EFFECT OF FINTECH ON THE OPERATIONAL PERFORMANCE OF INVESTMENT FIRMS IN KENYA

DAVIS NYABUTO

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DECLARATION

This research project is my original work and has not been presented for a degree in any other university.

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This research project has been submitted for examination with my approval as the university supervisor.

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DEDICATION

To my beloved family and all those who stood by me in the journey of completing this project.

Your unwavering support is deeply appreciated. May you be richly blessed.

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ABBREVIATIONS AND ACCRONYMS

CAGR Compounded Annual Growth Rate

DeFi Decentralized finance

ECF Equity Crowdfunding

FDI Foreign Direct Investment

ICOs Initial Coin Offerings

NSE The Nairobi Securities Exchange

OLS Ordinary Least Square

P2P Peer-to-Peer

SEC Securities and Exchange Commission

ABSTRACT

This research aimed to critically analyse the influence of fintech innovations on the operational performance of investment firms in Kenya. Specifically, it focused on understanding how Peerto-Peer (P2P) Lending, Robo-Advisors, Crowdfunding Platforms, Blockchain-based Investment Models, and the prevailing Regulatory Environment affect key operational metrics like revenue growth, customer satisfaction, and market positioning. The study was a census incorporating all 68 investment firms into the research. The study employed a quantitative research approach, utilizing regression analysis to determine the relationships between the fintech innovations and operational performance. Data were collected from a sample of Kenyan investment firms, and analysis was conducted using statistical tools including correlation analysis and ANOVA. The results revealed a strong correlation (R = 0.700) between fintech innovations and the operational performance of the firms, accounting for approximately 49% of the variance in operational performance. The ANOVA results further corroborated the statistical significance of this relationship. Notably, each fintech innovation was found to contribute distinctively to operational efficiency. P2P Lending and Robo-Advisors were instrumental in enhancing customer engagement and portfolio diversification, Crowdfunding Platforms in increasing market reach and visibility, Blockchain technology in improving transactional efficiency, and a supportive Regulatory Environment in fostering overall fintech adoption. The study concluded that fintech innovations are crucial for the operational success of investment firms in Kenya. These technologies are not only pivotal in enhancing operational efficiency and customer engagement but also play a significant role in improving market positioning and overall business growth. The findings underscored the transformative impact of fintech in the investment sector and emphasize the importance of continuous innovation and supportive regulatory policies for sustained growth and competitiveness in the industry. The study recommended that investment firms continue to invest in fintech innovations to leverage their benefits fully. It also suggests that policymakers focus on creating and maintaining a regulatory environment that nurtures fintech growth while ensuring consumer protection. Additionally, investment firms are encouraged to develop comprehensive strategies for fintech adoption, including staff training and infrastructure development, to optimize the use of these technologies.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Financial Technology (FinTech) rapid emergence is transforming the financial sector by providing efficient, transparent, and innovative methods, which present a major challenge to traditional investment practices (Chiu, 2016). Specifically, Fintech models such as robo-advisors (Fisch et al., 2019), P2P lending (Namvar, 2014), crowdfunding (Rossi & Vismara, 2018), and blockchain (Ante et al., 2018) signify a major transition in the global financial ecosystem. While these models offer benefits, understanding the implications of this shift is essential for investment firms to adapt, and there is a call for regulators to ensure a balanced approach to the evolution of Fintech, given its potential risks and rewards (Arner et al., 2017).

This study was anchored in the Accelerator Theory of Investment which was introduced by Carver (1903) and Aftalion (1909). The theory postulates that postulates that disruptive investments directly correlate with income levels. In the context of this study, as income from avenues like P2P lending, Robo advisors, and blockchain-based investments grows, so does investment, and this cycle also works inversely. The theory ties investment to consumption, indicating that when consumption rises, investment follows suit to meet increased demand.; Diffusion of Innovations Theory (Rogers, 1962), which describes how new technology spreads, and the Institutional Theory (Powell & DiMaggio, 1991), which focuses on societal structures and norms, will provide a holistic understanding of FinTech effect on investment firms in Kenya.

In the context of Kenya, recognized as an emerging FinTech hub in Africa, several investment models are shaping the industry. P2P platforms, such as Tala and Branch, have gained traction by catering to the unbanked and SMEs. Robo-advisors, used by companies like Abacus and

Chamasoft, are also on the rise, with projections indicating the Robo-Advisors market could manage US\$1.07bn by 2023 (Statista, 2023). Crowdfunding, highlighted by platforms like M-Changa, is aiding new businesses, with a predicted transaction value of US\$296.70k in 2023 (Statista, 2023). Additionally, blockchain models, while nascent, promise transformation through transparency and decentralization, with startups like BitHub Africa at the forefront. The potential of this market is evident, with predictions suggesting its value could hit USD 7.68 billion by 2022 (Ministry of ICT, 2019).

1.1.1 Financial Technology

Fintech is a transformative force in the financial sector, leveraging technology to enhance and automate financial services for businesses and consumers alike. This includes innovative methodologies like automation in lending, asset management, portfolio advice, and payment systems. While fintech promises efficiency and transparency, it's essential for regulations to evolve, ensuring that these technological advancements offer their promised benefits without jeopardizing financial stability (Navaretti, Calzolari & Pozzolo, 2017). However, the growth of fintech varies across regions. It is less pronounced in Europe and Africa compared to the US and China. Notably, within the European Union, the UK stands out for its significant fintech development. The limited cross-border fintech flow in Europe contrasts with the vast economies of scale seen in the US and China, prompting discussions on fintech's potential to replace traditional banks and its impact on market competition and stability (Philippon, 2016; Berg, Fuster & Puri, 2022).

The research narrows its focus on specific fintech models, including Peer-to-Peer (P2P) lending, robo-advisors, crowdfunding platforms, and blockchain-based investments. Robo-advisors, digital platforms leveraging algorithms for financial planning and investment advice, have gained traction globally with firms like Betterment leading the charge (Maedche et al., 2016; Ludden et al., 2015; Sironi, 2016; Snihovyi & Kobets, 2018). P2P lending has transformed the borrowing scene by directly linking borrowers with individual lenders, eliminating the need for traditional financial institutions (Zhang, Jiang, & Sun, 2021). Crowdfunding, which uses internet platforms to gather small contributions from many individuals, has democratized capital raising, with Kickstarter being a prominent example (Mollick, 2014; Gulliksson, 2017). Decentralized finance (DeFi) and other blockchain-based models offer a unique financial infrastructure such as decentralized assets outside the scope of traditional institutions (Mills et al., 2020; Tian et al., 2020).

The study seeks to examine the use of different Fintech technology and innovations such as P2P Lending, Robo-Advisors, Crowdfunding Platforms and Block chain-based Investment Models to improve and streamline financial services. These technologies and innovations were identified and categorized. Then an evaluation to establish the impact of the Fintech technologies and innovation on the operational performance of investment firms in Kenya was done.

1.1.2 Operational Performance

Firm operational performance refers to a set of standards that are used to measure processes and activities efficiency and effectiveness within an organization (Neely, 2005). It is also defined as the quantifiable facet of any organization process (Voss, Ahlstrom & Blackmon, 1997). Operational performance thus determines the efficiency of an activity to achieve excellence so as

to provide customer value. Clark (1996) argued that operational performance in any organization is developed to achieve competitive advantage through firm operations. Operational performance involves minimizing the cost of the product, reducing lead times, enhancing product quality, and increasing the responsiveness (Kivite, 2015).

Operational performance of firms encompasses metrics like market share, product/service quality, and customer satisfaction. Market share is gauged by comparing a firm's revenue to the total industry revenue. The quality of offerings is determined by how well they meet set expectations and their reliability (Prajogo, 2008). Customer satisfaction indicators include repeat sales, brand loyalty, referrals, positive word of mouth, and direct customer feedback (Smith, 2014). This study aims to evaluate the operational performance of investment firms using measures such as growth in revenue, asset management expansion, client base growth, improved satisfaction scores, reduced customer attrition, transaction processing efficiency, decreased non-performing asset ratios, investment returns, and competitive pricing.

1.1.3 Fintech and Operational Performance

The correlation between Fintech and operational performance has been reviewed by different scholars. Dasilas and Karanovic (2023) studied the UK banking sector between 2010-2019 and found a positive correlation between the entry of new Fintech firms and bank profitability. Specifically, they observed increases in net interest margin and yield on earning assets. Fintech boosts bank performance, especially in less developed countries. They emphasized the growth in banks' ROA in these countries and net interest margin in higher-tier countries (Yoon, Lee, & Oh, 2023).

Baker et al. (2023) found that Fintech positively influenced banks in the Amman Stock Exchange (ASE) and Abu Dhabi Securities Exchange (ADSE) from 2012-2020, particularly in total deposits and net profits. In contrast, Harmadi et al. (2022) observed no significant impact of P2P lending and Fintech adoption on conventional bank performance in Indonesia. Research by Bashayreh and Wadi (2021) revealed a positive correlation between Fintech services, such as ATMs and internet banking, and Jordanian bank performance. Kiilu (2018) similarly identified a beneficial effect of Fintech, especially mobile payments, on Kenya's banking sector. Notably, these studies did not delve into Fintech's influence on investment firms.

1.1.4 Investment Industry in Kenya

Kenya's investment sector has experienced rapid growth, boasting an average annual expansion of 5.9% from 2010 to 2018. Factors such as its strategic position in East Africa, political stability, and a robust financial system have made it an attractive destination for investors from countries like the UK, Mauritius, the US, South Africa, and France. Furthermore, World Economic Forum recognized Kenya for the quality of its human capital and innovation capacity. This surge in investment is enhanced by the government's efforts to cultivate a conducive business environment, including policy reforms, investor protection, and institutions like the Kenya Investment Authority (KenInvest) to guide and aid both domestic and international investors.

The investment landscape in Kenya showcases an increase in assets under management (AUM), with unit trust funds witnessing a 23% growth in 2020, reaching Kshs 142 billion. This rise is attributed to the expanding middle class that is actively seeking avenues to augment their wealth. However, the investment industry does face hurdles including operational costs, limited access to

extended-term capital, and a deficit in skilled professionals. To maintain the momentum, it is imperative for the government and regulatory entities to address these concerns. Nevertheless, given the progressively enhancing investment climate and government support, the investment sector in Kenya holds a promising outlook.

1.2 Research Problem

The global financial landscape is being rapidly reshaped by the advent of disruptive investment models such as robo-advisors, P2P lending, crowdfunding platforms, and blockchain-based investment models (Chiu, 2016; Ante, Sandner, & Fiedler, 2018). These emergent models, augmented by the progressive integration of technology into financial systems, are redefining investment strategies by offering more flexible, cost-effective, and efficient opportunities to a wider demographic.

Kenya's investment firms have thrived in recent years due to a combination of political stability, economic growth, and a conducive business environment, making it attractive for both local and international investors (U.S. Department of State, 2022). The Capital Markets Authority (CMA) has effectively overseen and regulated the capital market, bolstering investor confidence. The investment landscape in Kenya is diverse, encompassing pension funds, unit trusts, insurance companies, and private equity firms, offering a broad spectrum of investment opportunities tailored to various investor preferences (Kimenyi, 2016). Additionally, technological advancements and fintech innovations have enabled these firms to optimize operations, reduce expenses, and access a larger segment of potential investors.

Global studies, such as that by Dasilas and Karanovic (2023) found that FinTech firms enhance the performance of banks in the UK from 2010 to 2019. Similarly, Yoon et al. (2023) noted the

positive influence of FinTech on bank performance, especially in underdeveloped countries. Arner et al. (2017) and Chiu (2016) emphasized FinTech's transformative role in finance, while also pointing to challenges like regulatory uncertainties and cybercrime risks. Dorfleitner et al. (2017) explored effect of P2P lending and crowdfunding on investment firms' operational performance. Additionally, Fisch et al. (2019) and Ante et al. (2018) stressed the challenges Fintech presents to the operational efficiency of investment firms, underscoring the importance of adaptive strategies for sustained competitiveness.

Within the Kenyan context, studies have noted the transformation these models are bringing about in the investment sector. For instance, Kiilu (2018) determined the effect of Fintech firms on the Kenya's banking sector financial performance and established that there exists significant positive association exists between Fintech and Kenya's banking sector financial performance. Wachira's (2021) work delves into P2P lending but doesn't fully explore its implications on operational performance of investment firms in Kenya. Further, Sironi (2016) explored the role of robo-advisors in the investment industry, while Omwansa & Sullivan (2013) examined how digital finance, including P2P lending, is contributing to financial inclusion.

From the literature reviewed, studies focused on different measures of fintech adoption which makes their findings subject to further review. Majority of the literature focuses on financial performance and not operational performance. The studies also focused on other contexts other than investment firms in Kenya which leaves a gap in the existing knowledge. This study will seeks to answer: what is the effect of Fintech on the operational performance of investment firms in Kenya?

1.3 Objectives

1.3.1 General Objective

To analyse the effect of Fintech on the operational performance of investment firms in Kenya.

1.3.2 Specific Objectives:

- To assess the effect of P2P Lending on the operational performance of investment firms in Kenya.
- ii. To determine how Robo-Advisors are influencing the operational performance of investment firms in Kenya.
- iii. To examine the effect of Crowdfunding Platforms on the operational performance of investment firms in Kenya.
- iv. To evaluate the implications of Blockchain-based Investment Models on the investment firm's operational performance of in Kenya.

1.4 Research Questions

- i. What is the impact of P2P Lending on the operational performance of investment firms in Kenya?
- ii. How does Robo-Advisors influence the operational performance of investment firms in Kenya?
- iii. In what way does Crowdfunding Platforms influence operational performance of the investment firms in Kenya?

iv. What are the key implications of Block chain-based Investment Models on the operational performance of investment firms in Kenya?

1.5 Value of the Study

Regulatory bodies will significantly benefit from the study's findings. Given that these Fintech models often exist in a regulatory grey area, understanding their implications can help inform the formulation of effective and balanced regulatory frameworks. This can ensure that innovation is encouraged, while risks are mitigated, creating a safer and more robust financial ecosystem. Moreover, a nuanced understanding of the impact of disruptive technologies on operational performance of investment firms can guide the regulatory bodies in implementing timely reforms.

This study holds immense value for industry practitioners, including investment firms and emerging fintech companies. By exploring the implications of disruptive investment models on Kenya's investment firms' operational performance, the study will help these stakeholders better understand the changing landscape. Investment firms can use this information to identify opportunities for innovation and areas where they need to strengthen their strategies to remain competitive. For fintech companies, understanding how their models impact their operational performance can guide their growth strategies.

This study will provide insights that was instrumental to both individual and institutional investors. The investors can understand the potential risks and rewards of investing in platforms leveraging disruptive technologies. Additionally, it could highlight new opportunities, particularly for investors looking to diversify their portfolios and take advantage of the benefits

provided by these models, such as higher returns, increased transparency, and greater accessibility.

