.F., Sulla, V., & Vittas, D. (2016). The Global Growth of Unit Funds. World Bank Policy Research Working Paper.
- Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed Methods designs. Principles and practices. *Health Services Research*, 48(6),2134–2156. <https://doi.org/10.1111/1475-6773.12117>
- Field, A.P. (2018) *Discovering Statistics Using IBM SPSS Statistics*. (5th Ed), Sage, Newbury Park.
- Fink. A. (2017) Education research methodology. Survey Research Methods. *Quantitative methods and research*. International Encyclopedia of Education DOI: [10.1016/B978-0-08-044894-7.00296-7](https://doi.org/10.1016/B978-0-08-044894-7.00296-7)
- FSD Kenya. (2024).Annual report. Financial sector deepening Kenya
- FSD Kenya. (2023). FinTech landscape in Kenya: Innovations, regulation and risk management. Nairobi, Kenya: Financial Sector Deepening Kenya.
- FSD Kenya. (2022). FinAccess Household Survey Report 2022. Nairobi: FSD Kenya.
- Gichana, N.R., Nyakundi, W.A., & Muturi, W. (2016). Influence of technology enabled Banking services on the performance of commercial banks: a case study of cooperative bank in Kisii branch, Kenya, 2(3), 178-197.
- Gillespie A, Glăveanu V, de Saint Laurent C. Pragmatism and Methodology. Doing Research That Matters with Mixed Methods. *Cambridge University Press*. DOI: <https://doi.org/10.1017/9781009031066>
- Ghosn, F. (2025). Artificial Intelligence in Investment and Wealth Management. *AI's Transformative Impact on Finance, Auditing, and Investment* (1-42) DOI:[10.4018/979-8-3373-0129-7.ch001](https://doi.org/10.4018/979-8-3373-0129-7.ch001)
- Greene. W.H. (2012). *Econometric Analysis*, (7<sup>th</sup> Ed). Boston, M.A: Pearson Education.
- GSMA. (2023). State of the Mobile Money Industry in Africa. GSMA Intelligence.
- Gujarati, D.N., & Porter, D.C. (2009). *Basic Econometrics* (5th Ed). McGraw-Hill

## Education

- Haidar, A., Nada. K., & Lalith, S. (2022). Impact of COVID-19 on Unit fund Performance in Saudi Arabia. *General & Applied Economics*. 10 (1).  
<https://doi.org/10.1080/23322039.2022.2056361>
- Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2021). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (3rd ed.). SAGE.
- Haruthai, K., & Samanchuen, T. (2023). Factors Influencing Behavior Intention in Digital Investment Services of Unit Fund Distributors Adoption in Thailand. *Technology of Information System Management Sustainability*, 15(3), 2279.
- Hayduk, L.A., Littvay, L. (2012). Should researchers use single indicators, best Indicators, or multiple indicators in structural equation models? *BMC Med Res Methodology* (12), 159.  
<https://doi.org/10.1186/1471-2288-12-159>.
- Hazeem, A.A. (2022). *Financial Technology, Customer Experience, Behaviour and Banks Financial Performance: The Case of United Arab Emirates*.
- Hejri, A. (2021). On the recent developments of Unit funds with fixed-income holdings: A Systematic review. *Accounting and Finance Association of Australia and New Zealand*. 62(2), 2313-2338. DOI: 10.1111/acfi.12866
- Honnesh, D & Shailaja M. L. (2023). A Study on Risk and Return Analysis of Debt Unit Funds With Respect to ICICI Prudential Unit Funds. *International Journal of Multidisciplinary Research* 9 (9)  
DOI: <https://doi.org/10.36713/epra14317>
- Ibrahim, E. (2021). Task Scheduling Algorithms in Cloud Computing. *The Turkish Journal of Computer and Mathematics Education*. (1) 526-583.
- Ibrahim, A. Z. (2021). The Role of Financial Technology in Changing Financial Industry and Increasing Efficiency in the Economy. *COMESA Monetary Institute*.
- Ibua, M. Millan. E.N., & Kamau, C. (2023). Effect of Internet Banking Technology on Loan Performance of Deposit-Taking SACCOs in Mombasa County, Kenya. *The International Journal of Business & Management*. 11 (2) 31-37.  
DOI No.: 10.24940/theijbm/2023/v11/i2/BM2302-013.
- Igbinosa, S.O, (2019) Performance of Unit Funds: Evidence from Nigeria. *Amity Journal of Management Research* 4 (2) 1-15.

