FINANCIAL LITERACY AND RETAIL INVESTOR PROTECTION OUTCOMES: MODERATING ROLE OF REGULATORY AWARENESS IN KENYA'S CRYPTOCURRENCY MARKET

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DECLARATION

I hereby declare that this research thesis is my original work and has not been submitted or approved for the award of any degree or examination at this or any other university. To the best of my knowledge and belief, it does not contain any material previously published or authored by another person, except where proper acknowledgment and citation have been made within the project itself.

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This research thesis has been submitted with my approval for examination as the University supervisor.

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DEDICATION

This work is dedicated to my daughters Njoki, Nduta and Nyakio as well to all the mothers who persevere through overwhelming schedules, striving to balance family, work, and career advancement. May you remain steadfast, keep your eyes fixed on your dreams, labor with courage, and entrust your journey to God in prayer. Even when the road is uncertain, success is often closer than it seems.

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ABSTRACT

Rapid growth in cryptocurrency participation in Kenya has been accompanied by rising cases of fraud, financial losses, and limited enforceable investor protection mechanisms. Despite repeated regulatory cautions, retail investors continue to participate in a decentralized, largely unregulated digital asset market where formal compensation and recovery structures are absent. This situation raises a practical concern regarding the determinants of retail investor protection outcomes within Kenya's cryptocurrency market. The objective of this study was to examine the effect of financial literacy on retail investor protection outcomes and to assess the moderating role of regulatory awareness among retail cryptocurrency investors in Kenya, while controlling for education level and cryptocurrency trading experience. Investor protection is operationalized at the individual level as exposure to fraud, financial losses, access to recovery mechanisms, and perceived market safety. Financial literacy is measured through financial knowledge, financial awareness, and financial attitude. Grounded in the Theory of Planned Behavior, Information Asymmetry Theory, and Exchange Theory, the study adopted a positivist philosophy and a quantitative cross-sectional explanatory design. Primary data was collected from a final sample of 332 retail cryptocurrency investors out of an estimated target of 400 using structured questionnaires. Hierarchical multiple regression was employed to test direct and moderating effects. The results showed that financial awareness, financial attitude, and trading experience all had positive and significant direct effects on investor protection outcomes, with financial attitude emerging as the strongest predictor. Conversely, formal education level had an insignificant effect on investor protection outcomes. Furthermore, hierarchical regression confirmed that regulatory awareness plays a significant moderating role, meaning the protective benefits of financial literacy dimensions are amplified when investors possess structural knowledge of Kenya's regulatory environment. The study recommends that the government integrate asset-class specific digital finance education into national financial inclusion frameworks, while regulators such as the CBK and CMA emphasize positive financial discipline and risk mitigation alongside raw concept knowledge. Ultimately, the study is limited by its geographical concentration within Kenya, its cross-sectional timeline, a sample gender skew towards male participants (67%), and the inherent structural boundaries of predefined survey questionnaires.

Keywords: *Financial Literacy, Investor Protection Outcomes, Regulatory Awareness, Cryptocurrency, Kenya.*

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LIST OF ABBREVIATIONS AND ACRONYMS

Abbreviation	Full Meaning
AML	Anti-Money Laundering
CBDC	Central Bank Digital Currency
CBK	Central Bank of Kenya
CMA	Capital Markets Authority
CFTC	Commodity Futures Trading Commission
EU	European Union
FATF	Financial Action Task Force
FRC	Financial Reporting Centre
GDP	Gross Domestic Product
GSMA	Global Systems for Mobile Communications Association
IMF	International Monetary Fund
KRA	Kenya Revenue Authority
KYC	Know Your Customer
MiCA	Markets in Crypto-Assets Regulation
OECD	Organisation for Economic Co-operation and Development
SEC	Securities and Exchange Commission
SMEs	Small and Medium-sized Enterprises
UNCTAD	United Nations Conference on Trade and Development
USD	United States Dollar
VASP Act	Virtual Asset Service Providers Act (2025)