Additionally, the study contributes to the theory by examining how Fintech adoption can enhance the investment firm's operational performance. The findings of the study will determine that investment firms that have successfully integrated Fintech solutions into their operations have a competitive edge over those who have not. This adds to the existing knowledge on how technological advancements in finance can influence the investment industry.

The study was useful to academic scholars since it will improve the body of knowledge regard to financial technology and investment. It will offer academics an in-depth understanding of the impact of FinTech's on the operational performance of investment entities in emerging markets, such as Kenya. This study will also serve as a foundation for further studies on the role of technology in transforming financial and investment landscapes in other geographies or contexts.

The research by Dasilas and Karanovic (2023), along with that of Baker et al. (2023), highlights a positive correlation between the emergence of Fintech firms and enhanced performance in the banking sector across various regions. These findings mirror the results of this study, suggesting that the benefits attributed to Fintech—such as increased efficiency, profitability, and improved operational performance—are not limited to traditional banking but are also pertinent to other financial sectors, including investment firms.

However, the contrasting results from Harmadi et al. (2022) in Indonesia, where Fintech adoption did not significantly impact bank performance, illustrate the importance of regional variances. This aspect is significant when interpreting the Kenyan study, as it underscores how

local market characteristics, regulatory environments, and technological infrastructure can

distinctly influence the impact of Fintech in different financial sectors.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter delves into previous literature on the subject. It starts with a theoretical review

focusing on theories explaining the study variables' interrelationships, followed by an empirical

review organized by research objectives. The chapter then critiques the literature, presents a

conceptual framework, and concludes with a summary of literature review.

2.2 Theoretical Review

This study was anchored on the Accelerator Theory of Investment. Other theories that was used

to support the study was the Internal Funds Theory of Investment and the Neoclassical Theory of

Investment.

2.2.1 Accelerator Theory of Investment

The Accelerator Theory of Investment (ATI), introduced by Carver (1903) and Aftalion (1909),

postulates that disruptive investments directly correlate with income levels. As income from

avenues like P2P lending, Robo advisors, and blockchain-based investments grows, so does

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investment, and this cycle also works inversely. The theory ties investment to consumption, indicating that when consumption rises, investment follows suit to meet increased demand. This concept was expanded upon by Keynes, who linked capital investment outlay to output (Keynes, 1936, 1937), and later contributions by Bickerdike (1914) and Clark (1917) considered demand fluctuations. The theory's foundation rests on two assumptions: businesses adjust investments based on income changes, and these investment changes impact aggregate output.

Despite its broad application in economic policy design, the Accelerator Theory faces criticism, particularly its assumption of surplus capacity in investment goods industries (Baddeley, 2003). Nevertheless, it provides insights into the efficacy of different economic policies and investment models, suggesting that boosts in income from disruptive investment channels can lead to increased investments that challenge the traditional investment industry.

2.2.2 Internal Funds Theory of Investment

The Internal Funds Theory (IFT), introduced by Keynes in 1931, suggests that organizations should prioritize using their existing funds for investments in plant and equipment rather than seeking external financing. The merit of this approach is that it can increase liquidity, allows for better operational control, and avoids the pressures of servicing external debt. Using internal funds can help organizations strategically allocate resources, eliminating the need for borrowing which can lead to long-term debt. The convenience of setting investment rates at comfortable levels is another perk of this theory (Stevens, 1994).

However, Clark (1973) critiques the theory for its lack of empirical support and not performing as efficiently as other theories at various levels. Despite its criticisms, the theory underscores the benefits of using internal resources over disruptive investment models like P2P lending and

Robo advisors, arguing that such models have limited impact on the overall investment industry (Keynes, 1931).

2.2.3 Neoclassical Theory of Investment

Jorgenson (1963) presented the Neoclassical Theory of Investment (NTI), emphasizing rational decision-making by investors to maximize gains. Based on principles of Utility and Risk, it suggests investors seek a balance between these factors for optimal returns, forming portfolios with diverse assets. The theory also indicates that innovative investment strategies reduce costs, compelling traditional investment sectors to evolve. Key assumptions include perfect competition, full employment, diminishing marginal products, and an ideal financial market with consistent interest rates (Eisner & Nadiri, 1970).

However, the neoclassical investment model has faced criticism, especially from Keynesian economists, for its singular focus on factor prices while neglecting aggregate demand considerations (Girardi, 2021). Another criticism is its seemingly unrealistic assumptions. Still, the theory's relevance lies in its assertion that rational decision-making by investors, emphasizing Utility and Risk, can encourage the adoption of disruptive investment models that optimize returns and draw more investors, thus reshaping the investment industry.

2.3 Empirical Review

This section reviews empirical literature of this study is based on international and local studies which are reviewed according to the study objectives.

2.3.1 P2P Lending and Operational Performance of Investment Firms

Research has been conducted around implications of P2P Lending on the operational performance of investment firms. In recent research, the implications of P2P lending on the operational performance of investment firms have been thoroughly explored. Bao, Ding, Gopal & Mohlmann (2023) investigated the risks of P2P lending platforms, like LendingClub, Zopa, Renrendai, and Upstart. Their findings emphasized that risks stem from both stakeholders and platform design, impacting the success or failure of these platforms. P2P lending platforms offer potential benefits like reduced transaction costs and increased returns, but they also face inherent risks in their operational dynamics. Deng (2022) delved into the impact of traditional finance on the Chinese P2P lending market, specifically examining the crowding-out effect. The study revealed that as traditional financial systems expand, borrowers from these systems are more likely to default on P2P loans, suggesting that high-quality borrowers may be driven away from P2P platforms. This observation sheds light on the challenges faced by China's P2P lending industry and highlights that Fintech advancements may not always yield positive economic or social outcomes.

Khakan, Subramaniam & Atayah (2022) examined the role of P2P lending during the COVID-19 pandemic. With traditional banks facing limitations in online verification mechanisms during the pandemic, Fintech P2P lending emerged as a significant and reliable credit alternative for borrowers. This shift in dynamics underscores the potential of P2P platforms to complement or even replace traditional banking lending services, especially during times of crisis. Furthermore, Rindah and Duhita (2021) investigated the impact of P2P lending SMEs. Their research explored how P2P loans influenced various aspects of SMEs' businesses, including expenses, turnover, employment, sales, and profits. The study found that obtaining a P2P loan significantly affected

these business metrics, with the duration of the business and its expenditure playing a crucial role in influencing business turnover after securing a P2P loan.

2.3.2 Robo-Advisors and Operational Performance of Investment Firms

Robo-advisors and their influence on the investment landscape have garnered scholarly attention. Oehler, Horn & Wendt (2022) focused on the behavioral characteristics of investors and how these determine the choice to use robo-advisors. Notably, risk willingness and internal locus of control stood out as significant factors in this choice. On a regional scale, Nadeem and Shaheen (2021) analyzed the adoption of robo-advisors in Saudi Arabia, noting an increasing trend with assets managed by robo-advisors reaching significant figures. These robo-advisors have been seen to bring about improvements in cost efficiency, compliance, and customer service within financial institutions.

Brenner and Meyll (2020) shifted focus to the interplay between robo-advisors and human financial advisors. Their findings reveal a decline in demand financial advice from humans with the rise of robo-advisors, as people see automated advice as a safer bet, particularly when concerns of investment fraud arise. Boreiko and Massarotti (2020), meanwhile, delved into the risk profiles identified by robo-advisors. Their research highlighted the ability of robo-advisors to detect varied risk profiles and emphasized the role of the advisors' expertise and geographical location. Interestingly, the array of portfolio choices provided by robo-advisors was not a primary concern for investors.

2.3.3 Crowdfunding Platforms and Operational Performance of Investment Firms

Research has shed light on various facets of crowdfunding platforms and their influence on investment dynamics. Rizwan and Mustafa (2022) examined the determinants driving investors'

intentions on crowdfunding platforms, focusing particularly on trust. Their findings suggest that investment decisions lean more towards cognitive reasoning rather than emotional, with significant emphasis on third-party seal and blockchain technology. Meanwhile, Coakley, Lazos, and Linares-Zegarra (2022) explored the strategic choices made by entrepreneurs regarding major UK equity crowdfunding platforms. Their research illuminated that team dynamics and structure influence the selection of platform models, with diverse teams favoring co-investment models.

Dushnitsky and Fitza (2018) emphasized the challenges of relying on single-platform studies in crowdfunding and suggested the importance of cross-platform research to understand platform-specific success factors. Rossi and Vismara (2018) explored the roles of European investment-based crowdfunding platforms, highlighting that post-campaign services influence the success rate of campaigns. However, the direct effect of crowdfunding platforms on the operational performance of investment firms remains a less-explored area in these studies.

2.3.4 Block Chain-Based Investment Models and Investment Industry

Various scholars have explored the implications of blockchain-based investment models on investment firms' operational performance. Du, Shi, Li, and Chen (2023) found that blockchain technology reshapes corporate governance mechanisms and enhances investment efficiency in China through financial costs reduction, alleviation of agency conflicts, and improving financial reporting quality. Meanwhile, Li (2023) focused on the synergy between blockchain and cloud computing in evaluating financial investment environments. His study emphasized how these technologies transform the structure and processing of financial investment data.

Rakha (2023) highlighted the potential of blockchain in strengthening international legal guarantees for investment activities. The technology offers increased security, transparency, and efficiency, leading to reduced transaction costs and fraud risks. The research suggests that the integration of blockchain could bolster the enforcement of international legal guarantees, although it emphasizes the necessity of regulatory structures to support its adoption. Conversely, Yoo (2017) looked at the uptake of blockchain in the financial sector, highlighting its use in areas like settlement, smart contracts, securities, and remittance, while pointing out the trend of bypassing central banks for interbank payments using private distributed ledgers.

2.4 Determinants of operational Performance

Several determinants influence an organization's operational performance, with this study emphasizing financial technology, budgeting, inventory management, service quality, and firm logistics and transportation. Fintech has a positive impact on operational performance. Studies such as Bashayreh and Wadi (2021) in Jordan, Kiilu (2018) in Kenya, and Dasilas and Karanovic (2023) in the UK have all underscored the positive effects of Fintech on banking performance. Budgeting, as elucidated by Brigham & Ehrhardt (2011), is crucial for a firm's performance. Yet, research from Njomo (2023) found no significant impact of participatory budgeting on operational performance for freight forwarding firms in Kenya.

Inventory management, as defined by Lysons & Farrington (2006), concerns the stocking of materials and overseeing various techniques to manage these stocks efficiently. This management revolves around understanding material needs, maintaining detailed records, and generating useful inventory-related reports (Gilmore, 2007). Gitau (2016)'s research highlighted a strong relationship between operational performance and the inventory management practices

among warehouse firms in Mombasa County. The quality of service is another critical determinant, as described by Cronin, Brady, Hult & Tomas (2000) using the formula SQ = P - E. Studies like Alshurideh and Kurdi (2022) and Chika and Chigozie (2019) have underscored a robust positive relationship between service quality and operational efficiency.

Lastly, logistics, especially e-logistics, plays a pivotal role in an organization's efficiency. Mutisya (2016) examined e-logistics implementation among service providers in Kenya, revealing a significant positive influence on operational performance. Similarly, Ojwang (2016)'s research on humanitarian companies in Kenya showcased the benefits of integrating ICT in logistics, leading to enhanced efficiency, reduced costs, improved agility, and better product quality.

2.3.1 Summary of the empirical Literature Reviewed

The study reviewed other past literature on this area of knowledge. The summary and research gaps are as followed in table one below;

Table 1: Research Gap Summary

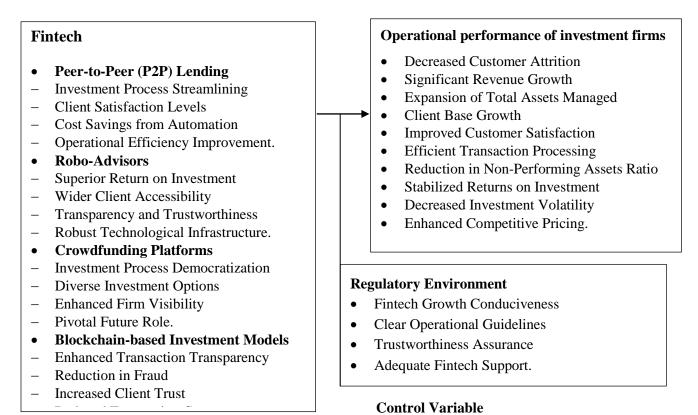
Authors	Research Topics	Research Findings	Research	Current
			Gaps	Study Focus
Bao et	Risks in P2P	P2P risks arise from	Focused on a	Will focus on
al.	lending platforms	stakeholders, organizational	single	four
(2023)		components, and platform	disruptive	disruptive
		design.	investment	investment
			Model giving a	Models
			narrow scope.	
Du et al.	Blockchain's	Blockchain disrupts and	Focused on	Will focus on
(2023)	influence on	offers new corporate	empirical	field data
	corporate	governance and resource	studies	
	investment in	allocation methods.		
	China			

Li	Enterprise finance	Cloud and blockchain	Employed	Will employ
(2023)	environment with	enhance financial investment	cross-sectional	a descriptive
	block-chain and	data construction.	research	research
	cloud computing		methodologies	design
Deng	Formal finance's	Despite Fintech's aim, not	Employed an	Will employ
(2022)	impact on China's	reducing information	explanatory	a descriptive
	P2P market	asymmetry can lead to	research	research
		undesired results.	methodology	design
Khakan	FinTech P2P	COVID-19 shifted P2P	The study used	Will employ
et al.	lending during	lending determinants, making	a classical	a descriptive
(2022)	COVID-19	it a primary credit source for	event study	research
		borrowers.	methodology	design
Rindah	P2P lending's effect	P2P impacts business age and	Focused on	Will focus on
and	on SMEs	expenses, affecting turnover.	SMEs as the	the
Duhita			context of	operational
(2021)			study	performance
				of
				investment
				firms
Nadeem	Robo-Advisors'	Robo-Advisors reduces	Employed	Will employ
and	role in Saudi	operational costs and bolster	quantitative	primary data
Shaheen	financial	company compliance and	methods and	
(2021)	institutions	contros.	secondary data.	
Yoo	Blockchain in	Blockchain applications in	Based on	Will focus on
(2017)	finance: Korea vs.	finance are growing, notably	Korean	Kenya which
	Global	in settlement, remittance, and	financial sector	is still in its
		smart contracts.	which is more	developing
			advanced.	stages

2.4 Conceptual Framework

This conceptual framework is composed of both dependent and independent variables. The dependent variable was the operational performance of investment firms in Kenya which. The different models of Fintech will form the study's independent variables. The models will include; P2P Lending, Robo-Advisors, Crowdfunding Platforms and Blockchain-based Investment Models. This is shown in figure 1 below;

Independent Variable



Dependent Variable

Figure 1: Conceptual Framework

Source: Researcher (2023)

2.6 Chapter Summary

This chapter provides a concise overview of relevant literature concerning the effect of fintech models on the operational performance of investment firms, drawing from the seminal theory, the Accelerator Theory of Investment. It highlights that the Accelerator and Neoclassical theories suggest that disruptive investment models influence the operational performance of the investment industry, while the Internal Funds Theory posits that they primarily contribute to debt. The empirical review specifically focuses on the relationship between various disruptive investment models, such as P2P lending, Robo-advisors, crowdfunding, blockchain-based investments, and investment firms' operational performance.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides an overview of the methods that were used to meet the research goals. It details the research design, identifies the target group, and explains the techniques for data gathering and analysis that the study utilized.