- Igbinosa, S., Ogbeide, S., & Babatunde, A. (2017). Empirical Assessment on Financial Regulations and Banking Sector Performance. *Journal of central banking theory and practice*, 6(3) 143-155.
- Imerman, M. B., & Fabozzi, F.J. (2020). Cashing in on innovation: A taxonomy of in Tech. *Journal of Asset Management* 21(3), 167–177.
- Indrio, C.D., Jiang, C.X., Hu, Y.M., & Lee, Y.W (2019), Unit Fund Performance: Does Fund Size Matter? *Finance Analysts Journal* 55 (3), 74-87. Doi.org/10.2469/faj.v55.n3.2274.
- International Investment Funds Association (2024, October 7-9). *37<sup>th</sup> Annual conference of the International Investment Funds Association: Green Horizons, Global Connections*, Dublin, Ireland.
- Jensen, M.C. (1968). The performance of Unit funds in the period 1945-1964. *Journal of finance*, 23 (2) 389-416.
- Jing, M. (2023) How digital finance promotes renewable energy consumption in China? *Environmental Science and Pollution Research* 30(46).
- Kakhkharov, J., & Rohde, N. (2020). Remittances and financial development in Transition Economies. *Empirical Economics*, 59(2), 731-763.
- Kamau, J. N. (2025). Effect of digital risk management systems on financial performance of investment firms in Kenya [Master's thesis, Kenyatta University].
- Kamau, P.N., & Maina, K.E (2019). Influence of Portfolio Diversification on Financial Performance of Unit Funds in Nakuru County, Kenya. *American Journal of Humanities and Social Sciences Research*. 3, (5), 207-219.
- Kamau, S., & Wanyoike, D. (2021). Effect of fund attributes on performance of mutual funds in Kenya. *International Journal of Finance and Accounting*, 6(1), 11–22.
- Karanja, M., & Muturi, W. (2023). Fund characteristics and performance of unit trusts in Kenya. *Journal of Finance and Investment Analysis*, 12(2), 44–59.
- Kariuki, M. N. (2024). Effect of digital portfolio management tools on the performance of collective investment schemes in Kenya [MBA thesis, Kenyatta University].
- Kariuki, P. (2021). Fintech Investment Financing Mechanisms and Performance of Investment Firms in Kenya. *International Journal of scientific & Technology Research*. 10, (3)47-53,
- Kaur, H., & Kaushik, K. P. (2016). Performance evaluation of mutual funds in India: An

- empirical study. *International Journal of Financial Research*, 7(3), 73–85.
- Kenton, W. (2023). *Capital Asset Pricing Model (CAPM) and Assumptions Explained*.
- Kiarie, J. W. (2022). *Adoption of robo-advisory and its effect on fund management in Kenya* [Master's thesis, University of Nairobi].
- Kipkoech, R. K. (2023). *The relationship between FinTech adoption and performance of commercial banks in Kenya* [Master's thesis, University of Nairobi]. University of Nairobi Digital Repository. <https://erepository.uonbi.ac.ke/handle/11295/167111>
- Kiran, P., & Naka, A. (2023). Effects of size on the exchange-traded funds' Performance. *Journal of Asset Management* 24(6), 474-484.
- Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4<sup>th</sup> ed.). The Guilford Press.
- Kou, G., Lu, Y. (2025). FinTech: A literature review of emerging financial technologies and Applications. *Financial Innovation* 11 (1)  
<https://doi.org/10.1186/s40854-024-00668-6>.
- Kou, G., Chao, X., Peng, Y., Alsaadi, F. E., & Herrera, V. E. (2019). Machine learning Methods for systemic risk analysis in financial sectors. *Technological and Economic Development of Economy*, 25(5), 716-742.  
<https://doi.org/10.3846/tede.2019.8740>
- KPMG. (2024). *FinTech and risk management outlook for Kenya*. Nairobi, Kenya: KPMG Kenya.
- KPMG International. (2018). *Evolving asset management regulation: Preparing for a new Horizon*.
- KPMG International (2018). *Audit committee institute Unit funds program summary*. KPMG LLP
- KPMG. (2022). *Digital Transformation in Financial Services in Africa 2022*.
- Kumar, K.D., Gupta. R., & Shailendra, S.B (2023). The role of FinTech on financial Awareness and Unit fund investment Decisions. *International Journal of Development Research*. 13(01): 61312-61316.
- Kumar, K.D., & Ali. S. (2020). The role of digital technologies on growth of Unit Funds Industry: An impact study. *International journal of research in business and social science* 9(2), 171-176.