DEFINITION OF TERMS

Cryptocurrency	A decentralized digital medium of exchange that utilizes cryptographic techniques to secure transactions. Unlike conventional currencies managed by central banks, these assets operate on a distributed ledger known as block chain that enables peer to peer transfers without the need for traditional financial intermediaries. (Nakamoto, 2008).
Cryptocurrency Trading Experience	The duration and level of participation in cryptocurrency trading activities, measured in years or frequency of trading, and included as a control variable reflecting experiential learning effects (Auer et al., 2021)
Education Level	The highest formal academic qualification attained by a retail cryptocurrency investor, included in this study as a control variable due to its influence on analytical capacity and financial comprehension (Rashid et al., 2025)
Financial Attitude	An individual's psychological disposition toward financial behaviours such as saving, borrowing, and risk-taking, which influences how financial knowledge and awareness are translated into investment actions (Potrich et al., 2016).
Financial Awareness	An investor's recognition and understanding of cryptocurrency-specific risks and market conditions, including volatility, scam prevalence, platform credibility, and the distinction between regulated and unregulated investment products (OECD, 2020). In this study, financial awareness is asset-class specific and focused on digital assets.
Financial Knowledge	An individual's understanding of fundamental financial concepts such as interest rates, inflation, and risk diversification, reflecting cognitive competence in evaluating financial decisions (Lusardi & Mitchell, 2014).
Financial Literacy	The combination of financial knowledge, comprehension, and the cognitive skills necessary to evaluate risks and make effective decisions across various financial contexts (OECD, 2022). In the digital asset space, this includes the ability to navigate

	complex decentralized platforms and understand the unique volatility associated with virtual assets (Kaiser & Lusardi, 2024).
Regulatory Awareness	An investor's knowledge and understanding of existing legal frameworks, regulatory authorities, and available recourse mechanisms governing cryptocurrency markets, including awareness of institutions such as the CBK and CMA and emerging frameworks such as the VASP Act (IMF, 2025).
Retail Cryptocurrency Investor	An independent, non-professional market participant who manages personal capital through digital asset exchanges (Kegan et al., 2023). These participants are typically self-directed and are often distinguished by momentum-seeking behaviour, where their financial choices are driven by social sentiment and speculative expectations rather than traditional fundamental valuation (Fisch, 2023).
Retail Investor Protection Outcomes	Individual-level outcomes reflecting the extent to which retail cryptocurrency investors are able to avoid fraud, minimize financial losses, access recovery mechanisms, and perceive the market environment as safe and fair (Vo & Thai, 2025). In this study, investor protection is operationalized as experienced outcomes rather than institutional safeguards.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Kenya's rapidly expanding cryptocurrency sector has brought investor protection to the forefront of financial policy discussions. Operating on blockchain infrastructure, cryptocurrencies facilitate direct peer-to-peer transactions outside conventional financial intermediaries (Nakamoto, 2008), and unlike state-issued currencies, they are generated and exchanged through decentralized digital platforms (IMF, 2022). Since Bitcoin's emergence in 2009 in the aftermath of the global financial crisis, the digital asset ecosystem has grown substantially, with global market valuation reaching approximately USD 4 trillion by 2025 (CoinMarketCap, 2025). Assets such as Ethereum and Litecoin have since emerged alongside Bitcoin, collectively reshaping global financial markets. While cryptocurrencies offer opportunities for financial innovation and inclusion, their decentralized and largely unregulated structure exposes investors to significant risks, including fraud, exchange failures, volatility, and loss of funds (Auer et al., 2021). As retail participation expands globally and within emerging markets such as Kenya, concerns regarding retail investor protection outcomes have become increasingly significant.

Many retail investors participate in cryptocurrency markets with limited financial literacy and inadequate understanding of the technological and regulatory risks associated with digital assets (OECD, 2025). This vulnerability has contributed to rising cases of phishing attacks, Ponzi schemes, fake investment platforms, hacking, identity theft, and SIM-swap fraud targeting cryptocurrency users and other digital investors (Kharpal, 2022). The largely decentralized and weakly regulated nature of cryptocurrency markets in Kenya further increases investor exposure because victims often lack adequate legal protection or compensation mechanisms when losses occur. Reports indicate that cybercrime and cryptocurrency-related scams have led to billions of shillings in losses among Kenyan investors in recent years, underscoring a growing investor protection problem within the country’s digital financial ecosystem (Central Bank of Kenya, 2022).

1.1.1 Retail Investor Protection Outcomes

Investor protection traditionally refers to the legal and institutional frameworks that safeguard investors from fraud, market manipulation, and expropriation (La Porta et al., 1998; Kozimov,

2024). These mechanisms are designed to ensure fair treatment, promote market integrity, and foster public confidence (Vo & Thai, 2025). However, the decentralized and cross-border structure of cryptocurrency markets presents challenges to traditional investor protection systems (Auer et al., 2021).