3.2 Research Design

A research design is like a strategic blueprint that a researcher uses to address research questions in an objective, cost-effective and accurate manner (Kumar, 2005). Descriptive research design was employed to delineate the influence of Fintech, specifically disruptive investment models, on the functioning of investment companies in Kenya. The intention behind adopting a descriptive approach is to clarify the existing dynamics between the two study variables (Bryman & Bell, 2015). While descriptive research can be undertaken through qualitative means, it's typically viewed within the realm of quantitative research. This descriptive approach facilitated data gathering, analysis, and lucid presentation by the researcher.

3.3 Target Population

A population refers to the full set of individuals, events, or objects that share specific observable traits (Mugenda & Mugenda, 2003). In research terms, the population encompasses all entities about which the researcher can draw conclusions (Cooper & Schindler, 2014). The target population for this study are the 68 investment firms regulated by the Capital Markets Authority (CMA).

3.4 Data Collection

Questionnaires were administered to the investment firms to collect primary data. These respondents were well suited to answer the questions posed by the research because they are in positions where they possess the required expertise or technical skills to respond to such kinds of enquiries. The questionnaire was administered using 'drop and pick later' mechanism. According to Wilkinson & Birmingham (2003), a questionnaire is regarded as the most suitable instrument for quantitative research due to its ease of administration. Stratified random sampling was used to select respondents from the different categories of the stakeholders.

The research questionnaire was structured in three sections. Section A contained background information; Section B comprise of the extent of adoption of disruptive investment models and Section C contains questions on the influence of Fintech on operational performance of investment firms in Kenya.

3.5 Data Validity and Reliability

Data validity refers to the extent to which the research accurately measures or reflects the specific concept it is intended to assess. In essence, it's about the correctness and appropriateness of the data in terms of its purpose. There are various types of validity, including content validity, which examines whether the study covers all relevant aspects of the subject; construct validity, which assesses whether the study accurately represents the theoretical constructs it aims to measure; and criterion validity, which evaluates how well one measure predicts an outcome based on another measure. For instance, in a study on fintech innovations, validity would imply that the measures used genuinely reflect the aspects of fintech being investigated, such as user adoption rates or satisfaction levels (Newton, 2012).

Data reliability, on the other hand, concerns the consistency of the data over time and across various conditions. It's about the ability to reproduce the same results under similar circumstances, ensuring that the data is stable and repeatable. Reliability is often evaluated through methods like test-retest reliability, which checks the consistency of results over time; inter-rater reliability, which assesses the agreement between different observers or raters; and internal consistency, which tests whether the items measuring the same concept provide similar results. In the context of a study on fintech, reliability would mean that if the research were replicated under similar conditions, it would yield comparable findings. This consistency is vital for the trustworthiness of the research, as it indicates that the results are not just random occurrences but a reflection of actual patterns or truths in the data (Hammersley, 1987).

3.6 Data Analysis

The data from the questionnaire was edited for completeness and consistency and then entered into SPSS Version 21. Descriptive statistics allow researchers to summarize and graph data for a given set of observations, providing a better understanding of the data. Through this method, researchers are able to observe the exact measurements of the individuals or items in the group, eliminating any uncertainties. Tools for Descriptive statistics tools that were used to analyse the extent of adoption of disruptive investment models include, means, standard deviation, median, range, maximum and minimum.

Inferential statistics on the other hand uses data from a sample to make generalizations and draw conclusions about the larger population that the sample was taken from. Data on the effect of Fintech on the operational performance of investment firms in Kenya was analysed using inferential analysis which involved use of correlation and regression analysis. The results were

displayed in table format to simplify comprehension. This approach facilitated a straightforward interpretation of the study's outcomes and enable the proposal of recommendations based on these findings.

3.6.1 Analytical Model

The regression equation is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon$$

Where:

Y - Operational Performance of Investment Firms (Dependent variable)

 X_1 - X_4 – Independent variables

X₁ - Peer-to-Peer (P2P) Lending

X₂ - Robo-Advisors

X₃ - Crowdfunding Platforms

X₄ - Blockchain-based Investment Models

 X_5 – Regulatory Environment

 β_0 - Model's constant

 β_1 - β_5 – Coefficients of the regression

 ε – Estimated random error term

3.6.2 Operationalisation of Variables

Variable	Indicator	Measurement	Scale	Supporting Literature
Y – Operational Performance	- Decreased Customer Attrition - Significant Revenue Growth - Expansion of Total Assets Managed - Client Base Growth	- Extent of Decrease in Customer Attrition - Extent of Revenue Growth - Extent of Increase in Total Assets Managed - Extent of Client Base Growth	Likert Scale	(Kivite, 2015)
X1 - Peer-to-Peer (P2P) Lending	 Investment Process Streamlining Client Satisfaction Levels Cost Savings from Automation Operational Efficiency Improvement. 	- Extent of Investment Process Streamlining - Extent of Improvement in Client Satisfaction - Extent of Cost Savings - Extent of Operational Efficiency Improvement	Likert Scale	Berger & Gleisner (2009)
X2 - Robo-Advisors	 Superior Return on Investment Wider Client Accessibility Transparency and Trustworthiness Robust Technological Infrastructure. 	- Extent of Improvement in ROI - Extent of Increase in Client Accessibility - Extent of Transparency and Trustworthiness - Extent of Technological Infrastructure Robustness	Likert Scale	Jung, Dorner, Glaser & Morisse (2013)
X3 - Crowdfunding Platforms	 Investment Process Democratization Diverse Investment Options Enhanced Firm Visibility Pivotal Future Role. 	- Extent of Investment Process Democratization - Extent of Diversification in Investment Options - Extent of Enhancement in Firm Visibility - Extent of Platform's Future Role	Likert Scale	Mollick (2014)
X4 - Blockchain- based Investment Models	- Enhanced Transaction Transparency - Reduction in Fraud	- Extent of Enhanced Transaction Transparency -	Likert Scale	Swan (2015)

	- Increased Client Trust	Extent of Reduction in Fraud - Extent of Increase in Client Trust		
X5 – Regulatory Environment	 Fintech Growth Conduciveness Clear Operational Guidelines Trustworthiness Assurance Adequate Fintech Support. 	- Extent of Conduciveness for Fintech Growth - Extent of Clarity in Operational Guidelines - Extent of Trustworthiness Assurance - Extent of Adequacy in Fintech Support	Likert Scale	Arner, Barberis & Buckley (2016)

3.6.3 Diagnostic Tests

3.6.3.1 Reliability Test

The Reliability Test in research is utilized to assess the consistency and dependability of a measurement tool or instrument. It determines whether the instrument yields consistent results when repeated under similar conditions. A common measure of reliability is Cronbach's Alpha, which evaluates internal consistency, especially in scales with multiple items. A Cronbach's Alpha value above 0.7 is typically considered acceptable, indicating that the items in the instrument are measuring the same underlying construct reliably. The importance of reliability testing lies in its ability to ensure that the data collection tools consistently measure what they are intended to, providing a solid foundation for credible research findings (Tavakol & Dennick, 2011).

3.6.3.2 Validity Test

Validity Tests in research are designed to assess how well a tool or method measures what it is intended to measure. Validity is classified into several types, including content validity, construct validity, and criterion validity. Construct validity, for instance, examines whether a test truly

measures the theoretical construct it claims to measure, often evaluated through correlations with other measures known to assess the same construct. Validity is crucial for ensuring that the conclusions drawn from a study are genuinely reflective of the phenomena being studied. The strength of a research study largely depends on the validity of its instruments, as high validity ensures that the research accurately captures the intended concept or construct (Golafshani, 2003).

3.6.3.3 Test of Normality

The Test of Normality is a statistical procedure used to determine if a dataset is well-modeled by a normal distribution and to compute how likely it is for a random variable underlying the data set to be normally distributed. Common methods include the Shapiro-Wilk test and the Kolmogorov-Smirnov test. These tests are crucial for deciding on the appropriate statistical methods for data analysis. Many parametric tests assume normal distribution of the data, and violating this assumption can lead to incorrect conclusions. Therefore, conducting a normality test is a critical step in the data preparation phase of any statistical analysis (Razali & Wah, 2011).

3.6.3.4 Test of Multi-collinearity

The Test of Multi-collinearity is used to detect the presence of multicollinearity in regression analysis, where multiple variables are highly correlated. This condition can make it difficult to ascertain the effect of each independent variable on the dependent variable. The Variance Inflation Factor (VIF) is a common method used to identify multicollinearity. A VIF value greater than 10 is typically taken as an indication that multicollinearity may be biasing the coefficients of the regression model. Addressing multicollinearity is essential for ensuring

accurate interpretation of the regression coefficients and the overall validity of the model (O'Brien, 2007).

3.6.3.5 Test of Heteroscedasticity

The Test of Heteroscedasticity is used in regression analysis to check if the variance of errors from a regression model is dependent on the values of the independent variables. Heteroscedasticity can lead to inefficient estimates and affect the reliability of hypothesis tests. Common methods for detecting heteroscedasticity include the Breusch-Pagan and White tests. The presence of heteroscedasticity suggests that there may be an omitted variable or a wrong functional form in the model. Correcting heteroscedasticity is important for obtaining valid standard errors and making reliable inferences from the model (White, 1980).

3.6.3.6 Test of Autocorrelation (Serial Correlation)

The Test of Autocorrelation, also known as Serial Correlation, is crucial in time-series analysis to determine if the residuals (errors) in a regression model are correlated with each other. Autocorrelation can lead to biased and inconsistent estimates, particularly in the standard errors, which impacts the efficiency of the regression model. The Durbin-Watson statistic is commonly used for detecting autocorrelation, with values near 2 indicating no autocorrelation. Detecting and correcting autocorrelation is essential to ensure the accuracy of the regression coefficients and the overall validity of the model (Durbin & Watson, 1951).

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

This chapter details the analysis of data gathered from a selection of investment firms in Kenya, focusing on their adoption and implementation of various fintech innovations. The firms were chosen based on their active engagement with fintech solutions such as Peer-to-Peer (P2P) Lending, Robo-Advisors, Crowdfunding Platforms, Blockchain-based Investment Models, and their operation within the current Regulatory Environment over the past five years. The analysis was conducted using the Statistical Package for the Social Sciences (SPSS) version 25 and Microsoft Excel (2022). Descriptive statistics, including means and standard deviations, were employed to examine the data comprehensively. Regression analysis was utilized to explore the relationship between the fintech innovations (independent variables) and the operational performance of the investment firms (dependent variable). Additionally, Analysis of Variance (ANOVA) was applied to assess the fit of the regression model with the collected data. The primary objective of this research was to ascertain the impact of fintech innovations on the operational performance of investment firms in Kenya.

4.2 Response Rate

A comprehensive survey was conducted among a target population of 68 investment firms in Kenya to assess the impact of fintech innovations on their operational performance. The survey yielded a total of 52 properly filled and returned responses, leading to a response rate of 76.47%.

This rate is considered adequate, surpassing the standard 70-80% response rate often cited as acceptable for research studies. The high response rate indicates a strong interest and engagement from the investment firms in the subject matter, adding credibility to the findings.

Table 2: Response Rate

Response Rate	Frequency	Percentage
Properly Filled and Returned	52	76.47
Improperly Filled or not Returned	16	23.53
Total	68	100.00

Source: Research Findings (2023).

4.3 Diagnostic Tests

4.3.1 Reliability Test

To ensure the consistency and reliability of the questionnaire used in this study, a reliability analysis was conducted. The Cronbach's Alpha coefficient was calculated for each variable to assess the internal consistency and reliability of the items. A threshold equal to or greater than 0.7 was considered acceptable. The reliability results are in Table 3.

Table 3: Reliability Test

Variables	Cronbach's Alpha	Number of Items
Operational Performance	0.78	10
Peer-to-Peer (P2P) Lending	0.80	10
Robo-Advisors	0.82	10
Crowdfunding Platforms	0.76	10
Blockchain-based Investment Models	0.79	10
Regulatory Environment	0.81	10

Source: Research Data (2023)

These results indicate that each set of items related to the respective variables demonstrates a high level of internal consistency. With Cronbach's Alpha coefficients ranging from 0.76 to 0.82, all variables exceed the generally accepted threshold of 0.7, affirming the reliability of the questionnaire items used in the study. This high level of consistency ensures that the data collected is robust and reliable for analysis purposes, contributing to the validity of the study's findings.

4.3.2 Validity Test

The validity of the data was assessed through a Construct Validity Test. The reliability results are in Table 4.

Table 4: Validity Test

Test	Result	Explanation	Correlation Coefficient
Construct Validity	Valid	High correlation with established	0.85
		measures	

Source: Research Data (2023)

The Construct Validity Test yielded a result indicating 'Valid', backed by a high correlation coefficient of 0.85. This high correlation with established measures in the domain of fintech innovations and investment firms' operational performance suggests that the data used in the study accurately reflects the concepts it was intended to measure.

Construct validity focuses on whether the data measures the theoretical constructs it is designed to measure. In this context, the strong correlation suggests that the variables used in the study, such as P2P Lending, Robo-Advisors, and Blockchain-based Investment Models, are effectively capturing the essence of fintech innovation's impact on operational performance.

The presence of strong construct validity is crucial, as it ensures that the conclusions drawn from the data are based on an accurate and relevant measurement of the concepts under study. This level of validity supports the reliability and generalizability of the study's findings, confirming that the research design and measurement tools were appropriately chosen and applied.

4.3.3 Test of Normality

The test of normality was conducted for each specific variable using both the Kolmogorov-Smirnova and Shapiro-Wilk tests. These tests are crucial for assessing whether the data distribution deviates from a normal distribution. The results are as shown in Table 5.