DOI: [10.20525/ijrbs.v9i2.635](https://doi.org/10.20525/ijrbs.v9i2.635)

- Kwesi, E. A. (2023). Evaluation of Equity Unit Funds' Performance in Ghana: A Multifactor Approach {Thesis for Master of Science in Finance}. Renmin University of China.
- Lee, C. C., Li. X., & Zhao. J, (2021). Does FinTech innovation improve bank Efficiency? Evidence from China's banking industry. *International Review of Economics & Finance journal*. 74,468-483.
- Lei, W., Dongli,Y., Youngbin, L. (2023).Digital Banking and Deposit: Substitution Effect of Mobile Applications on Web Services. *Finance Research Letters*, 56(33)
- Li, H., Lu, Z., & Yin, Q. (2023). The Development of Fintech and SME Innovation: Empirical Evidence from China. *Sustainability*, 15(3), 2541.  
DOI:[10.3390/su15032541](https://doi.org/10.3390/su15032541)
- Limna, P., Kraivanit, T., & Supaprawat, S. (2022). The Growing Trend of Digital Economy. *International Journal of Computing Sciences Research*, 6, 1-11.
- Liu, Q., Chan, K.C., Ranag, C. (2024). Fintech Research,Asystematic mapping classificationand future directions. 10 (24)
- Maina, B. W. (2013). The effect of size on the performance of mutual funds in Kenya [Master's thesis, University of Nairobi]. University of Nairobi Digital Repository. <https://erepository.uonbi.ac.ke/handle/11295/64278>
- Makina, D. (2019). The Potential of FinTech in Enabling Financial Inclusion. *Extending Financial Inclusion in Africa* 299-318  
<https://doi.org/10.1016/B978-0-12-814164-9.00014-1>.
- Mang'eli, M.M., & Ouma, S.A. (2017). The validity of the Capital asset pricing model in the Nairobi securities exchange. *International journal of economics, commerce and management*. 5 (5), 145-162
- Maniagi, M., Olweny, T., Mukanzi, C., & Mbithi M. (2017). Influence of Credit Risk on Performance of Commercial Banks in Kenya. *International Journal of Management and Commerce Innovations*. 5 (1) 299-308
- Mark, N.K, Saunders, Lewis. P, Thornhill, A. (2023). Research Methods for Business Students. (9) ISBN: 978-1-292-40272-7.
- Maxwell, J. A., (2013). *Qualitative Research Design: An Interactive Approach*. (3). Thousand Oaks: Sage Publications.
- Mbataru, C. K. (2009). Factors affecting the performance of unit trust funds in Kenya

[Master's thesis, University of Nairobi].

- Mbithi, M. (2018). Influence of prudential regulations on financial performance of commercial banks in Kenya. *The Strategic Journal of Business and Change Management*, 5(4), 1176-1190.
- Mihret, E.T. (2020), Robotics and Artificial Intelligence. *International Journal of Artificial Intelligence and Machine Learning*. 10 ( 2).  
DOI:[10.4018/IJAIML.2020070104](https://doi.org/10.4018/IJAIML.2020070104)
- Milena, V., & Luburić, R. (2020). Fintech, Risk-Based Thinking and Cyber Risk. *Journal of Central Banking Theory and Practice, Central bank of Montenegro*, 11(2), 27-53.
- Mishchenko, S., Naumenkova, S., Mishchenko, V., & Dorofeiev, D. (2021). Innovation Risk management in financial institutions. *Investment Management and Financial Innovations*, 18(1), 191-203.
- Mona. A.E. (2014).The Capital Asset Pricing Model: An Overview of the Theory. *International Journal of Economics and Finance*, 7, (1). Canadian Center of Science and Education  
ISSN 1916-971X E-ISSN 1916-9728.
- Moroccan Capital Market Authority. (2024, November 4).*Foreign Investments in Moroccan Unit funds climbs. (AMMC data reporting)*. 7News Morocco.  
<https://en.7news.ma/foreign-investment-in-moroccan-Unit-funds-climbs-by-37-6/>
- Mordor Intelligence (2023). *Market Research Company*. Media market reports
- Muda, R., Mohd, S., Arshad, A., Rashda, A. A., & Othman, J. (2020). Does FinTech Revolution Lead to the Disintermediation of Banks? *A Study into Islamic Bank Income*.
- Mudanya, E., Kadima, M. J., Miroga, J. (2022). Credit risk management practices and Financial Performance of commercial banks in Kenya, A case of banks in Vihiga County. *The Strategic Journal of Business & Change Management*, 9 (2), 305 – 316.
- Mugambi, T.M., & Muturi, W. (2019). Factors Affecting Performance of Unit Funds in Kenya. *International Journal of Social Sciences and Information Technology* 5(5).
- Mugo, D.M., Muathe, S., & Waithaka, S. T. (2017). Moderating effect of government policies on the relationship between mobile technology services and performance of deposit-taking saccos in Kenya. *International Journal of Scientific Engineering and Technology*, 6(2), 66-70.