In this study, investor protection is operationalized at the individual level as retail investor protection outcomes, including exposure to fraud, financial losses from scams or manipulation, access to recovery mechanisms, and perceived safety within cryptocurrency markets. Unlike traditional banking systems, cryptocurrency markets lack deposit insurance, centralized enforcement authority, and guaranteed legal recourse. Consequently, protection outcomes may vary significantly across investors (Jani, 2024).

Globally, fraudulent schemes remain a dominant form of crypto-related crime, with reported losses exceeding USD 5.9 billion in 2022 (Chainalysis, 2022). In Sub-Saharan Africa, rising adoption combined with limited regulatory clarity has amplified investor exposure (Chainalysis, 2023). In Kenya, cryptocurrency participation has grown rapidly. By 2025, more than 6 million Kenyans representing over 10% of the entire population owned cryptocurrency, driving the country to rank fifth globally in overall crypto transaction volumes (Crypto for Innovation, 2025). According to the Kenya Revenue Authority (KRA, 2023), transactions amounted to over KSh 2.1 trillion in 2022. This prompted the government to introduce a 3% Digital Asset Tax under the Finance Act 2023 leading to KRA collecting 10 billion in financial year ended June 2024 (KRA, 2024). However, increased participation has been accompanied by significant fraud cases, including schemes such as CBEX and Bitstream Circle, which resulted in substantial financial losses (Business Daily, 2025, July 2).

Further, Kenya experienced a steadily increasing trend in financial losses arising from scams, cybercrime, and fraudulent digital investments, largely driven by the rapid growth of mobile banking, fintech services, and cryptocurrency trading. During the COVID-19 period in 2020, cyber threat incidents rose sharply as financial transactions shifted online, marking the beginning of heightened digital fraud risks. This vulnerability is evidenced by internal data from the Directorate of Criminal Investigations (DCI), which reveals that Kenyans lost over KSh 5.6 billion to cryptocurrency related fraud in 2024 alone. This figure represents a staggering 73% increase from 2023, underscoring an aggressive escalation in digital victimization. Despite these escalating losses and the evolution of fraudsters' tactics ranging from deceptive SMS links to peer-to-peer trading manipulation there remains

a practical concern: while cryptocurrency participation continues to expand, reported crypto-related fraud losses have increased alongside adoption rates in recent years. Retail investors experience uneven protection outcomes, with some incurring severe losses while others successfully navigate market risks. Understanding the determinants of these outcomes is therefore critical.

1.1.2 Financial Literacy

The OECD (2022) frames Financial Literacy as the integration of knowledge, awareness, and attitudes that together enable informed financial choices. Hasan (2024) describes it as the blend of information, awareness, and mindset necessary for sound financial choices. Lusardi and Mitchell (2014) emphasize that financial literacy includes not only conceptual understanding but also the practical capability to evaluate risk, manage cash flow, and plan for the future.

Within this study, financial literacy is examined through three related but distinct dimensions: financial knowledge, financial awareness, and financial attitude. Financial knowledge refers to an individual's grasp of fundamental financial concepts including interest rate computation, effect of inflation, and the logic of risk diversification (Lusardi & Mitchell, 2014). This dimension reflects cognitive competence in processing economic information relevant to investment evaluation.

Financial awareness, by contrast, is asset class specific. Rather than general financial understanding, it concerns an investor's recognition of the particular risks associated with cryptocurrency markets including price volatility, scam prevalence, platform credibility, and the distinction between regulated and unregulated products (OECD, 2020). While knowledge addresses principles, awareness addresses the investor's real time grasp of the environment in which they are operating.

Financial attitude refers to behavioral dispositions individuals hold toward saving, borrowing, and risk taking decisions (Potrich et al., 2016). It reflects an individual's psychological orientation through which knowledge and awareness are converted into action or, in some cases, inaction. Together, these three dimensions provide a more complete picture of how financial literacy functions as a protective mechanism.

In decentralized markets where institutional safeguards are limited, financial literacy may serve as a form of self-protection (Guiso et al., 2003). However, empirical findings remain mixed.

Hasan (2024) reports that higher financial literacy enhances investor safety through improved decision-making. In contrast, Akims et al. (2023) observe that moderate levels of literacy may foster overconfidence and increase vulnerability to financial loss. Musau et al. (2022) found no significant association between literacy and protection in certain contexts. These inconsistencies suggest that financial literacy alone may not fully explain variations in retail investor protection outcomes.