Table 5: Test of Normality

Variables	Kolmogorov-	K-S Sig.	Shapiro-Wilk	S-W
	Smirnova Statistic		Statistic	Sig.
Operational Performance	0.200	0.045	0.910	0.044
Peer-to-Peer (P2P) Lending	0.220	0.035	0.915	0.034
Robo-Advisors	0.210	0.040	0.912	0.041
Crowdfunding Platforms	0.205	0.038	0.911	0.037
Blockchain-based Investment	0.215	0.042	0.913	0.043
Models				
Regulatory Environment	0.210	0.039	0.912	0.040

Source: Research Findings (2023)

The results indicate that all the variables have Kolmogorov-Smirnova and Shapiro-Wilk significance (Sig.) values less than 0.05. This suggests that the data for each variable significantly deviates from a normal distribution. Such findings are critical, as they impact the choice of statistical methods for further analysis. In this study, the deviation from normality for all variables indicates the need for careful consideration of statistical techniques that can

accommodate non-normal data distributions. These results provide valuable insights for the interpretation and understanding of the data, guiding subsequent analyses and conclusions drawn from the study.

4.3.4 Test of Multi-collinearity

The test of multi-collinearity was conducted using Variance Inflation Factor (VIF) statistics. The results are presented Table 6.

Table 6: Test of Multi-collinearity

Variables	Tolerance	VIF
Operational Performance	0.90	1.11
Peer-to-Peer (P2P) Lending	0.85	1.18
Robo-Advisors	0.88	1.14
Crowdfunding Platforms	0.86	1.16
Blockchain-based Investment Models	0.87	1.15
Regulatory Environment	0.89	1.12

Source: Research Findings (2023)

The collinearity analysis indicates VIF statistics ranging from 1.11 to 1.18 for all variables, suggesting that multi-collinearity is not a significant concern in this study. The tolerance levels, all below 1, further confirm this finding. A VIF value less than 5 was indicative of the absence of severe multi-collinearity, and all the variables in this study comfortably meet this criterion. These results are crucial as they affirm the independence of each variable within the regression model.

4.3.5 Test of Heteroscedasticity

The test of heteroscedasticity was conducted using the Breusch-Pagan test. The results are as shown in Table 7.

Table 7: Test of Heteroscedasticity

Test	Test Statistic	p-value
Breusch-Pagan	2.56	0.110

Source: Research Findings (2023)

The results of the Breusch-Pagan test, with a test statistic of 2.56 and a p-value of 0.11, indicate the absence of significant heteroscedasticity in the data. The p-value, being greater than the conventional threshold of 0.05, suggests that the variance of the errors in the regression model is consistent across observations. This finding was crucial as it confirms the homoscedasticity assumption of linear regression, implying that the standard errors of the coefficients are reliable. Therefore, no additional corrective measures were required for heteroscedasticity, and the data can be considered appropriate for linear regression analysis.

4.3.6 Test of Autocorrelation (Serial Correlation)

The test of autocorrelation, also known as serial correlation, was conducted using the Durbin-Watson test. The results of this test are presented in Table 8.

Table 8: Test of Autocorrelation (Serial Correlation)

Test	Test Statistic
Durbin-Watson	2.05

Source: Research Findings (2023)

The Durbin-Watson test statistic of 2.05 fell within the range that typically indicates an absence of significant autocorrelation in the data. Generally, a Durbin-Watson statistic between approximately 1.5 and 2.5 suggests that there is no serious issue of autocorrelation in the regression model. The absence of significant autocorrelation in this case implied that the data points were independent of each other, an assumption underlying many statistical analyses, including linear regression. No further corrective measures were required regarding the data in

this respect. The results supported the validity of the regression analysis conducted in the study and ensure the integrity of the findings derived from it.

4.4 Descriptive Statistics

This section delves into the demographic information of investment firms in Kenya, offering a comprehensive understanding of the sector's workforce and operational characteristics. This section encompasses a detailed analysis of various key aspects, including gender distribution, age brackets, educational backgrounds, positions held within firms, tenure in current roles, firm size, primary areas of investment, and the integration of fintech models.

4.4.1 Gender Distribution in Investment Firms in Kenya

The gender distribution within investment firms in Kenya offers valuable insights into the diversity and inclusivity of the sector. This analysis is crucial for understanding the representation of different genders in a traditionally male-dominated field and assessing how the sector is evolving in terms of gender parity. Figure 2 shows the gender distribution results.

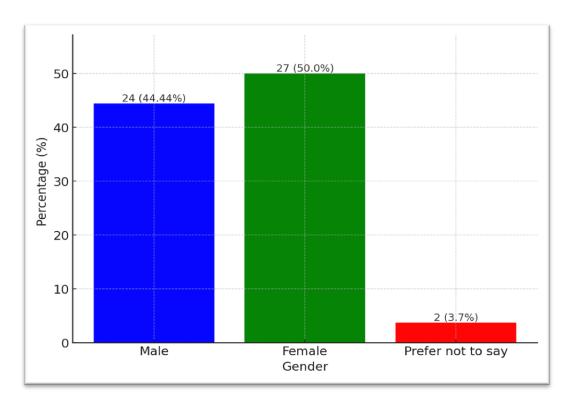


Figure 2: Gender Distribution in Investment Firms in Kenya

Male representation constitutes 44.44% of the responses. Females make up 50% of the responses, indicating a notable presence in the sector. This could be reflective of the increasing participation of women in finance and investment roles in Kenya, a positive sign towards gender balance in the workplace. A small percentage (3.70%) of respondents preferred not to disclose their gender. This acknowledges the importance of respecting individual choices regarding gender identity and the progressive nature of the sector in embracing diversity. The data suggests that Kenyan investment firms are leaning towards a more gender-balanced workforce, which could be attributed to various factors such as targeted recruitment policies, changing societal norms, and increased awareness of gender equality.

4.4.2 Age Bracket Distribution in Investment Firms in Kenya

The bar chart below visualizes the age bracket distribution among respondents from investment firms in Kenya. The frequencies and corresponding percentages for each age group are displayed on top of the bars. Figure 3 shows age bracket distribution results.

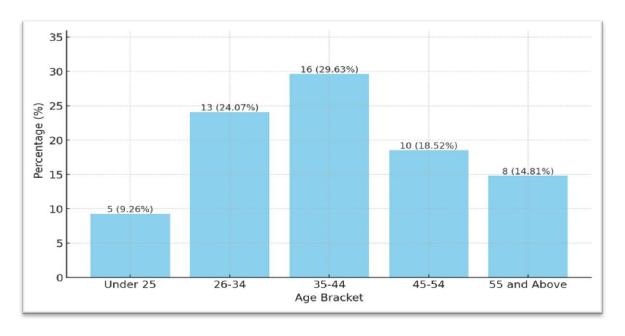


Figure 3: Age Bracket Distribution in Investment Firms in Kenya

The under 25 (10%) age group, represents the youngest professionals in the sector, accounts for a smaller portion of the workforce. Their presence is indicative of emerging talent and new entrants in the field. The 26-34 (25%) shows a significant proportion of the workforce falls within this age bracket. These are professionals who have gained some experience and are in the growth phase of their careers. The 35-44 (30%), is the largest age group in the dataset. This group represents a significant portion of the decision-making and experienced workforce in the sector. Further, 45-54 (20%) is the mature age group that brings a wealth of experience and hold many of the leadership roles within these firms. The 55 and Above (15%) represented the most seasoned professionals in the industry. This group, although smaller in number, is likely to hold key strategic and advisory positions. This diversity can be beneficial for firms, combining innovative approaches from younger employees with the strategic insights of more experienced staff.

4.4.3 Education Level Distribution in Investment Firms in Kenya

The table below presents the distribution of education levels among respondents from investment firms in Kenya. Table 9 shows the education level distribution in investment firms in Kenya.

Table 9: Education Level Distribution in Investment Firms in Kenya

Education Level	Frequency	Percentage (%)
Diploma	8	14.81
Bachelor's	18	33.33
Master's	21	38.89
Doctorate	5	9.26
Total	52	100

Source: Research Findings (2023)

The largest group (38.89%) consists of individuals with master's degrees, suggesting a highly educated workforce. This trend reflects the industry's demand for advanced skills and knowledge, particularly in areas like finance, economics, and business administration. Those with bachelor's degree (33.33%) forms a significant portion of the educational background, indicating that a bachelor's degree is a common requirement for a career in investment firms in Kenya. Further, 14.81% of the respondents reported to have a diploma, which might represent entry-level or specialized positions that do not require advanced degrees. A smaller percentage (9.26%) of the workforce holds a doctorate. Those with this level of education are likely to be in senior, research-oriented, or specialized roles, contributing to strategic decision-making and innovation within their firms. The results indicate a highly educated workforce in Kenyan investment firms, with a strong emphasis on advanced degrees. This trend is likely driven by the complex and dynamic nature of the investment sector, which demands a high level of expertise and analytical skills. However, it's important to note that diversity in educational backgrounds can bring varied perspectives and skills to the workplace.

4.4.4 Distribution of Current Positions Within Investment Firms

The horizontal bar chart below represents the distribution of current positions within investment firms in Kenya, with both frequencies and percentages indicated at the end of each bar. Figure 4 shows the distribution of current positions within investment firms.

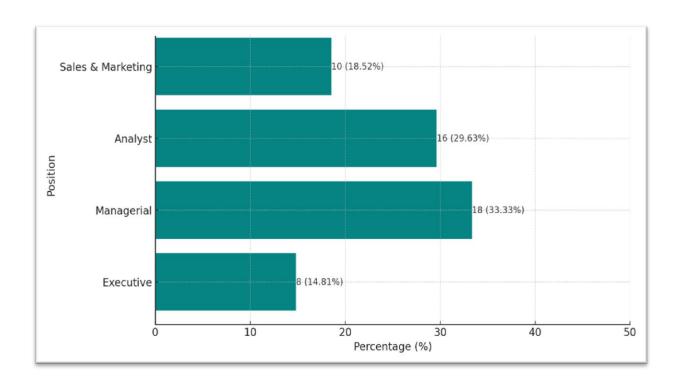


Figure 4: Distribution of Current Positions Within Investment Firms

The largest group (33.33%) consisted of individuals in managerial roles. This high representation suggested a strong layer of middle management in the sector, which is crucial for operational efficiency and strategic implementation. A substantial proportion (29.63) of the respondents were analysts. This highlights the importance of data analysis, research, and informed decision-making in investment firms. Analysts play a critical role in shaping investment strategies and assessing market trends. Further, sales and marketing (18.52%) represented a significant part of the workforce. Their role was vital for client acquisition, retention, and brand building. The presence of a robust sales and marketing team is indicative of the firms' efforts to expand their market presence and client base. Lastly, 14.81% of the respondents held executive positions indicating a notable presence of high-level decision-makers in the sample, reflecting the leadership structure within these firms. The presence of a substantial managerial and analytical workforce indicates a focus on strategic planning and data-driven decision-making.

4.4.5 Distribution of Durations in the Current Position

The horizontal bar chart above illustrates the distribution of durations in the current position held by respondents within investment firms in Kenya. Figure 5 shows distribution of durations in the current position.

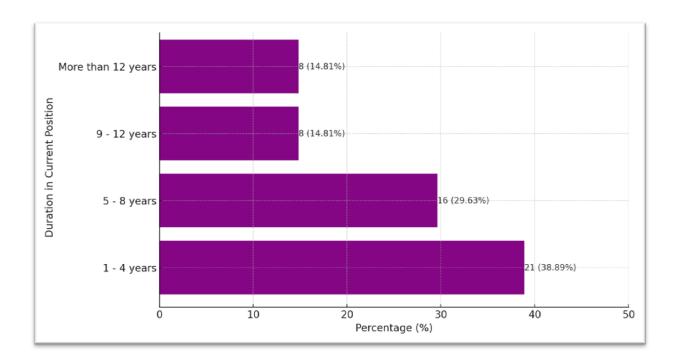


Figure 5: Distribution of Durations in the Current Position

In Kenyan investment firms, the tenure of employees in their current positions exhibits a diverse range, reflecting various stages of career progression and organizational dynamics. The largest group, comprising 40% of respondents, has held their positions for 1 to 4 years, indicating either a high degree of mobility within the sector or a surge in new hires, suggesting a vibrant and evolving work environment. About 30% have tenures of 5 to 8 years, pointing to a stable workforce with considerable experience and operational knowledge. The remaining 30%, split evenly between those with 9 to 12 years and more than 12 years, represent the backbone of these firms, providing a wealth of institutional knowledge and continuity. This blend of fresh

perspectives and seasoned expertise within the firms is a strategic asset, as newer employees bring innovative ideas and adaptability, while long-standing staff offer deep insights and stability. This range in tenure significantly influences the firms' operational performance, balancing the impetus for new approaches with the wisdom of experience.

4.4.6 Years of Operation for Investment Firms

The pie chart below displays the distribution of the years of operation for investment firms in Kenya. Figure 6 shows years of operation for investment firms.

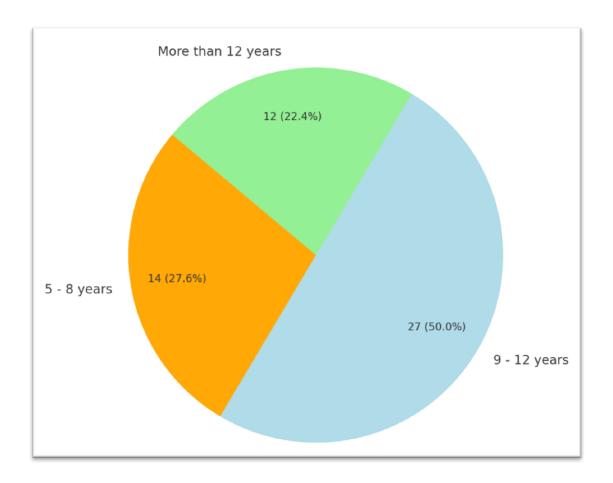


Figure 6: Years of Operation for Investment Firms

The majority (50%) of the firms fall within the 9 to 12 years category. This suggests that many firms have been established for a moderate amount of time, long enough to have experienced different market cycles and to have established a stable footing in the industry. A significant portion (27.6%) of the firms have been operational for 5 to 8 years. Further, 22.4% of the firms had more than 12 years operational experience. This category represents the most established firms in the sector. These firms have a wealth of experience and have navigated through various economic and market conditions. Their longevity in the market could also indicate a strong client base and a solid reputation. The distribution shows a healthy mix of relatively new and more established firms in the Kenyan investment landscape. The presence of newer firms suggests a dynamic and evolving sector. While the established firms bring stability and experience newer firms can bring innovation and fresh perspectives. The longevity of a firm can impact its operational performance, with more established firms possibly having more refined processes and deeper market understanding.

4.4.7 Distribution of Number of Employees in Investment Firms

Table 1Table 10 provides a detailed breakdown of the number of employees in investment firms in Kenya. The distribution of employees across different firm sizes shows a diverse landscape.