- Mugo, H. W., & Shiundu, V. M. (2020). Prudential regulations and financial Performance of commercial banks in Kenya. *IOSR Journal of Economics and Finance (IOSR-JEF)*, 11(4), 16-30.
- Mulwa, M.J., & Kosgei, D. (2016). Commercial Bank Diversification and Financial Performance: The Moderating Role of Risk. *Journal of Finance and Investment Analysis*, 5, (2), 31-52.
- Mutinda, J. N., Jagongo, Kenyanya, H. (2017). Financial Inclusion Innovations and Financial Performance of Commercial Banks in Kenya. *International Journal of Management and Commerce Innovations*, 5, (2) 849-856.
- Muttai,S., Njoka, C., Muchira, B. (2023) Effect of Financial Technology on Financial Performance of commercial Banks in Kenya. *Journal of finance and accounting*. 7, (3). 80-100. DOI: <https://doi.org/10.53819/81018102t6063>.
- Mwangi, L. W. (2025). The role of digital payment systems in financial inclusion: A study of mobile banking adoption in Kenya. *Journal of Economics and Management*, 9(1), 54–67.
- Ndanu, K.S., & Gatauwa, J.M. (2023). Fund characteristics and financial performance of collective Investment schemes in Kenya. *International Academic Journal of Economic of Economic and finance*, 3(10), 118-113.
- Ndede, F. (2020). Adoption of Digital Banking Technology and Financial Performance of Commercial Banks in Kenya. *International Journal of Current Aspects in Finance, Banking and Accounting* 2(1), 42-50. <https://doi.org/10.35942/ijcfa.v2i1.108>.
- Ndichu, G., & Kariuki, P. (2021). Fintech investment financing mechanisms and Performance of investment firms in Kenya. *International journal of scientific and technology research* 10(3).
- Ndungu, J., & Muturi, W. (2019). Effect of Diversification on Financial Performance of Commercial Banks in Kenya. *International Journal of Current Aspects*. 3 (5)  
DOI: <https://doi.org/10.35942/ijcab.v3iV.67>
- Ngugi, J. (2022). Financial technology adoption and performance of investment firms in Kenya. *African Journal of Economics and Sustainable Development*, 14(1), 25–38.
- Nthimba, N., Jagongo, A., & Wamugo, L. (2021), Fund Size and Performance of Unit Trust Funds in Kenya *Journal of Finance and Accounting* 9(1) 8-15.
- Nyabuto, C. O. (2023). Effect of FinTech on the operational performance of investment firms in Kenya [Master’s thesis, University of Nairobi]. <https://erepository.uonbi.ac.ke/handle/11295/166408>

- Ochieng, P. L. (2023). Technology adoption and risk management in the Kenyan financial sector [Master's thesis, Strathmore University].
- Ojung'a, I. O., Namusonge, G. S., & Sakwa, M. M. (2018). Effect of Regulatory Framework on Growth of Unit Fund Institutions Listed in NSE. *The Strategic Journal of Business & Change Management*, 5(1) 827-849.
- Okeke, N.M. & Eze, A.A. (2025). Assessment of the effect of big data analytics on Accounting information quality in Nigeria. *Journal of Global Accounting*, 11(1), 64 – 83.
- Okeke, T.C., Ezech, G.A., Nnedum, O.A., (2015) Service Quality Dimensions and Customer Satisfaction with Online Services of Nigerian Banks. *The Journal of Internet Banking and Commerce* 20(3)  
doi:10.4172/2165-7866.1000117
- Olga, L.I., Edmunds, C., Svetlana, I., Alina, D., & Krzysztof, K. (2023). Financial Technology (FinTech) as a Financial Development Factor in the EU Countries.
- Olusuyi, A. E., & Araoye, E. F. (2017). The effect of capital structure and the financial Performance of manufacturing firms in Nigeria. *Journal of Accounting and Financial Management*, 3(3), 37-48.
- Omondi, D. O., & Wekesa, P. J. (2023). Influence of FinTech adoption on investment decision-making among fund managers in Kenya. *African Journal of Finance and Investment*, 7(3), 88–102.
- Omollo, B.A., Muturi, W., & Wanjare, J. (2018). Effect of Debt Financing Options on Financial Performance of Firms Listed at the Nairobi Securities Exchange, Kenya. *Research Journal of Finance and Accounting*.
- Omollo, B.A., Muturi, W., & Wanjare, J. (2018). Effect of Equity Financing Options on Financial Performance of Non-Financial Firms Listed at the Nairobi Securities Exchange, Kenya. *Research Journal of Finance and Accounting*.
- Organization for Economic Co-operation and Development (OECD). (2020), Digital Disruption in Banking and its Impact on Competition. <http://www.oecd.org/daf/competition/digital-disruption-in-financial-markets.htm>.
- Osewe, L. (2020). Effect of Portfolio Diversification on Financial Performance of Investment Firms Listed at the Nairobi Securities Exchange, Kenya.
- Osolo, J. (2022). *Effects of prudential regulations on the financial stability of Commercial banks in Kenya* {Doctoral dissertation, Strathmore University}.
- Ouma, D., & Jagongo, A. (2019). FinTech innovation and financial performance of