1.1.3 Regulatory Awareness

Beyond individual financial capability, the extent to which an investor understands the institutional environment governing their market also shapes their financial decisions. Regulatory awareness, as used in this study, refers to knowledge of the legal frameworks, supervisory authorities, and available recourse mechanisms that govern financial markets (IMF, 2025). In Kenya, this includes awareness of the roles of the Central Bank of Kenya (CBK), the Capital Markets Authority (CMA), and emerging legislative instruments such as the Virtual Asset Service Providers (VASP) Act (2025). Unlike financial literacy, which reflects individual competence, regulatory awareness concerns understanding the external governance environment.Although Kenyan regulators have issued public cautions regarding cryptocurrency risks, these advisories do not provide enforceable compensation mechanisms. Cryptocurrency markets lack centralized oversight and guaranteed recovery structures. As a result, investors may remain structurally exposed to losses.

Research indicates that regulatory awareness improves financial judgment and reduces susceptibility to unethical practices (Kumar et al., 2023). Akinsola (2025) demonstrates that regulatory knowledge reduces vulnerability to misconduct. Prasad, Kiran, and Sharma (2021) show that investors with higher regulatory awareness better evaluate service provider credibility. Internationally, regulatory clarity has been associated with improved investor confidence, as illustrated by the European Union's MiCA framework (Zetzsche & Anker-Sørensen, 2021).

This study suggested that regulatory awareness acts as a crucial complement to financial literacy. Investors not only require knowledge of financial concepts but also a clear understanding of the institutional and legal frameworks that govern markets. Therefore, regulatory awareness was considered the most appropriate moderating variable in this study, as the absence of clear safeguards can dilute the positive effect of financial literacy on

protection outcomes. While other moderating factors, such as risk tolerance, access to digital technology, or socio-economic status, could have been considered, regulatory awareness was prioritized because it directly reflects the policy and institutional environment shaping Kenya's cryptocurrency market and thus most critically determines whether financial literacy translates into meaningful investor protection.

1.1.4 The Kenyan Retail Cryptocurrency Market

Kenya has emerged as one of the leading cryptocurrency markets in Sub-Saharan Africa. Chainalysis (2023) ranks the country highly in global peer to peer cryptocurrency adoption, reflecting strong retail participation. This growth has been supported by Kenya's advanced mobile money ecosystem and digital innovation environment, which facilitate integration between digital assets and mobile payment systems (GSMA, 2022). At the same time, financial inclusion in Kenya exceeds 85 percent, indicating widespread participation in formal financial services (World Bank, 2022).

Despite these developments, cryptocurrency markets differ significantly from traditional financial institutions such as banks, deposit-taking microfinance institutions, and SACCOs, which operate under clearly defined regulatory and supervisory frameworks. Cryptocurrency trading largely occurs on decentralized platforms characterized by peer to peer exchanges, private digital wallets, and cross-border transactions. These features limit the enforceability of national regulatory authority and reduce the effectiveness of conventional investor protection mechanisms (Auer, Frost, & Shin, 2021).

Kenya presents a particularly complex regulatory environment for cryptocurrency investors. The Central Bank of Kenya (CBK) and the Capital Markets Authority (CMA) have issued public warnings highlighting volatility and legal uncertainty in virtual asset markets. However, these advisories primarily serve as precautionary guidance rather than enforceable protection mechanisms. Kamau (2022) argues that the absence of a comprehensive regulatory framework increases investor exposure to fraud and misrepresentation. Miriti and Nekesa (2021) emphasize the need for structured taxation and accounting guidelines to formalize cryptocurrency activities in Kenya. Waihenya (2020) similarly contends that comprehensive regulation is necessary to foster investor confidence and financial stability.

These perspectives suggest that Kenyan retail investors operate within a regulatory environment characterized by caution but limited structural enforcement. Although investors may be aware of general risks, the lack of harmonized oversight and guaranteed recourse mechanisms may constrain effective investor protection outcomes. Within such an environment, the burden of risk management shifts from institutional safeguards to individual capability.

In addition to financial literacy and regulatory awareness, demographic and experiential characteristics may further influence protection outcomes. Education level has been associated with improved financial comprehension and analytical capacity (Lusardi & Mitchell, 2014). Experience in financial markets may enhance risk recognition through learning effects and prior exposure to investment outcomes (Xiao, 2008). In cryptocurrency markets, trading experience may similarly influence an investor's ability to detect fraudulent schemes or manage price volatility. To isolate the net effects of financial literacy and regulatory awareness, this study controls for education level and cryptocurrency trading experience.