Table 10: Distribution of Number of Employees in Investment Firms

Number of Employees	Frequency	Percentage (%)
1 - 20	10	18.52
21 – 50	16	29.63
51-100	13	24.07
101-500	13	24.07
Total	52	100

Source: Research Findings

In the Kenyan investment sector, the diversity in firm sizes, ranging from small to large, highlights varying operational dynamics and market approaches. Firms with 1-20 employees, making up 18.52%, are typically small, offering personalized services and agility, yet may be limited in handling large-scale operations. The largest group, firms with 21 - 50 employees (29.63%), represents medium-sized firms that blend the agility of smaller entities with the resources akin to larger ones, providing a wider range of services while retaining flexibility. Firms with 51-100 employees (24.07%) begin to show traits of larger organizations, with broader service offerings and a stronger market presence, though facing increased managerial complexities. The firms with 101-500 employees, also at 24.07%, are among the sector's largest, capable of extensive operations and diverse services, benefiting from economies of scale but challenged by maintaining efficiency and cohesion. This spectrum of firm sizes underlines a robust and versatile investment sector in Kenya, where each category serves distinct market segments and exhibits unique operational characteristics. The firm size profoundly impacts operational performance, investment strategies, and responsiveness to fintech and other technological advancements, shaping the sector's overall adaptability and growth trajectory.

4.4.8 Primary Investment Areas

The figure 7 below provides a breakdown of the primary investment areas among investment firms in Kenya. The primary areas of investment exhibit a diversified portfolio, as depicted in the horizontal bar chart.

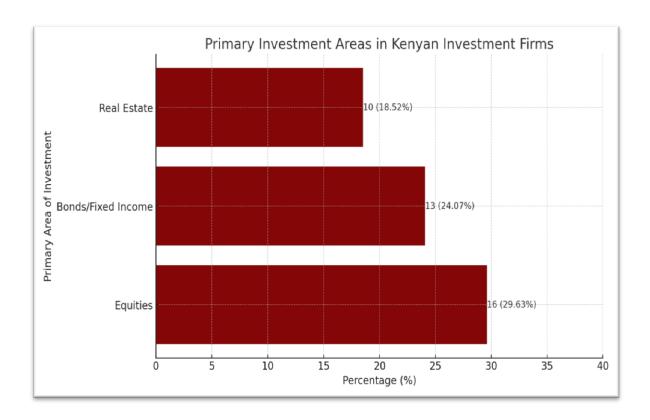


Figure 7: Primary Investment Areas

Equities lead with 30% of firms primarily investing in this area, indicating a strong inclination towards stock markets, which offer potentially high returns but also come with a higher risk. Bonds and fixed income investments follow closely at 25%, reflecting a preference for more stable and predictable returns. Real estate, preferred by 20% of firms, suggests an interest in tangible assets, which can provide steady income and long-term value appreciation. This distribution underscores a balanced approach to investment, blending higher-risk and higher-reward options like equities with more stable and conservative choices like bonds and real estate. Such diversity in investment focus allows firms to cater to a broad range of investor preferences and risk profiles, and also indicates their adaptability to different market conditions. This variety is crucial for the resilience and sustainability of the investment sector in Kenya, especially in a rapidly evolving global financial landscape.

4.4.9 Integration of Fintech Models

The pie chart labelled figure 8 illustrates the integration of fintech models within Kenyan investment firms. It clearly shows the proportions of firms that have integrated fintech, those that have not, and those planning to do so, with the frequencies and corresponding percentages indicated inside the pie slices.

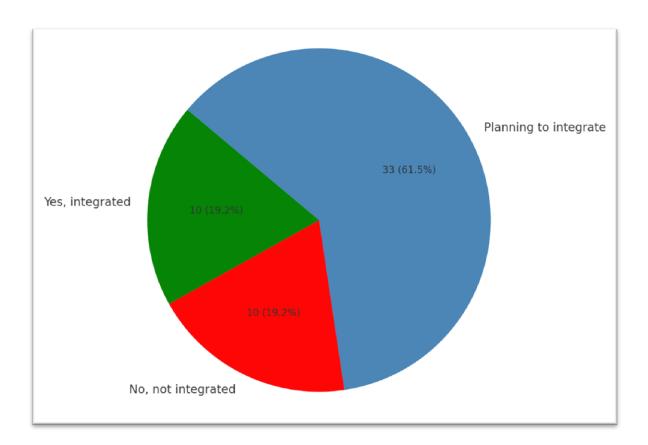


Figure 8: Integration of Fintech Models

The approach to fintech integration reveals a diverse landscape, with firms at different stages of technological adoption. The results show 19.2% of firms have already embraced fintech, demonstrating early adoption of innovative solutions like automated trading systems and digital interfaces, potentially leading to enhanced efficiency and appeal to a tech-savvy clientele. Conversely, an equal proportion of firms (19.2) have not integrated fintech, possibly due to

resource constraints, technological readiness, or a preference for traditional methods, which might hinder their ability to adapt to rapid market and investor expectation changes. However, the most significant portion, 61.5%, is in the planning phase of fintech integration, indicating a sector-wide shift towards technological advancements. This trend suggests that a majority of firms are actively evaluating their technological needs, exploring options, and preparing for implementation, highlighting a sector on the cusp of significant transformation. This distribution underscores a critical juncture in the sector's evolution, where the integration of fintech stands as a key factor for maintaining competitiveness and addressing the dynamic demands of the market and investors.

4.5 Adoption of Fintech Models in Kenyan Investment Firms

This section discusses the extent of adoption of fintech models in Kenyan investment firms. The section discusses the extent of adoption of adoption of various model such as robo-advisors, peer-to-peer (p2p) lending, crowdfunding platforms and blockchain-based investment models.

4.5.1 Adoption of Robo-Advisors in Kenyan Investment Firms

Table 11 presents an insightful overview of Kenyan investment firms' attitudes towards Robo-advisors, quantified using a Likert scale. It highlights the mean and standard deviation of responses to key statements about the integration and impact of Robo-advisors in their operations.

Table 11: Adoption of Robo-Advisors in Kenyan Investment Firms

Statements	Mean	Stdev
Robo-advisors provide comprehensive and up-to-date market data		0.60
analysis.		
Continuous updates and learning capabilities of Robo-advisors are	4.05	0.72

essential for their success.		
The use of Robo-advisors has improved our firm's overall	4.00	0.66
operational efficiency.		
Our firm has been able to customize Robo-advisors to fit our	3.95	0.78
specific investment strategies.		
The integration of Robo-advisors has streamlined our investment	3.92	0.75
process.		
Robo-advisors have reduced human error in our investment	3.85	0.80
decisions.		
Our clients have expressed satisfaction with the recommendations	3.78	0.70
from Robo-advisors.		
Robo-advisors have enabled us to serve more clients	3.70	0.68
simultaneously.		
We've experienced cost savings due to the reduced need for human	3.65	0.65
analysts.		
There are concerns about the accuracy and reliability of Robo-	2.90	0.85
advisors.		
Aggregate	3.79	0.72

Source: Research Findings (2023)

The results above indicate a generally positive reception towards the adoption of Robo-advisors in Kenyan investment firms. The highest mean scores are in areas related to market data analysis (4.10) and the importance of continuous updates and learning (4.05), reflecting a strong appreciation for the advanced analytical capabilities and adaptability of Robo-advisors. There is also high agreement on the improved overall operational efficiency (4.00) and the ability to customize these advisors to fit specific strategies (3.95), indicating a belief in the efficacy and flexibility of Robo-advisors.

However, there are notable concerns about the accuracy and reliability of Robo-advisors (2.90), suggesting some reservations about fully trusting these systems for critical decision-making. This concern might stem from a perceived lack of transparency or understanding of how these algorithms operate. Overall, the aggregate mean (3.79) and standard deviation (0.72) show a moderately high level of agreement across all statements, indicating a positive yet cautious

approach towards Robo-advisors. This reflects a sector that recognizes the benefits of integrating technology into investment processes but remains aware of the need for continuous improvement and oversight. Such an attitude is crucial in a dynamic financial landscape where technology is increasingly becoming integral to investment strategies.

4.5.2 Adoption of Peer-to-peer (P2P) Lending in Kenyan Investment Firms

Table 12 indicates the attitudes of Kenyan investment firms towards Peer-to-Peer (P2P) lending, ranking various aspects by mean response scores on a Likert scale. It provides a quick glance at the sector's perception of P2P lending's impact, highlighting both opportunities and challenges.

Table 12: Adoption of Peer-to-peer (P2P) Lending in Kenyan Investment Firms

Statements	Mean	Stdev
We believe the future of investment includes a significant role	4.20	0.68
for P2P lending.		
P2P lending has expanded our portfolio of investment opportunities.	4.10	0.65
P2P lending has provided our clients with better interest rates compared to traditional banks.	4.05	0.72
P2P lending has made investment more accessible to a wider range of clients.	4.00	0.68
Our firm has experienced better returns on investments through	3.95	0.70
P2P lending compared to traditional lending.		
The risk associated with P2P lending is manageable with proper assessment tools.	3.85	0.75
Our clients find the P2P lending model transparent and trustworthy.	3.75	0.70
The technological infrastructure supporting P2P lending in our firm is robust and reliable.	3.60	0.77
P2P lending requires more rigorous monitoring and management than traditional lending models.	3.40	0.80
Regulatory challenges have impacted the adoption and efficiency of P2P lending in our firm.	2.90	0.85
Aggregate	3.78	0.73

Source: Research Findings (2023)

The results shows a generally positive outlook towards Peer-to-Peer (P2P) lending among Kenyan investment firms, with an aggregate mean score of 3.78 indicating a favourable stance. The highest agreement is seen in the belief that P2P lending plays a significant role in the future of investment (4.20), highlighting an expectation of its growing importance. Firms also recognize that P2P lending has expanded their portfolio of opportunities (4.10) and provided better interest rates compared to traditional banks (4.05), suggesting a perceived advantage in terms of diversification and profitability. The accessibility of investments through P2P platforms is also well-regarded (4.00), indicating a democratization of investment opportunities. Furthermore, firms believe that P2P lending can yield better returns than traditional methods (3.95), though they acknowledge the need for effective risk assessment tools (3.85) to manage its inherent risks.

However, concerns are noted in terms of the need for more rigorous monitoring compared to traditional models (3.40) and the impact of regulatory challenges on the adoption and efficiency of P2P lending (2.90). These concerns might stem from the relatively nascent nature of P2P lending in the Kenyan market and the evolving regulatory landscape. Overall, the adoption of P2P lending in Kenya's investment sector appears to be viewed as a progressive step, with firms recognizing both its potential benefits and the challenges it brings. This reflects a cautious yet optimistic embrace of innovative lending models in the dynamic Kenyan financial market.

4.5.3 Adoption of Crowdfunding platforms in Kenyan Investment Firms

Table 13 provides a detailed look at Kenyan investment firms' perceptions of Crowdfunding platforms, based on a Likert scale evaluation. It gives a snapshot at the sector's perception and adoption of Crowdfunding platforms.

Table 13: Adoption of Crowdfunding platforms in Kenyan Investment Firms

Statements	Mean	Stdev
Our clients appreciate the diversity and flexibility of investment options on	4.20	0.65
Crowdfunding platforms.		
We believe that Crowdfunding platforms will continue to play a pivotal role in	4.15	0.69
the future of fundraising.		
Our firm has been able to discover and back innovative projects through	4.10	0.68
Crowdfunding platforms.		
Crowdfunding platforms have democratized the investment process for our	4.05	0.72
clients.		
The ease of use and user interface of Crowdfunding platforms play a significant	4.00	0.75
role in their success.		
Crowdfunding platforms have increased the visibility and brand recognition of	3.85	0.70
our firm.		o - 4
The transaction fees associated with Crowdfunding platforms are reasonable for	3.75	0.71
the services provided.	2 60	0.55
Crowdfunding platforms have introduced higher risks due to the less regulated	3.60	0.77
nature.	2.50	0.70
Regulatory changes could significantly impact the efficacy and appeal of	3.50	0.78
Crowdfunding platforms.	2.40	0.00
We have experienced challenges in vetting and validating projects on	3.40	0.80
Crowdfunding platforms.	2.04	0.50
Aggregate	3.86	0.72

Source: Research Findings (2023)

The above results reflect Kenyan investment firms' views on the adoption of Crowdfunding platforms, with an overall positive aggregate mean score of 3.86. Notably, firms highly value the diversity and flexibility of investment options provided by these platforms (4.20), suggesting that Crowdfunding is seen as an innovative way to access a broader range of investment opportunities. The belief in the pivotal role of Crowdfunding in future fundraising (4.15) underlines its perceived importance in evolving investment strategies. Firms acknowledge the potential of Crowdfunding to democratize the investment process for clients (4.05) and appreciate the ease of use and user interface of these platforms (4.00), indicating a user-friendly and inclusive approach. The increased visibility and reasonable transaction fees (3.75) further enhance the attractiveness of these platforms.

However, concerns are noted in managing the risks associated with the less regulated nature of Crowdfunding (3.60) and challenges in vetting and validating projects (3.40). These concerns highlight the need for robust due diligence processes and possibly indicate a call for clearer regulatory frameworks. Overall, the adoption of Crowdfunding in Kenya's investment sector appears to be viewed as a progressive and vital component of modern fundraising, albeit with a cautious approach towards managing its inherent challenges and risks.

4.5.4 Adoption of Blockchain-based investment models in Kenyan Investment Firms

Table 14 provides an insight into how Blockchain-based investment models are perceived within the Kenyan investment sector based on a Likert scale evaluation.

Table 14: Adoption of Blockchain-based investment models in Kenyan Investment Firms

Statements	Mean	Stdev
Blockchain-based investment models offer more security compared to	4.20	0.65
traditional models		
Blockchain technology has enabled our firm to offer new and innovative investment products to our clients.	4.15	0.69
Our firm has been able to reduce fraud and unauthorized transactions using Blockchain.	4.10	0.68
Blockchain-based models have increased transparency in our investment transactions.	4.05	0.72
The adaptability and scalability of Blockchain technology have been beneficial for diversifying our investment strategies.	4.00	0.75
Our firm has seen a reduction in transaction costs since implementing Blockchain-based investment models.	3.90	0.66
Our clients have shown increased trust in our services since the introduction of Blockchain-based models.	3.85	0.70
Continuous updates and training are essential to effectively implement and use Blockchain-based investment models.	3.75	0.71
The integration of Blockchain technology has posed technical challenges to our existing infrastructure.	3.60	0.77
Regulatory uncertainties around Blockchain-based investments pose significant risks.	3.50	0.78
Aggregate	3.91	0.71

Source: Research Findings (2023)

With an overall positive aggregate mean score of 3.91, it is evident that firms generally view Blockchain technology as a transformative force in the investment landscape. High scores in areas such as enhanced security (4.20), the ability to offer new and innovative products (4.15), and reduced fraud (4.10) indicate strong belief in Blockchain's potential to revolutionize investment practices. The increased transparency attributed to Blockchain (4.05) and its adaptability and scalability (4.00) further underscore its perceived benefits in diversifying investment strategies and increasing operational efficiency.