- commercial banks in Kenya. *International Journal of Economics, Commerce and Management*, 7(4), 1–14.
- Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability in Africa. *Borsa Istanbul Review*, 18(4), 329–340.
- Pallant, J. (2020). *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using IBM SPSS*. London: McGraw-Hill, Open University Press. <https://doi.org/10.4324/9781003117452>.
- Pandow, B. (2017). Persistent Performance of Fund Managers: *An analysis of selection and timing skills*. *International Journal of Commerce and Finance*, 3, (2), 11-24.
- Patil, R., Waghmode, M., Shukla, M., & Desai, P. (2022). An explanatory study of Unit funds' Performance in India. *Journal of North Eastern University*. 25(4), 738-747.
- Phan, D. H. B., Narayan, P. K., Rahman, R. E., & Hutabarat, A. R. (2020). Do financial technology firms influence bank performance? *Pacific-Basin finance Journal*, 62(C), 101- 210.
- Puri. N. & Singh, H. (2024). Fintech Disruptions in Financial Sector: Opportunities, Challenges, and Future. : Revolutionary Challenges and Opportunities of Fintech (33-51)  
DOI:[10.1201/9781003428718-3](https://doi.org/10.1201/9781003428718-3)
- PwC. (2021). *Asset and Wealth Management Revolution 2021 Update*. PwC Global.
- Rahman, A.M., Saadi, I. (2023). Customers' Opinions on Voluntary-Insurance in Bank Led Digital-banking: Statistical Analysis for Policymakers' Attentions, *Athens Journal of Business & Economics* 9(2). 181-200
- Raut, R. K., Das, N., & Mishra, R. (2020). Behaviour of Individual Investors in Stock Market Trading: Evidence from India. *Global Business Review*, 21(3), 818–833.
- Re-Cecconi, F., Dejaco, M. C., Moretti, N., Mannino, A., & Blanco, J. D. (2020). Digital asset management. Digital transformation of the design, construction and management processes of the built environment, 243-253.
- Reddy, V.S., Kumar. R.K.N. (2025). A Study on Risk and Return Analysis of Selected Unit Funds. *International Journal of Multidisciplinary Research* 11 (3)  
DOI: 10.36713/epra2013.
- Reilly, F.K., & Brown, K.C (2012). *Investment Analysis and Portfolio management* (10<sup>th</sup> Ed). Cengage Learning

- Rekha, A., & Ramanathan, K.V. (2023). Evaluating the performance of selected Hybrid Unit Funds. *International journal of management* 10(3)119-124.
- Rono, W. C., & Munene, R. (2023). Effect of Mobile Banking on the Financial Performance of Sacco's in Nakuru County, Kenya. *The International Journal of Business Management and Technology*, 7 (5). 150-157
- Rop, K.M., Kibet, Y., & Bokongo, J. (2016). Effect of investment Diversification on The Financial Performance of Commercial Banks in Kenya. *International Organization of Scientific Research Journal of Business and Management*. 18, (11) 102-115.
- Rossi, M. (2018). Efficient market hypothesis and stock market anomalies: empirical Evidence in Four European countries. *The Journal of Applied Business Research*, 34(1), 183-192.
- Said, F. H., & Kaplelach, S. (2019). Mobile Banking Innovation and Financial Performance of Selected Commercial Banks in Kenya. *Journal of Finance and Accounting*, 3(3), 228-254.
- Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8 Ed.) Pearson Education.
- Salman, E. (2021). The Impact of FinTech on Financial Performance and Client's Satisfaction. Evidence from Egyptian banking sector. *Journal of management systems*, 35(4), 47-69.
- Sang, F. K. (2017). The effect of asset allocation on the financial performance of unit trust Schemes in Kenya [Master's thesis, University of Nairobi]. <https://erepository.uonbi.ac.ke/handle/11295/103425>
- Sankararaman, G., Ragothaman, C. B., & Jugar, V.R. (2020). A study on performance of financial and Technology sectors in Unit funds. *IOSR Journal of business and management*. 22 (2) 56-62.
- Satya, V.E., & Wulaningrum, R. (2022, December 30). *Impact analysis of digital Unit fund platform on investment growth in Indonesian capital markets. Proceedings in International conference on Applied Science and technology on social science*. 381-387  
[https://doi.org/10.2991/978-2-494069-83-1\\_69](https://doi.org/10.2991/978-2-494069-83-1_69).
- Sawant, S., Amonkar, V., & Melo, F.R. (2023). Performance Evaluation of Unit Funds Using Risk Return Relationship Models in India. *International journal of professional business review*. 8 (6). 131-136.