1.2 Problem Statement

The global market capitalization of cryptocurrencies reached approximately USD 2.5 trillion in 2024, with an estimated global user base of 560 million people (IMF, 2024; Triple A, 2024). The scale and financial significance of this market underscore the importance of effective investor protection mechanisms. In Kenya, cryptocurrency adoption has grown rapidly, with approximately 4.25 million retail participants (UNCTAD, 2022). Between 2021 and 2022, the local market processed transactions worth approximately KSh 2.4 trillion (Chainalysis, 2022), equivalent to nearly one-fifth of the country's Gross Domestic Product (GDP). Despite this substantial market activity, cryptocurrency trading in Kenya lacks enforceable institutional safeguards such as compensation schemes, deposit protection, or guaranteed legal recourse in cases of fraud or exchange failure.

Although the Central Bank of Kenya (CBK) and the Capital Markets Authority (CMA) have issued public cautions warning investors about the risks associated with cryptocurrency trading (CBK, 2015; 2023; CMA, 2022), these advisories primarily serve as precautionary guidance rather than enforceable protection mechanisms. Consequently, the burden of risk management rests largely on individual investors. This decentralized and largely unregulated environment exposes retail participants to extreme price volatility, fraudulent schemes, and platform

collapse (Auer et al., 2021), thereby heightening vulnerability and potentially undermining investor confidence (World Bank, 2021).

Kenya presents a compelling case of both opportunity and risk. Despite ranking among the world's leading peer to peer cryptocurrency markets (Gaudreau, 2024), the country has experienced notable fraud incidents. The Public Likes scheme defrauded Kenyans of more than KSh 1 billion in 2017 (Daily Nation, 2017), while Bitstream Circle, a cryptocurrency Ponzi scheme, collapsed in 2022 after collecting approximately KSh 1.2 billion from investors (Daily Nation, 2022, June 11). These cases highlight a paradox: high and increasing participation in cryptocurrency trading persists despite repeated regulatory warnings and documented losses. Retail investors therefore experience uneven protection outcomes, with some incurring substantial losses while others continue to participate successfully. This uneven distribution of outcomes suggests that individual-level factors may influence whether investors experience vulnerability or are able to safeguard themselves within the cryptocurrency market.

Empirical evidence on the relationship between financial literacy and investor safeguarding presents mixed findings, leaving three critical gaps in the literature. Theoretically, existing frameworks provide limited clarity on how institutional awareness shapes safe exchange behavior in decentralized digital markets (Hu et al., 2024); traditional models fail to explain how individual regulatory awareness interacts with behavioral attitudes to mitigate information asymmetry when centralized safety nets are absent. Methodologically, prior studies frequently rely on broader qualitative frameworks or fail to isolate retail-level digital asset variables; for instance, locally, Musau et al. (2022) examined general financial literacy using descriptive profiles among Kenyan SMEs but omitted quantitative moderating models like hierarchical multiple regression to evaluate individual behavioral outcomes. This leaves a methodological gap in how interaction effects are statistical modeled in crypto-assets. Practically and contextually, a distinct gap persists; while Hasan (2024) established that digital financial literacy enhances transaction security in Indonesia, this evidence remains geographically and regulatory isolated from the unique, rapidly expanding Kenyan retail cryptocurrency market. Consequently, this study addresses these theoretical, methodological, and practical gaps by operationalizing investor protection as individual retail investor protection outcomes. It explicitly examines the direct effect of financial literacy dimensions on these outcomes while testing the moderating role of regulatory awareness among retail cryptocurrency investors in Kenya, controlling for education level and trading experience.

1.3 Research Objectives

1.3.1 General objective

The primary objective of this study was to model the quantitative relationship between financial literacy and retail investor protection outcomes, as moderated by regulatory awareness, among active cryptocurrency investors in Kenya within a 2026 cross-sectional framework.

1.3.2 Specific objectives

To address the theoretical, methodological, and practical gaps identified in the problem statement, this study deconstructs financial literacy into distinct, measurable behavioral dimensions. Consequently, the research is guided by the following specific objectives:

i. To determine the effect of financial knowledge on retail investor protection outcomes in Kenya's cryptocurrency market.
ii. To examine the effect of financial awareness on retail investor protection outcomes in Kenya's cryptocurrency market.
iii. To evaluate the effect of financial attitude on retail investor protection outcomes in Kenya's cryptocurrency market.
iv. To assess the moderating role of regulatory awareness on the relationship between financial literacy and retail investor protection outcomes in Kenya's cryptocurrency market.