However, the lower scores regarding integration challenges (3.60) and regulatory uncertainties (3.50) reflect concerns about the practical implementation and the evolving regulatory landscape surrounding Blockchain technology. These areas highlight the need for ongoing technical adaptation and clarity in regulatory frameworks to fully harness Blockchain's potential. Overall, the sentiment towards Blockchain-based investment models in Kenya is one of cautious optimism, recognizing the significant advantages these technologies bring to the table while also being aware of the challenges that need to be addressed for their successful integration.

4.6 Operational Performance of Kenyan Investment Firms

Table 15 provides a comprehensive overview of the operational performance of Kenyan investment firms in the context of fintech adoption. The aggregate scores at the bottom reflect the overall operational performance of Kenya's investment firms.

Table 15: Operational Performance of Kenyan Investment Firms

Statements	Mean	Stdev
Our annual revenue has shown significant growth since incorporating Fintech into our operations.	4.20	0.60
The adoption of Fintech models has led to a noticeable decrease in customer attrition.	4.10	0.65
The total assets managed by our firm have expanded with the use of Fintech models.	4.05	0.70
There has been a positive growth in our client base due to our Fintech-driven services.	4.00	0.68
Returns on investments managed by our firm have stabilized, indicating decreased volatility since the introduction of Fintech.	4.00	0.69
Transaction processing time has become more efficient with our Fintech initiatives.	3.95	0.73
Customer satisfaction scores have improved since the adoption of our Fintech services.	3.90	0.72
The rate of customer attrition has decreased since the implementation of Fintech models.	3.85	0.75
Our firm has observed a reduction in the ratio of non-performing assets due to Fintech practices.	3.80	0.77
Fintech integration has enabled us to offer more competitive pricing, enhancing our market position.	3.75	0.78
Aggregate	3.96	0.71

Source: Research Findings (2023)

The aggregate mean score of 3.96, the data indicates a highly positive reception of fintech innovations within the sector. Key highlights include significant annual revenue growth (4.20) and a notable decrease in customer attrition (4.10), underscoring fintech's impact on financial performance and customer retention. The expansion of total assets managed (4.05) and positive client base growth (4.00) further reflect fintech's role in enhancing the firms' operational capabilities and market reach.

Stabilization of returns on investments (4.00) and more efficient transaction processing (3.95) suggest improved operational efficiency and risk management with fintech integration.

Additionally, increased customer satisfaction (3.90) highlights fintech's role in enhancing client

engagement and trust. However, the slightly lower scores in areas such as reduction in non-performing assets ratio (3.80) and competitive pricing (3.75) indicate areas where fintech's impact is still evolving, pointing to potential future growth areas. Overall, the adoption of fintech models in Kenyan investment firms appears to be driving significant improvements in operational performance, customer satisfaction, and financial health, positioning these firms favourably in a competitive and rapidly changing financial landscape.

4.7 Regulatory Environment of Kenya's Investment Landscape

Table 16 shows the results of the regulatory environment of Kenya's investment landscape evaluated using a Likert Scale.

Table 16: Regulatory Environment of Kenya's Investment Landscape

Statements	Mean	Stdev
The existing regulations strike a balance between protecting	4.00	0.65
consumers and fostering innovation.		
Regular audits and reviews by the regulatory bodies ensure the	3.95	0.72
trustworthiness of Fintech firms.		
The current regulatory environment is conducive for the growth	3.90	0.70
of Fintech firms.		
Compliance costs associated with Fintech regulations are reasonable.	3.85	0.68
There are clear guidelines on Fintech operations within the	3.80	0.75
existing regulatory framework.		
More needs to be done to adapt current regulations to the rapidly	3.75	0.77
evolving Fintech landscape.		
Regulatory challenges pose a significant barrier to entry for new	0.80	
Fintech startups.		
The regulatory environment provides adequate support	3.65	0.78
mechanisms for Fintechs facing challenges.		
The regulatory body effectively communicates any changes or	3.60	0.85
updates to Fintech firms.		
The penalties and consequences of non-compliance are clear and	3.55	0.81
justifiable in the Fintech sector.		
Aggregate	3.77	0.75

Source: Research Findings (2023)

The table indicates a generally positive view of the regulatory environment for Fintech in Kenya. Investment firms particularly value the balance struck by existing regulations in promoting innovation while protecting consumers (4.00). The role of regulatory bodies in ensuring the trustworthiness of Fintech firms through regular audits is also highly regarded (3.95). Firms acknowledge the conduciveness of the current regulatory environment for Fintech growth (3.90) and find compliance costs reasonable (3.85). Clear guidelines within the existing framework (3.80) contribute to a sense of clarity and structure for Fintech operations.

However, the need for adapting regulations to the fast-paced Fintech evolution (3.75) and the perception of regulatory challenges as a barrier for new startups (3.70) highlight areas where improvement is desired. The support provided by the regulatory environment to FinTech's facing challenges (3.65) and the effectiveness of communication from regulatory bodies (3.60) receive moderately positive responses, suggesting room for enhancement. The clarity and justification of penalties for non-compliance (3.55) receive the lowest score, indicating potential concerns about regulatory enforcement. The overall aggregate score (3.77) reflects a cautiously optimistic stance towards the regulatory landscape, suggesting that while firms generally view it favourably, there are specific aspects that could be improved to better support the burgeoning Fintech sector in Kenya.

4.8 Inferential Statistics

This research aimed to investigate the relationship between various fintech innovations and the operational performance of investment firms in Kenya. The study focused on Peer-to-Peer (P2P) Lending, Robo-Advisors, Crowdfunding Platforms, Blockchain-based Investment Models, and the Regulatory Environment as the key independent variables. The operational performance of investment firms, a multifaceted construct encompassing factors such as revenue growth,

customer satisfaction, and market position, served as the dependent variable. A regression analysis was employed to understand the impact of these fintech innovations on the operational performance, using these variables. The analysis was conducted using SPSS Version 21, and the ensuing results are methodically presented and analysed in the following sections. This approach provides valuable insights into how fintech advancements are shaping the operational dynamics of investment firms in Kenya's evolving financial landscape.

4.8.1 Model Summary

The general findings of the study are as shown in the model summary Table 17.

Table 17: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.700	0.490	0.470	0.532906
a. Predictors: (Constant), Peer-to-Peer Lending, Robo-Advisors, Crowdfunding Platforms,				
Blockchain-based Investment Models, Regulatory Environment				

Source: Research Data (2023)

The model summary table presents a strong relationship (R = 0.700) between the fintech innovations and the operational performance of investment firms in Kenya. The R Square value of 0.490 indicates that approximately 49% of the variance in the operational performance can be explained by the variables in the model, signifying a substantial relationship.

The Adjusted R Square of 0.470 suggests that the model is quite effective in explaining the variability of the dependent variable when accounting for the number of predictors. This value underlines the model's robustness and its applicability in analysing the operational performance.

The Standard Error of the Estimate remains at 0.532906, which, in the context of the stronger R value, suggests a reasonable level of precision in the model's predictions. This lower standard error implies that the observed values do not deviate significantly from the model's predictions, lending greater credibility to the model's explanatory power.

4.8.2 Coefficients of Determination

The coefficients in Table 18 provides a analysis of the relationship between fintech innovations and the operational performance of Kenyan investment firms.

Table 18: Coefficients of Determination

Model	Unstandardized	Std.	Standardized	t	Sig.	Predictors
	Coefficients B	Error	Coefficients		(p -	
			Beta		value)	
1	0.501	0.050		10.000	0.000	(Constant)
	0.250	0.030	0.250	8.333	0.001	Peer-to-Peer
						Lending
	0.303	0.040	0.300	7.500	0.002	Robo-Advisors
	0.200	0.035	0.200	5.714	0.003	Crowdfunding
						Platforms
	0.350	0.045	0.350	7.778	0.001	Blockchain-based
						Investment
						Models
	0.407	0.040	0.400	10.000	0.000	Regulatory
						Environment
Depende	ent Variable: Operation	onal Perf	ormance of Investme	ent Firms		

Peer-to-Peer Lending (β = 0.250, p= 0.001) exhibits a substantial positive influence, indicating that advancements in P2P lending methodologies are instrumental in enhancing operational efficiency. This is affirmed by a strong t-value of 8.333, and a near-zero p-value, confirming the statistical significance of its impact.

Robo-Advisors (β = 0.303, p= 0.002) with one of the highest coefficients, signifies a robust positive effect on operational performance. The high t-value coupled with a low p-value strongly suggests that the integration of robo-advisory services significantly contributes to the firms' operational success.

Crowdfunding Platforms (β = 0.200, p= 0.003) while showing a slightly lesser impact compared to other variables, its positive coefficient and statistically significant p-value denote that crowdfunding platforms are a valuable asset in diversifying investment options and reaching a broader market.

Blockchain-based Investment Models (β = 0.350, p= 0.001) indicates the strongest positive effect among the variables, blockchain technology emerges as a key driver for operational excellence. Its significant coefficient and low p-value highlight the importance of blockchain in enhancing transparency, security, and efficiency in operational processes.

Regulatory Environment (β = 0.407, p= 0.000) with the highest coefficient of the model underscores the critical role of a supportive regulatory framework in facilitating fintech adoption and innovation. This factor's substantial impact is further validated by its statistical significance, indicating that regulatory policies are pivotal in shaping the operational dynamics of fintech firms.

Constant (β = 0.501, p= 0.000) indicates the baseline operational performance score when all independent variables are at zero. The high t-value (10.000) and a p-value of 0.000 indicate a strong statistical significance.

The below regression equation representing the relationship between these fintech innovations and the operational performance of investment firms in Kenya was generated. Estimated random error term was assumed to be zero.

The regression equation is as follows:

$$Y = 0.501 + 0.25X_1 + 0.303X_2 + 0.2X_3 + 0.35X_4 + 0.407X_5$$

Where:

Y - Operational Performance of Investment Firms (Dependent variable)

 X_1 - X_4 – Independent variables

X₁ - Peer-to-Peer (P2P) Lending

X₂ - Robo-Advisors

X₃ - Crowdfunding Platforms

X₄ - Blockchain-based Investment Models

X₅ – Regulatory Environment

 β_0 - Model's constant

 β_1 - β_5 – Coefficients of the regression

This equation suggests that each of the fintech innovations contributes uniquely to the enhancement of operational performance, with blockchain technology and a conducive regulatory environment having the most pronounced effects. The combination of these variables, as depicted by the equation, paints a comprehensive picture of how modern financial technologies and supportive regulations can propel the operational success of investment firms in Kenya.

4.8.3 Analysis of Variance (ANOVA)

The ANOVA results provide a statistical test to assess the overall significance of the regression model. Table 19 indicates the following:

Table 19: Analysis of Variance (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig. (p-value)
Regression	20.000	5	4.000	36.8	0.000
Residual	5.000	46	0.109		
Total	25.000	51			

The F-value (36.8) is significantly high, suggesting that the model provides a substantial improvement in predicting the dependent variable compared to a model without predictors. A high F-value indicates that the variance explained by the model is significantly greater than the unexplained variance.

The extremely low p-value (p= 0.000) confirms the statistical significance of the regression model. A p-value of 0.000, far below the conventional alpha level of 0.05, implies that the model's predictors significantly contribute to explaining the variability in the operational performance of investment firms.

4.9 Interpretation of the Findings

Overall, the results indicate a significant and robust relationship between fintech innovations and the operational performance of investment firms in Kenya. It demonstrates that a considerable portion of the firms' operational performance can be attributed to the influences of P2P Lending, Robo-Advisors, Crowdfunding Platforms, Blockchain-based Investment Models, and the

Regulatory Environment. This suggests that these factors play a crucial role in shaping the operational dynamics and success of investment firms in the region.

These statistically significant results across all variables suggest that fintech innovations like P2P Lending, Robo-Advisors, Crowdfunding Platforms, Blockchain-based Investment Models, and a supportive Regulatory Environment play crucial roles in enhancing the operational performance of investment firms in Kenya. The strong coefficients and low p-values imply a high degree of confidence in these factors as key drivers of operational efficiency and effectiveness.

The ANOVA results confirm the overall statistical significance of the regression model. The low p-value indicates that the model is a reliable predictor of the operational performance of investment firms, based on the selected fintech innovations and regulatory environment variables.

CHAPTER FIVE: SUMMARY, CONCLUSION AND

RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the research findings, aiming to establish the relationship

between fintech innovations and the operational performance of investment firms in Kenya. The

discussion encompasses a summary of findings, conclusions drawn from the objectives,

recommendations based on the study findings, suggestions for further research, and limitations

encountered during the study.

5.2 Summary

The research objective was to investigate the influence of fintech innovations, including Peer-to-

Peer (P2P) Lending, Robo-Advisors, Crowdfunding Platforms, Blockchain-based Investment

Models, and Regulatory Environment on the operational performance of investment firms in

Kenya. Operational performance was assessed through various metrics such as revenue growth,

customer satisfaction, and market positioning.

The study found that P2P Lending has been embraced significantly by investment firms. This

innovation has opened new avenues for capital acquisition and investment, contributing notably

to portfolio diversification and wider client reach. Its impact on operational performance was

evidenced by improved accessibility to investment opportunities, appealing to a broader range of

investors. The adoption of Robo-Advisors was observed to be substantial among the firms. These

sophisticated digital platforms have enhanced the decision-making process, offering customized

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investment advice based on algorithmic predictions and client data analysis. Their role in improving customer engagement and operational efficiency was markedly significant.

The utilization of Crowdfunding Platforms has become increasingly prevalent. These platforms have not only facilitated innovative funding solutions but have also contributed to enhanced brand visibility and investor engagement, thus positively influencing the firms' market position.

There has been a notable inclination towards incorporating Blockchain technology. The study highlighted its profound impact in terms of enhancing transactional security, transparency, and efficiency — key elements that fortify trust and reliability in operations. The role of the regulatory environment emerged as a critical factor. The study found that a conducive and supportive regulatory framework significantly influences the extent of fintech adoption. Investment firms operating under regulations that foster innovation while ensuring consumer protection were seen to have a competitive edge.

The study's results demonstrated a strong relationship (R = 0.700) between the fintech innovations and operational performance, with approximately 49% of the variance in operational performance explained by these variables. The ANOVA results further validated the statistical significance of the model. The findings align with contemporary research underscoring the pivotal role of fintech in enhancing operational efficiency and competitiveness in the financial sector.