- Schaus, M. (2016). *The Future of Fintech: Integrating finance and technology in Financial services*. John Wiley & Sons.
- Sekaran, U., & Bougie, R. (2019). *Research Methods for Business: A Skill Building Approach*. John Wiley & Sons.
- Simiyu, W., Yugi, T., & Alala, O. B. (2023). The Moderating Role of Fund Size on the relationship between Disposition Effect and Portfolio Financial Performance of Unit Funds in Kenya. *African Journal of Empirical Research*. 4 (1), 275-285.
- Simon, R. (2023). IoT solutions for enhanced financial performance
- Sirengo, M.J., & Muturi, W. (2022). Effect of Electronic Banking on Performance of Commercial Banks in Kenya. *International Journal of Finance* 7, (5), 53 – 79.
- Sironi, P. (2016). *Fintech Innovation: From Robo-advisors to goal based investing and gamification*. Wiley.
- Siska, E. (2022). Financial Technology (FinTech) and Its Impact on Financial Performance of Islamic Banking. *Journal of Economics and Accounting*, 2(3), 102-108.
- Shan. Y. (2021). Philosophical Foundations of Mixed Methods Research. <https://DOI.org/10.1111/phc3.12804>.
- Shaikh, A., Sharma. S. (2022). Emerging Markets' Economic Aspects the Future of Unit Funds. *International journal of advanced research in science communication and technology*.
- Shitemi, S., Maingi, M.W., Egessa, R. (2023). Effect of exchange rate on performance of equity funds in Kenya. *African journal of empirical research*, 4 (2), 891-897.
- Statista. (2023) Fintech Market Insights: Kenya 2023. Statista. <https://www.statista.com/>
- Stratton.S.J, (2024). Purposeful Sampling: Advantages and Pitfalls. Prehospital and disaster medicine. *Cambridge University Press*, 39 (2).121-122.  
DOI: <https://doi.org/10.1017/S1049023X24000281>
- Suryono, R. R., Budi,I., Purwandari, B. (2020). Challenges and Trends of Financial Technology (Fintech): A Systematic Literature Review. *Digitalized Economy, Society and Information Management* 11 (12). DOI: [10.3390/info11120590](https://doi.org/10.3390/info11120590)
- Tamplin T. (2023). Risk-Adjusted Return: Definition, Methods, Factors, & Limitations.
- Tanda, A., & Schena, C.M. (2019). Bank Strategies in the Light of the Digitalization of Financial Activities. *FinTech, Big Tech and Banks*.

- Tanda, A., Schena. C.M. (2019). FinTech, BigTech and Banks. Digitalization and Its Impact on Banking Business Models.
- Tabachnick. B. G., Fidell. L.S., (2021). Using Multivariate Statistics California. (7). State University – Northridge
- Taxmann, (2025). Portfolio Performance Evaluation Methods and Benchmarks
- Tiberius, V., Gojowy, R., & Dabic, M. (2022). Forecasting the future of Robo advisory: *A three-Stage Delphi study on economic, technological, and societal implications*. 182.
- Thakor, V.A. (2019) Fintech and Banking: What Do We Know? *Journal of Financial Intermediation*, 41.
- Thorun, C., & Diels, J., Jacobs, E. (2019). Behavioral study on the digitalization of the Marketing and distance selling of retail financial services. Publications Office of the European Union.
- The Kenya Finance Sector regulators. (2021, September). Kenya financial stability report, 2020(12).Nairobi, Kenya:
- The Kenyan Wall Street.(2023, June, 18<sup>th</sup>). The Thinking behind the Investor.
- Thune, K. (2022). Metrics to Measure Portfolio Performance. <https://seekingalpha.com/article/4500869-portfolio-performance-evaluation-metrics>.
- Truficana, J. (2023). What is FinTech? 6 main types of FinTech and how they work. <https://timespro.com/blog/6-main-types-of-fintechs-and-how-they-work>.
- Tshukudu, D. K., Mokatsanyane, D., Ferreira, S., Rensburg, J. G. J., Sgammini, R. (2022). Analyzing the Relationship between Financial Technology and Commercial Banks; Financial Performance in South Africa. *Acta Universitatis Danubius. Œconomica*, 18(6) 209-229.
- Varlamova, J., Larionova, N., & Kolesnikova, J. (2023). Modelling Outflow Remittances in the Digital Era: A Subnational Analysis of Russia. *Journal of Electronic Scientific Economic* 9(2) 155-172.
- Verma, S.K., & Nema, D.K (2023). An Evaluation of the Developments in the Indian Unit Fund Industry. *Management journal of FORE*.40 (4)) 21-23. DOI: 10.56401/Abhigyan/40.4.2023.21-33.
- Wachira, K.V., Kalui, F., & Gathii. J. (2021). Digital financial innovation services and their impact on performance of commercial banks in Kenya. *European journal of economic and financial research* 5 (3) 19-22.