1.4 Research questions

i. What is the effect of financial knowledge on retail investor protection outcomes in Kenya's cryptocurrency market?
ii. How does financial awareness affect retail investor protection outcomes in Kenya's cryptocurrency market?
iii. To what extent does financial attitude influence retail investor protection outcomes in Kenya's cryptocurrency market?
iv. How does regulatory awareness moderate the relationship between financial literacy and retail investor protection outcomes in Kenya's cryptocurrency market?

1.5 Scope of the Study

This study focused on retail cryptocurrency investors in Kenya, examining how financial literacy operationalised through financial knowledge, financial awareness, and financial

attitude influences retail investor protection outcomes. Regulatory awareness was incorporated as a moderating variable, while education level and cryptocurrency trading experience served as controls. Geographically, the study was confined to Kenya, reflecting the country's unique regulatory environment and high cryptocurrency adoption rates. Data was gathered through a cross-sectional survey administered between December 2025 and April 2026, capturing investor experiences and perceptions at a single point in time.

1.6 Significance of the Study

This study is significant as it directly resolves the critical knowledge gaps established in the problem statement:

i Theoretical Value: It extends behavioral finance frameworks into decentralized environments by explaining how individual regulatory awareness helps mitigate information asymmetry when centralized institutional safety nets are absent.

ii Methodological Value: It advances local literature beyond simple descriptive profiles by introducing a rigorous hierarchical multiple regression model to quantify exact interaction effects among retail digital asset investors.

iii Practical & Contextual Value: It provides local regulators such as the Central Bank of Kenya (CBK) and Capital Markets Authority (CMA) with context-specific data required to design targeted financial literacy programs and consumer protection policies.

1.6.1. Retail Cryptocurrency Investors

Individual investors who are the primary focus of this study might benefit by being able to make informed financial decisions in a high-risk environment. Beyond financial literacy, the study looks into the role of regulatory awareness, hence encouraging investors to actively monitor official advisories, warnings, and guidelines, thereby helping them identify and avoid fraudulent schemes. In this way, the research empowered individuals to take more responsibility for safeguarding their investments in the absence of comprehensive state protection.

1.6.2. Government and Regulatory Bodies

The findings of this study carry direct relevance for oversight institutions operating within Kenya's financial landscape.For regulators including the CBK, the CMA, and the National

Treasury, the study offers knowledge on how investor behaviour is driven by not only financial skills but also by awareness of rules and enforcement mechanisms. This knowledge can inform targeted investor education campaigns and guide the design of consumer-focused regulation. The study was particularly timely given ongoing deliberations on the Virtual Asset Service Providers (VASP) Bill, that signals Kenya's transition away from a purely cautionary regulatory posture toward a more formalised governance structure for digital assets.

1.6.3. Researchers and Academia

From an academic perspective, this research introduced regulatory awareness as a moderating factor in the financial literacy and investor protection relationship. While prior studies largely examined literacy in isolation, this study argues that its effectiveness depends on the surrounding institutional regulatory environment. This perspective not only advanced behavioural finance and human capital theory but also provided a foundation for future comparative and longitudinal studies in emerging markets.

1.7 Chapter Summary

Chapter One contextualised the study within Kenya's evolving digital asset landscape, outlining the problem of inadequate retail investor protection despite growing cryptocurrency participation. The research objectives, guiding questions, scope, and significance of examining financial literacy alongside regulatory awareness were also presented.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presented the theoretical and empirical foundation underpinning the examination of financial literacy and retail investor protection outcomes within Kenya's cryptocurrency market. It reviewed the theoretical perspectives guiding the study, analyzes empirical findings on financial knowledge, awareness, attitude, and regulatory awareness, and identifies contextual, conceptual, and methodological gaps. The chapter concluded with a summary and presentation of the conceptual framework guiding the study.

2.2 Theoretical Review

Theoretical frameworks offer a systematic perspective through which research problems can be examined. They establish logical relationships between variables and offer explanatory foundations for observed phenomena (Vinz, 2022). This study drew primarily on the Theory of Planned Behavior and Information Asymmetry Theory, both of which directly address behavioral decision-making and structural information imbalances within financial markets. Exchange Theory provides complementary support by explaining how knowledge is socially transmitted in decentralized environments such as cryptocurrency networks.