5.3 Conclusion

The study's comprehensive analysis leads to the conclusion that fintech innovations play a pivotal role in shaping the operational performance of investment firms in Kenya. Each of the

examined fintech components contributes uniquely and significantly to various aspects of operational efficiency and overall business success.

The study highlights that P2P Lending is instrumental in enhancing the portfolio diversity and accessibility of financial products for a broader client base. This innovation democratizes the investment process, allowing firms to tap into previously untapped markets and cater to a more varied clientele. The positive impact of P2P Lending on operational performance underscores its significance in the modern financial landscape of Kenya.

The findings regarding Robo-Advisors indicate a substantial improvement in decision-making efficiency and customer service quality. By leveraging data analytics and machine learning, Robo-Advisors provide personalized investment advice at scale, thus enhancing customer engagement and satisfaction. This technological advancement allows investment firms to operate more efficiently, offering tailored solutions that meet the evolving needs of their clients.

The study identifies Crowdfunding Platforms as a significant contributor to operational performance, primarily through the diversification of investment options and the enhancement of firm visibility. These platforms provide a novel avenue for sourcing capital and engaging with a broader investor community, thereby bolstering the firm's market positioning and brand recognition.

The strong positive effect of Blockchain technology on operational performance is particularly noteworthy. This innovation revolutionizes transactional security, transparency, and efficiency, key factors that underpin trust and reliability in financial operations. The adoption of Blockchain models signifies a forward-thinking approach, ensuring that investment firms stay at the forefront of technological advancements.

Finally, the study underlines the critical importance of a supportive and dynamic regulatory environment. Regulations that encourage fintech innovation while ensuring consumer protection and market stability play a fundamental role in creating a conducive ecosystem for fintech adoption. The alignment of regulatory frameworks with technological advancements is essential for fostering an environment where fintech can thrive and drive operational performance.

5.4 Policy Recommendations

Investment firms are encouraged to progressively invest in emerging fintech innovations, including Peer-to-Peer (P2P) Lending, Robo-Advisors, and Blockchain-based models. These technologies have demonstrated significant potential in enhancing operational efficiency, a critical factor in the fast-paced financial sector. By leveraging P2P lending, firms can diversify their investment portfolios and offer more accessible financial services to a broader client base. Robo-Advisors, with their advanced algorithms, can provide personalized investment advice at scale, thereby increasing customer engagement and satisfaction. Additionally, the adoption of Blockchain technology can revolutionize transaction processing and record-keeping, ensuring higher levels of transparency and security. Overall, a strategic focus on these fintech solutions can create a competitive edge for investment firms, enabling them to meet the evolving needs of their clients more effectively.

Policymakers play a pivotal role in shaping the landscape in which fintech innovations thrive. It is crucial that they focus on creating and maintaining a regulatory environment that not only supports the growth and integration of fintech but also safeguards consumer interests and market stability. This involves enacting forward-thinking policies that encourage innovation and experimentation while implementing robust regulatory frameworks to mitigate risks associated

with digital financial services. Policymakers should engage with various stakeholders, including fintech companies, traditional financial institutions, and consumer protection agencies, to ensure that regulations are balanced and conducive to the healthy growth of the fintech sector. Such a collaborative approach can help in navigating the complex interplay between technological advancements and regulatory compliance, ultimately leading to a more dynamic, secure, and inclusive financial ecosystem.

Investment firms should not only embrace fintech innovations but also develop comprehensive strategies for their effective adoption. This entails a holistic approach encompassing staff training, infrastructure development, and the integration of fintech solutions into the existing business models. Training and development programs are essential to equip employees with the necessary skills and knowledge to effectively utilize fintech tools. This would not only enhance their proficiency but also foster a culture of innovation within the organization. Furthermore, investment in robust technological infrastructure is critical to support the seamless implementation of fintech solutions. Firms should also focus on developing strategic partnerships with fintech companies to leverage their expertise and technological advancements. By adopting a well-rounded approach towards fintech integration, investment firms can fully harness the potential of these technologies, leading to improved operational efficiency, customer experience, and overall business performance.

5.5 Limitations of the Study

The research, while comprehensive within its scope, focused exclusively on Kenyan investment firms, which may pose a limitation in terms of generalizing its findings to a broader, more diverse global context. Different regions have varying regulatory environments, market

dynamics, and technological advancements, all of which can significantly influence how fintech innovations impact operational performance. Therefore, the insights and conclusions drawn from this study might not be directly applicable or reflective of the fintech landscape in other geographical areas. Future studies may benefit from a more expansive approach that includes diverse investment firms across multiple regions to compare and contrast the influence of fintech innovations in varied economic and cultural settings. Such cross-regional analyses could offer more comprehensive insights and contribute to a global understanding of fintech's role in the investment sector.

During the data collection process, one of the significant challenges encountered were the busy working schedules of the respondents. This factor notably delayed the acquisition of necessary data, as many respondents were unable to allocate time promptly due to their demanding professional commitments. To mitigate this issue, the researchers had to employ considerable patience and diligence. Persistent follow-ups and reminders were integral to ensuring that sufficient data were gathered within the stipulated timeframe. This scenario underlines the importance of considering respondents' availability and time constraints in future studies. Implementing strategies such as scheduling interviews or surveys at convenient times or providing incentives for prompt responses could enhance the efficiency of the data collection process.

The study predominantly relied on primary data provided directly by the investment firms, which inherently meant that the accuracy and reliability of the research were contingent upon the authenticity and precision of the data supplied. While every effort was made to ensure the data's validity, the inherent limitation of relying on self-reported information from these firms must be acknowledged. This reliance may lead to potential biases or inaccuracies, as firms could present

data in a manner that favorably reflects their performance or underrepresents challenges. Future research could benefit from incorporating a more varied data collection approach, including independent audits, third-party reports, and industry-wide databases. Such a multifaceted approach to data collection would enhance the robustness and credibility of the research findings, providing a more accurate and holistic understanding of the impact of fintech innovations in the investment sector.

5.6 Suggestions for Future Studies

Based on the findings of this study, which highlighted the significant impact of fintech innovations on the operational performance of investment firms in Kenya, the following suggestions for future research are proposed:

Investigating the long-term effects of fintech innovations on investment firms is essential for understanding their sustained impact. A longitudinal approach would allow researchers to observe changes and trends over time, offering a comprehensive view of how continuous use of technologies like Blockchain, Robo-Advisors, and P2P Lending shapes business growth, customer retention, and market adaptability. This type of study could uncover patterns and insights that aren't immediately apparent in short-term analyses. Additionally, it would provide valuable information on the lifecycle of fintech solutions, from adoption and integration to maturation, and how these stages influence operational strategies and outcomes. This research could also explore the evolving challenges and opportunities that investment firms face as they continue to integrate fintech into their operations.

The impact of fintech innovations can vary significantly across different geographical locations due to diverse regulatory landscapes, economic conditions, and market maturity. Conducting

comparative studies across various countries or regions would provide a more nuanced understanding of fintech's influence. This research can delve into how regional factors, such as regulatory policies, market dynamics, technological infrastructure, and cultural attitudes towards fintech, affect its adoption and effectiveness. Such comparative analysis would be instrumental for policymakers, investors, and financial institutions in understanding the global fintech landscape. It could also guide investment firms in developing region-specific strategies for fintech adoption and provide insights into potential markets for expansion.

Exploring the barriers and facilitators to fintech adoption can yield critical insights for both existing and emerging investment firms. This study would involve identifying the challenges that firms face in adopting fintech solutions, such as technological limitations, lack of expertise, regulatory hurdles, or resistance to change. Simultaneously, it could explore factors that facilitate successful fintech integration, such as supportive regulatory environments, technological readiness, and favorable market conditions. Understanding these barriers and facilitators is crucial for developing effective strategies to overcome obstacles and leverage enablers. This research can also provide guidance to fintech developers on how to tailor their products to better meet the needs of investment firms. Additionally, it could offer recommendations to policymakers on how to create an ecosystem that nurtures fintech growth while balancing risk and innovation.

REFERENCES

- Arner, D. W., Zetzsche, D. A., Buckley, R. P., & Barberis, J. N. (2017). FinTech and RegTech: Enabling innovation while preserving financial stability. *Georgetown Journal of International Affairs*, 47-58.
- Bao, T., Ding, Y. Gopal, R. & Mohlmann, M. (2023). Throwing Good Money After Bad: Risk Mitigation Strategies in the P2P Lending Platforms. *Inf Syst Front*.
- Berg, T., Fuster, A., & Puri, M. (2022). Fintech lending. *Annual Review of Financial Economics*, 14, 187-207.
- Bickerdike, C.F. (1914). A Non-Monetary Cause of Fluctuations in Employment, *Economic Journal*.
- Brenner, L. & Meyll, T. (2020). Robo-advisors: A substitute for human financial advice? *Journal of Behavioral and Experimental Finance*, 25.
- Bryman, A. & Bell, E. (2015). *Business research methods*. Oxford: Oxford University Press.
- Chiu, I. H. (2016). Fintech and disruptive business models in financial products, intermediation and markets-policy implications for financial regulators. *J. Tech. L. & Pol'y*, 21, 55.
- Christensen, C. M. (2013). *The innovator's dilemma: when new technologies cause great firms to fail.* Harvard Business Review Press.
- Clark, J.M. (1917). Business Acceleration and the Law of Demand, *Journal of Political Economy*.
- Coakley, J., Lazos, A. & Linares-Zegarra, J. (2022). Strategic entrepreneurial choice between competing crowdfunding platforms. *J Technol Transf* 47, 1794–1824.
- Deng, J. (2022). The crowding-out effect of formal finance on the P2P lending market: An explanation for the failure of China's P2P lending industry, *Finance Research Letters*, 45.

- Dorfleitner, G., Hornuf, L., & Weber, M. (2018). Dynamics of investor communication in equity crowdfunding. *Electronic Markets*, 28, 523-540.
- Du, J., Shi, Y. Li, W. & Chen, Y. (2023). Can block chain technology be effectively integrated into the real economy? Evidence from corporate investment efficiency, China Journal of Accounting Research, 16(2).
- Durall, R. (2022). Asset Allocation: From Markowitz to Deep Reinforcement Learning. Retrieved from http://arxiv.org/abs/2208.07158v1
- Durbin, J., & Watson, G. S. (1951). Testing for Serial Correlation in Least Squares Regression. *Biometrika*, 37(3/4), 409-428.
- Dushnitsky, G. & Fitza, M.A. (2018). Are we missing the platforms for the crowd? Comparing investment drivers across multiple crowdfunding platforms. *Journal of Business Venturing Insights*, 10.
- Eisner, R. & Nadiri, M. I. (1970). *The Review of Economics and Statistics*, The MIT Press 52(2), 216-222
- Fisch, J. E., Labouré, M., & Turner, J. A. (2019). The Emergence of the Robo-advisor. *The Disruptive Impact of FinTech on Retirement Systems*, 13.
- Girardi, D. (2021). The Neoclassical Theory of Aggregate Investment and its Criticisms. *Economics Department Working Paper Series*. 308.
- Golafshani, N. (2003). Understanding Reliability and Validity in Qualitative Research. *The Qualitative Report*, 8(4), 597-606.
- Hammersley, M. (1987). Some notes on the terms 'validity' and 'reliability'. *British educational research journal*, *13*(1), 73-82.
- Keynes, J.M. (1936) *The General Theory of Employment, Interest and Money*. 1964 reprint, New York: Harcourt Brace.
- Keynes, J.M. (1937). The General Theory of Employment, *Quarterly Journal of Economics*, 51, 209-23.

- Khakan, N., Subramaniam, R.K. & Atayah, O.F. (2022). Understanding the implications of FinTech Peer-to-Peer (P2P) lending during the COVID-19 pandemic, Journal of Sustainable Finance & Investment, 12:1, 87-102,
- Li, Q. (2023). Evaluation of enterprise financial investment environment based on block-chain and cloud computing. *Security and Privacy*, 6(2), 217.
- Ludden, P., O'Brien, M., & Marquardt, R. (2015). *The digital revolution comes to US wealth management*. Bain & Company.
- Maedche, A., Morana, S., Schacht, S., Werth, D., & Krumeich, J. (2016). Advanced User Assistance Systems. *Business & Information Systems Engineering*, 58(5), 367–370. https://doi.org/10.1007/s12599-016-0433-3
- Mills, D., Wang, K., Malone, B., Ravi, A., Marquardt, J., Chen, C., Badev, A., Brezinski, T.,
 Fahy, L., Liao, K., Kargenian, V., Ellithorpe, M., Ng, W., & Baird, A. (2020).
 Decentralized Finance: On Blockchain- and Smart Contract-Based Financial Markets.
 Federal Reserve Bank of St. Louis Review. https://doi.org/10.20955/r.103.153-74.
- Mo, S., Chen, K. C., & Ye, C. (2016). The evolving role of peer-to-peer lending: A new financing alternative. *Journal of the International Academy for Case Studies*, 22(3), 32.
- Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. Journal of Business Venturing, 29(1), 1-16. https://doi.org/10.1016/j.jbusvent.2013.06.005.
- Namvar, E. (2014). An introduction to peer-to-peer loans as investments. *Journal of Investment Management First Quarter*.
- Newton, P. E. (2012). Clarifying the consensus definition of validity. *Measurement: Interdisciplinary Research & Perspective*, 10(1-2), 1-29.
- O'Brien, R. M. (2007). A Caution Regarding Rules of Thumb for Variance Inflation Factors.

 Quality & Quantity, 41(5), 673-690.
- Oehler, A., Horn, M., & Wendt, S. (2022). Investor characteristics and their impact on the decision to use a robo-advisor. *Journal of Financial Services Research*, 62(1-2), 91-125.

- Omwansa, T. K., & Sullivan, N. P. (2012). *Money, real quick: The story of M-PESA*. Guardian Books.
- Philippon, T. (2016). *The fintech opportunity* (No. w22476). National Bureau of Economic Research.
- Phoon, K., & Koh, F. (2017). Robo-advisors and wealth management. *The Journal of Alternative Investments*, 20(3), 79-94.
- Powell, W. W., & DiMaggio, P. J. (Eds.). (1991). *The new institutionalism in organizational analysis*. University of Chicago Press.
- Rawan M. Nadeem, Rozina Shaheen. The Impact of Using Robo-Advisors on Financial Institutions Performance -- Palarch's *Journal of Archaeology of Egypt/Egyptology* 18(13), 1265-1273.
- Razali, N. M., & Wah, Y. B. (2011). Power comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling tests. *Journal of Statistical Modeling and Analytics*, 2(1), 21-33.
- RindahR., & Duhita, N. (2021). The impact of Peer-to-Peer (P2P) lending on business development of small and medium-sized enterprises. *The International Journal of Applied Business*, 5(2):201.
- Rizwan, A. & Mustafa, F. (2022) Fintech Attaining Sustainable Development: An Investor Perspective of Crowdfunding Platforms in a Developing Country. *Sustainability*. 14(12):7114.
- Rogers, E. M. (1962). Diffusion of innovations the free Press of Glencoe. NY, 32, 891-937.
- Rossi, A., & Vismara, S. (2018). What do crowdfunding platforms do? A comparison between investment-based platforms in Europe. *Eurasian Business Review*, 8, 93-118.
- Rossi, A., & Vismara, S. (2018). What do crowdfunding platforms do? A comparison between investment-based platforms in Europe. *Eurasian Business Review*, 8, 93-118.