- Wandia, E. W. (2015). The effect of fund characteristics on the returns of mutual funds in Kenya [Master's thesis, University of Nairobi]. University of Nairobi Digital Repository. <https://erepository.uonbi.ac.ke/handle/11295/93894>
- Wamuyu, P. K. (2020). The impact of fintech adoption on financial inclusion in Kenya. *Information Development*, 36(3), 369–382.
- Waweru, G. M., & Njoroge, C. W. (2024). Influence of FinTech risk management practices on performance of fund managers in Kenya. *International Journal of Finance and Accounting*, 9(2), 120–132.
- Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data* (2nd Ed.). MIT Press
- World Bank. (2023). *Digital Transformation and Financial Sector Development in Africa*. Washington, DC.
- World Bank. (2023). *FinTech and capital markets report for Sub-Saharan Africa*. Washington, DC: The World Bank Group.
- Yap, W.B., & Sim, C.H. (2011). Comparison of various types of normality tests. *Journal of Statistical Computation and Simulation* 81(12), 2141-2155  
DOI: [10.1080/00949655.2010.520163](https://doi.org/10.1080/00949655.2010.520163)
- Yin, R. K. (2018). *Case study research and applications: Design and Methods* (6<sup>th</sup> Edition) SAGE Publications
- YU, Y., Zongdai, Y., Wenqiao, Z., & Lei, L. (2022) FinTech Platforms and Unit Fund Markets. *Journal of International Financial Markets, Institutions and Money*, 84(C).
- Yogesh, R. (2021, September, 17th). Fintech Innovation in Africa. Kenya is emerging as a FinTech Innovation hotbed in Africa.
- Yudaruddin, R. (2023). Financial technology and performance in Islamic and Conventional Banks. *Journal of Islamic Accounting and Business Research*, 14(1), 100-116.
- Yue, M., Jichang, Z & Shan, L. (2023). Unit fund net flows in China: A co-holding Network perspective. 11. <https://doi.org/10.3389/fphy.2023.1142905>.
- Zelin, G. (2023). Performance evaluation of Chinese stock Unit funds. *Advances in Economics Management and Political Sciences*. 18(1):146-149.  
DOI: 10.54254/2754-1169/18/20230066.
- Zhang, Y. (2024) *Do Unit Funds Benefit from the Adoption of AI Technology?*

.Unpublished Thesis. Hong Kong University of Science & Technology (HKUST)  
- Department of Finance

Zhao, Fr., Zhang, Bx. (2022). Testing Linearity in Functional Partially Linear Models.

*Journal of Contextual Behavioral Science*. 40, 875–886.

<https://doi.org/10.1007/s10255-023-1040-0>.

## APPENDICES

### Appendix I: Questionnaire

You are kindly requested to fill the questionnaire honestly. Your responses will be treated with utmost confidentiality.

#### Part One

##### a) General information about respondents

1. What is your Job Title

CEO

Financial Analyst

Finance officer

Manager

2. What is your approximate duration in working for the fund (years.)

1-5

6-10

11-15

16-20

3. What are your daily official duties

Strategic Decision making

Data Analysis

Operations and investments

Financial reporting

**b) Information about the percentage of the Value of Digital Transactions**

i) What percentage of total annual payment transactions processed in your fund involve digital technological methods (e.g., E-wallet transactions, mobile apps)

1-25%	<input type="checkbox"/>	26-50%	<input type="checkbox"/>
51-75%	<input type="checkbox"/>	76-100%	<input type="checkbox"/>

ii) What percentage of total annual deposits are done digitally? (ETF's and Fintech App deposits)

1-25%	<input type="checkbox"/>	26-50%	<input type="checkbox"/>
51-75%	<input type="checkbox"/>	76-100%	<input type="checkbox"/>

iii) What proportion of the assets managed by your Unit fund are handled and analyzed digitally? (e.g., digital investment platforms, data analytics tools-AI, Robots etc.)

1-25%	<input type="checkbox"/>	26-50%	<input type="checkbox"/>
51-75%	<input type="checkbox"/>	76-100%	<input type="checkbox"/>

iv) What percentage of total profits is allocated to risk management reserves?

1-25%	<input type="checkbox"/>	26-50%	<input type="checkbox"/>
51-75%	<input type="checkbox"/>	76-100%	<input type="checkbox"/>

v) How has the volume of investments in your firm grown over the past ten years? Describe any notable trends recorded.