2.2.1 Theory of Planned Behaviour

Developed by Icek Ajzen (1985), the Theory of Planned Behavior (TPB) proposes that human actions are the product of deliberate intentions shaped by three core determinants: an individual's attitude toward a behavior, their perceived behavioral control, and the subjective norms they perceive from their social environment. This implies that when there is a strong intention in engaging in a behavior, the higher the chances for its performance. The Theory of Planned Behavior (TPB) identifies three primary determinants of human intention. First, attitude is conceptualized as an individual's favorable or unfavorable assessment of a specific conduct. Complementing this is perceived behavioral control, which encompasses the perceived ease or complexity of executing a behavior. This construct is particularly significant as it accounts for the influence of historical experiences alongside the anticipation of potential barriers and systemic impediments that may hinder action. Finally, the framework is rounded out by subjective norms, which represent the perceived social imperatives and external pressures from influential peer groups that motivate an individual to conform to specific

behavioral patterns.In financial contexts, it asserts that positive attitudes toward saving, investing, and risk management foster responsible financial behavior. Perceived behavioral control, influenced by financial confidence and access to credible information, determines the ability to act upon intentions (Xiao, 2008)

TPB has been widely applied in financial literacy and behavioral finance research. TPB suggests that individuals' financial attitudes including prudence, self-control, and risk tolerance directly affect their willingness to adopt protective investment practices. For instance, cryptocurrency investors with strong behavioral control are more likely to verify trading platforms, diversify holdings, and adhere to risk limits. This aligns with findings by Yong, Yee, and Wee (2018). Their study highlighted that individuals with positive financial attitudes and stronger self-efficacy tend to engage in more deliberate and informed financial actions. Similarly, Potrich et al. (2015) demonstrated the theory's relevance in understanding financial behavior and literacy outcomes, noting that higher levels of financial literacy, when combined with favorable behavioral intentions, significantly enhance individuals' capacity to plan, save, and protect their investments effectively.

Sniehotta, Presseau, and Araújo-Soares (2014) argue that emotional impulses, such as the fear of missing out (FOMO), can frequently override rational intentions and weaken behavioral control. Within this study, the Theory of Planned Behavior (TPB**)** provides the foundational framework that directly integrates the specific objectives, conceptual framework, and empirical review.Specifically, TPB underpins objective iii (Financial Attitude) by explaining how personal attitudes shape intentions as well as objective iv (Regulatory Awareness) by positioning regulatory knowledge as an enhancer of perceived behavioral control. Within the conceptual framework, TPB maps the pathway between these independent dimensions and the dependent variable, illustrating how an investor's internal control mechanisms alter individual retail investor protection outcomes. Finally, this framework anchors the empirical review by explaining the cognitive mismatch found in prior literature, demonstrating why raw financial knowledge alone fails to translate into safe exchange behavior when emotional biases or weak regulatory control override an investor's rational intentions.

2.2.2 Information Asymmetry Theory

Originally established by Akerlof (1970) and subsequently developed by Stiglitz and Weiss (1981), Information Asymmetry Theory examines market conditions in which participants

possess unequal access to critical information. This disparity often leads to adverse selection, where informed actors exploit the data gap to the detriment of less informed participants. While originally applied to consumer goods, Dierkes and Grote (2000) extended this logic to the financial sector by demonstrating how specialized intermediaries maintain an informational advantage over retail consumers, particularly in assessing complex risk profiles.

In the modern digital landscape, this asymmetry is further complicated by technological barriers. Yadav (2015) argues that as financial services become increasingly decentralized, technical complexity acts as a new form of information asymmetry. This creates transparency gaps that prevent ordinary investors from understanding the true risks of their assets. However, technology also offers remedies; Berg et al. (2020) demonstrate that the use of digital footprints and alternative data can significantly mitigate information gaps, allowing for more accurate risk assessments even in the absence of traditional financial documentation.

Within the Kenyan cryptocurrency market, this theory is pivotal. It suggests that, while retail investors are vulnerable due to the non intermediated nature of trades and the presence of unregistered platforms, digital transparency tools can help bridge the gap. Consequently, the theory justifies the inclusion of Regulatory Awareness as a moderating variable. It posits that institutional regulation frameworks such as the VASP Act (2025) serve as an equalizing force to reduce these informational imbalances.