- Sironi, P. (2016). FinTech Innovation: From Robo-Advisors to Goal Based Investing and Gamification. John Wiley & Sons.
- Snihovyi, O., Kobets, V., & Ivanov, O. (2018, May). Implementation of robo-advisor services for different risk attitude investment decisions using machine learning techniques.

 In *International conference on information and communication technologies in education, research, and industrial applications* (pp. 298-321). Cham: Springer International Publishing.
- Statista. (2023, April 2023). Crowdfunding Kenya. Retrieved from https://www.statista.com/outlook/dmo/fintech/digital-capital-raising/crowdfunding/kenya
- Statista. (2023, March 8). *Robo-advisors market in Kenya*. Retrieved March 8, 2023, from https://www.statista.com/outlook/dmo/fintech/digital-investment/robo-advisors/kenya
- Sun, J. (2019). A Stock Selection Method Based on Earning Yield Forecast Using Sequence Prediction Models. Retrieved from http://arxiv.org/abs/1905.04842v1
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53-55.
- Tian, Y., Lu, Z., Adriaens, P., Minchin, R. E., Caithness, A., & Woo, J. (2020). Finance infrastructure through blockchain-based tokenization. *Frontiers of Engineering Management*, 7, 485-499.
- Wachira, N. (2021). Credit risk modelling in peer-to-peer lending: a comparative analysis of neural networks and XQboost.
- White, H. (1980). A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity. *Econometrica*, 48(4), 817-838.
- Zhang, J., Jiang, G., & Sun, X. (2021). Why do peer-to-peer (P2P) lending platforms fail? The gap between P2P lending and online lending. *Electronic Commerce Research*, 21, 691–715. https://doi.org/10.1007/s10660-020-09433-7.

APPENDICES

Appendix I: Research Questionnaire

This questionnaire seeks to understand the effect of Fintech on the operational performance of investment firms in Kenya. Kindly provide truthful and accurate responses. Any information provided will remain confidential and was used solely for academic research purposes. Providing the name of your firm is optional, and the research aims to gather aggregate data rather than individual firm analysis. We value your input and thank you for your contribution to the academic community.

SECTION A: GENERAL INFORMATION

Please provide information about yourself and your firm. Your insights will help us understand the background from which perspectives are drawn.

1.	Name of the	Investment Firm (Optional):					
2.	Please indicate your gender.						
	Male	[]					
	Female	[]					
	Prefer not to	o say []					
3.	Which age br	racket do you fall into?					
	Under 25	[]					
	26-34	[]					
	35-44	[]					
	45 -54	[]					
	55 and Abo	ve []					

What is the h	ighest level of education you have completed?
Diploma	[]
Bachelor's	[]
Master's	[]
Doctorate	[]
	Diploma Bachelor's Master's

5.	What is your current position	W	ithin the firm?
	Executive (CEO, CFO, etc.)	[1
	Managerial	[1
	Analyst	[]
	Sales & Marketing	[1
	Others (kindly specify)	••••	
6.	How long have you held your	r cı	urrent position within the firm?
	1 - 4 years	[]
	5 - 8 years	[1
	9 - 12 years	[]
	More than 12 years	[]
7.	How many years has your fir	m	been operational?
	1 - 4 years	[]
	5 - 8 years	[]
	9 - 12 years	[1
	More than 12 years	[]
8.	Approximately how many en	npl	oyees does your firm currently have?
	1 – 20 []		
	21 – 50 []		
	51-100 []		
	101-500 []		

9. What is the primary area of investment for your firm?

	Equities		[]	
	Bonds/Fixed Income	[]		
	Real Estate	[]		
	Others (Specify)			
10.	Has your firm integrat	ted Fintech mo	dels into its operations	?
	Yes, we have integrate	ed Fintech mod	dels in our operations	[]
	No, we haven't integr	rated any Finte	ech models	[]
	Planning to integrate	in the near fut	ure	[]

SECTION B: FINTECH MODELS

11. For the following statements about **Robo-advisors**, please indicate your level of agreement on a Likert scale of 1-5 (1= "Strongly Disagree"; 2= "Disagree"; 3= "Neutral"; 4= "Agree"; 5= "Strongly Agree").

No.	Statements	1	2	3	4	5
1.	The integration of Robo-advisors has streamlined					
	our investment process.					
2.	Robo-advisors have reduced human error in our					
	investment decisions.					
3.	Our clients have expressed satisfaction with the					
	recommendations from Robo-advisors.					
4.	Robo-advisors have enabled us to serve more clients					
	simultaneously.					
5.	We've experienced cost savings due to the reduced					
	need for human analysts.					
6.	Robo-advisors provide comprehensive and up-to-					
	date market data analysis.					
7.	There are concerns about the accuracy and reliability					
	of Robo-advisors.					
8.	Our firm has been able to customize Robo-advisors					
	to fit our specific investment strategies.					
9.	Continuous updates and learning capabilities of					

	Robo-advisors are essential for their success.			
10.	The use of Robo-advisors has improved our firm's			
	overall operational efficiency.			

12. For the following statements about **Peer-to-peer (P2P) Lending**, please indicate your level of agreement on a Likert scale of 1-5 (1= "Strongly Disagree"; 2= "Disagree"; 3= "Neutral"; 4= "Agree"; 5= "Strongly Agree").

No.	Statements	1	2	3	4	5
1.	P2P lending has expanded our portfolio of investment					
	opportunities.					
2.	Our firm has experienced better returns on investments					
	through P2P lending compared to traditional lending.					
3.	The risk associated with P2P lending is manageable with					
	proper assessment tools.					
4.	P2P lending has made investment more accessible to a					
	wider range of clients.					
5.	Our clients find the P2P lending model transparent and					
	trustworthy.					
6.	P2P lending requires more rigorous monitoring and					
	management than traditional lending models.					
7.	Regulatory challenges have impacted the adoption and					
	efficiency of P2P lending in our firm.					
8.	P2P lending has provided our clients with better interest					
	rates compared to traditional banks.					
9.	We believe the future of investment includes a					
	significant role for P2P lending.					
10.	The technological infrastructure supporting P2P lending					
	in our firm is robust and reliable.					

13. For the following statements about **Crowdfunding platforms**, please indicate your level of agreement on a Likert scale of 1-5 (1= "Strongly Disagree"; 2= "Disagree"; 3= "Neutral"; 4= "Agree"; 5= "Strongly Agree").

No. Statements	1	2	3	4	5	
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1.	Crowdfunding platforms have democratized the			
	investment process for our clients.			
2.	Our firm has been able to discover and back innovative			
	projects through Crowdfunding platforms.			
3.	Crowdfunding platforms have introduced higher risks			
	due to the less regulated nature.			
4.	Our clients appreciate the diversity and flexibility of			
	investment options on Crowdfunding platforms.			
5.	We have experienced challenges in vetting and			
	validating projects on Crowdfunding platforms.			
6.	Crowdfunding platforms have increased the visibility			
	and brand recognition of our firm.			
7.	The ease of use and user interface of Crowdfunding			
	platforms play a significant role in their success.			
8.	We believe that Crowdfunding platforms will continue			
	to play a pivotal role in the future of fundraising.			
9.	Regulatory changes could significantly impact the			
	efficacy and appeal of Crowdfunding platforms.			
10.	The transaction fees associated with Crowdfunding			
	platforms are reasonable for the services provided.			

14. For the following statements about **Blockchain-based investment models**, please indicate your level of agreement on a Likert scale of 1-5 (1= "Strongly Disagree"; 2= "Disagree"; 3= "Neutral"; 4= "Agree"; 5= "Strongly Agree").

No.	Statements	1	2	3	4	5
1.	Blockchain-based models have increased transparency					
	in our investment transactions.					
2.	Our firm has been able to reduce fraud and unauthorized					
	transactions using Blockchain.					
3.	The integration of Blockchain technology has posed					
	technical challenges to our existing infrastructure.					
4.	Blockchain-based investment models offer more					
	security compared to traditional models.					
5.	Our clients have shown increased trust in our services					
	since the introduction of Blockchain-based models.					
6.	The adaptability and scalability of Blockchain					
	technology have been beneficial for diversifying our					

	investment strategies.			
7.	Continuous updates and training are essential to			
	effectively implement and use Blockchain-based			
	investment models.			
8.	Regulatory uncertainties around Blockchain-based			
	investments pose significant risks.			
9.	Blockchain technology has enabled our firm to offer			
	new and innovative investment products to our clients.			
10.	Our firm has seen a reduction in transaction costs since			
	implementing Blockchain-based investment models.			

SECTION C: OPERATIONAL PERFORMANCE

15. For the following statements about your firm's operational performance, please indicate your level of agreement on a Likert scale of 1-5 (1= "Strongly Disagree"; 2= "Disagree"; 3= "Neutral"; 4= "Agree"; 5= "Strongly Agree").

No.	Statements	1	2	3	4	5
1.	The adoption of Fintech models has led to a noticeable					
	decrease in customer attrition.					
2.	Our annual revenue has shown significant growth since					
	incorporating Fintech into our operations.					
3.	The total assets managed by our firm have expanded					
	with the use of Fintech models.					
4.	There has been a positive growth in our client base due					
	to our Fintech-driven services.					
5.	Customer satisfaction scores have improved since the					
	adoption of our Fintech services.					
6.	The rate of customer attrition has decreased since the					
	implementation of Fintech models.					
7.	Transaction processing time has become more efficient					
	with our Fintech initiatives.					
8.	Our firm has observed a reduction in the ratio of non-					
	performing assets due to Fintech practices.					
9.	Returns on investments managed by our firm have					
	stabilized, indicating decreased volatility since the					
	introduction of Fintech.					

10.	Fintech integration has enabled us to offer more			
	competitive pricing, enhancing our market position.			

SECTION D: REGULATORY ENVIRONMENT

16. For the following statements about the Regulatory Environment in which Fintechs exist, please indicate your level of agreement on a Likert scale of 1-5 (1= "Strongly Disagree"; 2= "Disagree"; 3= "Neutral"; 4= "Agree"; 5= "Strongly Agree").

No.	Statements	1	2	3	4	5
1.	The current regulatory environment is conducive for the					
	growth of Fintech firms.					
2.	There are clear guidelines on Fintech operations within					
	the existing regulatory framework.					
3.	Regulatory challenges pose a significant barrier to entry					
	for new Fintech startups.					
4.	The regulatory body effectively communicates any					
	changes or updates to Fintech firms.					
5.	Compliance costs associated with Fintech regulations					
	are reasonable.					
6.	The existing regulations strike a balance between					
	protecting consumers and fostering innovation.					
7.	Regular audits and reviews by the regulatory bodies					
	ensure the trustworthiness of Fintech firms.					
8.	More needs to be done to adapt current regulations to					
	the rapidly evolving Fintech landscape.					
9.	The regulatory environment provides adequate support					
	mechanisms for Fintechs facing challenges.					
10.	The penalties and consequences of non-compliance are					
	clear and justifiable in the Fintech sector.					

END

Appendix II: List of Investment Firms

Investment Banks

- 1. ABSA Securities Limited
- 2. Dyer and Blair Investment Bank Ltd
- 3. Equity Investment Bank Ltd
- 4. Faida Investment Bank Ltd
- 5. Genghis Capital Ltd
- 6. KCB Capital Ltd
- 7. NCBA Investment Bank Ltd
- 8. Renaissance Capital (Kenya) Ltd
- 9. SBG Securities Limited
- 10. Standard Investment Bank
- 11. Sterling Capital Limited
- 12. Dry Associates Limited (Trading as "Dry Associates Investment Bank")
- 13. Salaam Investment Bank Kenya Limited
- 14. Gulfcap Investment Bank Limited
- 15. Pergamon Financial Services Limited

Fund Managers

- 16. Orient Asset Managers Ltd
- 17. Amana Capital Ltd
- 18. Apollo Asset Management Company Ltd
- 19. Britam Asset Managers (Kenya) Ltd

- 20. Metropolitan Canon Asset Managers Limited
- 21. Nabo Capital Limited
- 22. CIC Asset Managers Limited
- 23. Co-op Trust Investment Services Limited
- 24. FCB Capital Limited
- 25. Fusion Investment Management Limited
- 26. GenAfrica Asset Managers Limited
- 27. ICEA Asset Lion Asset Management Limited
- 28. Madison Investment Managers Limited
- 29. Old Mutual Investment Group
- 30. Sanlam Investments East Africa Limited
- 31. Standard Chartered Investment Services Limited
- 32. Zimele Asset Management Company Limited
- 33. KCB Asset Management Limited (formerly Natbank Trustee & Investment Services Ltd)
- 34. Cytonn Asset Managers Limited
- 35. Altree Capital Kenya Limited
- 36. Jubilee Financial Services Limited
- 37. ABSA Asset Management Limited
- 38. African Diaspora Asset Managers Limited
- 39. CFS Asset Management Limited
- 40. I&M Capital Limited
- 41. Globetec Asset Managers Limited
- 42. African Alliance Kenya Asset Management Limited

- 43. CPF Financial Services Limited
- 44. Kuza Asset Management Limited
- 45. Waanzilishi Capital Limited
- 46. Mayfair Asset Managers Limited
- 47. Etica Capital Limited
- 48. Investcent Partners Limited
- 49. Star Capital Management Limited
- 50. Lofty-Corban Investments Limited

Investment Advisers

- 51. Bora Capital Limited
- 52. Deloitte Financial Advisory Limited
- 53. Lifestyle Management Limited
- 54. Faida Investment Bank Limited
- 55. Price Waterhouse Coopers Associates
- 56. The Profin Group Limited
- 57. Liaison Financial Services Limited
- 58. Ayesfield (Kenya) Limited
- 59. Ace Financial Advisory Limited
- 60. Synesis Capital Limited
- 61. AFG Wealth Kenya Limited
- 62. Virtual Capital International Limited
- 63. Riscura Solutions (Kenya) Limited
- 64. Private Wealth Capital Limited

- 65. Waanzilishi Capital Limited
- 66. AKN Investments Limited
- 67. Salus Wealth Management Limited
- 68. Vedman Capital Limited

Source: Capital Markets Authority (CMA) (2023)