1-25%	<input type="checkbox"/>	26-50%	<input type="checkbox"/>
51-75%	<input type="checkbox"/>	76-100%	<input type="checkbox"/>

**Part 2: Information about utilization of fintech in Kenyan UTFs**

You are kindly requested to participate in the study on Financial Technology, Fund Size and Performance of Unit Trust Funds in Kenya. Kindly read each statement carefully and tick the option that represents your experience and opinion using the scale

1-Strongly disagree, 2- Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree

**Effect of digital payments on financial performance of Unit trust funds in Kenya.**

		<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
1	The fund has allow investors to use digital payment platform to do redemptions					
	Most clients are conveniently using the digital platforms available					
3	The use of digital platforms to make payment to clients leads to remarkable reduction in transaction costs					
4	The use of digital platform in making payments has influenced the clients participation in investment activities					
5	The use of digital payments platform has made investment in Unit funds more accessible and transparent					
6	There is remarkable increase in number of payment transactions done using digital platform					

	<b>Effect of Digital Deposits on financial performance of Unit fund institutions</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
1	The funds have enabled its clients to remotely make deposits into their investment accounts using a set up digital platform					
2	There is a notable improvement in customer deposits transactions done remotely on the digital platform					
3	The use of digital platforms is convenient for investors					
4	The investors dominantly use digital platform to make deposits into client investment					
5	The use of digital platform to make deposits has enhanced accuracy in investor accounts					
6	The use of digital deposits has caused a significant decrease in the processing costs					

**Effect of Digital Portfolio Management on financial performance of Unit funds in Kenya.**

		<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
1	The fund employs financial technology platforms and tools in performing data analysis					
2	Digital tools are used by the fund in the decision-making process					
3	The automation of business transactions improves the growth through remote engagement of clients					
4	Provision of investment advice to its clients remotely using digital tools like chatbots helps to expand the fund AUM					
5	The digital portfolio tools and platforms have reduced administrative costs					
6	The firm provides investment advice to its clients remotely using digital tools-chatbots					
7	The digital systems improve accuracy of investment decisions					

**Effect of Digital Risk Management on financial performance of Unit funds in Kenya.**

		<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
1	The fund has put in place digital systems to manage and track risks real time					
2	There is engagement of techno savvy experts to manage the funds systems.					
3	There is a significant reduction in risk relayed-costs since the uptake of fintech tools					
4	The fund has an automated-risk-assessment system for monitoring and evaluation					
5	The fund is duly compliant with the relevant data protection regulatory framework					
6	The firm has experienced significant positive trends in risk management due to engagement of qualified techno-savvy personnel					
7	The use of digital tools to manage risks proves to be more effective than the traditional ways					

	<b>Moderating effect of Fund Size</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
1	The fund manages relatively large assets compared to other funds					
2	The size of fund contributes to operational efficiency					
3	Unit fund size impacts access to investment opportunities and asset allocation decisions.					
4	Large funds allow for access to superior technology and digital investment strategies					
5	Unit fund size affects the diversification opportunities and portfolio management strategies employed.					
6	The use of digital tools and platform leads to fund growth					

<b>Financial performance of Unit Trust Funds in Kenya</b>						
		<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
1	Actively managed Unit funds consistently outperform the market over the long term					
2	Our Unit fund's performance will meet or exceed investor expectations in the foreseeable future.					
3	The performance of our Unit fund is reflective of its investment mandate and objectives.					
4	The performance of digitally enabled Unit funds compares favorably to similar funds in the market with traditional approach					
5	Fintech enables Unit fund to adapt to changing market conditions and deliver competitive returns					
6	Financial technology gives a fund competitive advantage over its peers within the same investment category.					
7	Our Unit fund has consistently outperformed its peers within the same investment category.					

**Appendix II: Secondary Data Collection Tool**

Name of Institution .....

<b>VARIABLE</b>	<b>Indicator</b>	<b>Measur ement</b>	<b>20 14</b>	<b>20 15</b>	<b>20 16</b>	<b>20 17</b>	<b>20 18</b>	<b>20 19</b>	<b>20 20</b>	<b>20 21</b>	<b>2 0 2 2</b>	<b>202 3</b>
<b>D.V</b> Financial Performance	<b>Return on Asset</b>	PAT										
		Total Asset										
<b>Independent Variables</b>												
1)Digital payments	Value of digital payment transactions through mobile channels											
2)Digital deposits	Value of-digital deposits done on mobile channels											
Digital portfolio management	Net Asset Value	Portfolio return										
	Value of investments done digitally (C/Flows	Portfolio turnover										
Digital Risk Management	Standard deviation of fund returns	volatility										
	Risk Reserves: Total Assets	Risk Reserve ratio										
<b>Moderating Variable</b> Fund size	AUM	Ln(AU M)										

## **Appendix III Research License**

## Appendix IV: Map of Kenya