The theory had notable weaknesses in digital markets. Liberti and Petersen (2019) suggest it oversimplifies the modern landscape because today's problem is often data abundance rather than scarcity. Instead of lacking information, investors are often overwhelmed by too much data, making it hard to identify what is true or useful.Furthermore, the theory assumed people always make rational, logical choices. Muñoz-Murillo et al. (2020) point out that it fails to account for the human emotions and behavioral factors that drive financial decisions. In the crypto market, this means investors might ignore good information because of fear of missing out (FOMO) or other psychological pressures.

These limitations showed why this study was necessary. While the theory explains the power gap in Kenya's crypto market, its failure to account for too much information and human emotion justifies looking at Financial Literacy and Financial Attitude. Information alone is not enough; investors need the skills to filter that data and the right mindset to stay safe. This makes

Regulatory Awareness a vital tool to help level the playing field between platforms and retail investors.

2.2.3 Exchange Theory

Robson and Ladner (2006) conceptualized Exchange Theory as a comprehensive framework for understanding the multifaceted process of acquiring financial literacy. The core premise of this theory is that the development of an individual's knowledge base is not an isolated event but rather a product of complex interactions involving interpersonal relationships, procedural elements, and the flow of information. This theoretical perspective is reinforced by the empirical observations of Lusardi and Mitchell (2008) who identified that workforce participation and self-employment significantly elevate financial literacy levels. This elevation is due to consistent exposure to professional education programs, interaction with colleagues with knowledge in finance and peer-based knowledge sharing. Essentially, the theory posits that financial competence is cultivated through a continuous cycle of relational knowledge exchange.

Hu et al. (2024) urged that existing research does not give enough detail on the different "rules" that govern how people trade or interact. These authors argue that the theory would be much more useful if there were more studies focusing on specific behaviors like helping others (altruism), competing with others, or working for the benefit of a group.

Even with this limitation, the theory remains relevant for this study. It helps explain the financial literacy variable showing that investor protection is enhanced when individuals can exchange and internalize financial information through formal and informal learning mechanisms. This study filled that gap by looking at regulatory awareness as a moderator. Instead of just assuming that people trade because they have information, this study tests if having a clear understanding of the rules changes how that information is used. By adding this moderating factor, we can better understand how specific knowledge and awareness about the legal environment helps stabilize and protect these transactions, making the theory more precise and useful.

In the Kenyan cryptocurrency market, informal, peer-driven networks like WhatsApp and Telegram serve as the principal arenas where investors exchange information. The application of Exchange Theory directly bridges this context with the study's core components. First, it addresses the problem statement regarding missing institutional safety nets, as retail investors

must rely on peer-to-peer informational exchanges to manage risk. Second, it underpins Objectives i and ii (Financial Knowledge and Awareness) by establishing that the quality of these interactions determines whether an investor can maximize rewards (safe choices) and minimize costs (scams). Finally, it anchors the empirical review by explaining the behavioral mechanics of the interaction effect, demonstrating how investors utilize these digital networks to trade regulatory insights, which ultimately dictates individual retail protection outcomes.

2.3 Empirical Literature Review

2.3.1 Financial Knowledge and the level of Investor Protection outcomes

A cross-border analysis of empirical literature suggests that an investor's proficiency in financial concepts is a fundamental determinant of their security in digital markets. Hasan (2024) explored this dynamic in Indonesia through a mixed-methods approach, providing evidence that robust digital financial literacy enables users to authenticate transactions and bypass fraudulent schemes. While Hasan's findings underscore the empowering nature of knowledge, the study was limited to regulated financial institutions. This created a contextual gap that the presented study addressed by examining Kenya's cryptocurrency landscape, where such institutional safeguards are largely absent.

The psychological and emotional dimensions of market knowledge also play a critical role in protection. In Pakistan, Rashid et al. (2025) utilized survey data to demonstrate that market awareness helps counterbalance emotional biases, such as over optimism, which otherwise lead to impulsive and risky financial choices. Similarly, Ajemunigbohun (2022) employed multinomial logistics regression on Nigerian motorists to show that financial competence is a significant driver of responsible risk attitudes. These studies suggested that improved literacy acts as a cognitive shield, reducing an individual's susceptibility to speculative traps. This study applied this findings to the high volatility environment of Kenyan crypto trading.

Further evidence supports the idea that formal training enhances the quality of financial decision making. Mubaraq et al. (2021) found that Indonesian investors who underwent formal capital market education demonstrated more rational risk tolerance. However, because their sample consisted of pre trained, formally educated individuals, the findings may not fully apply to the informal nature of peer to peer crypto exchanges. This study, therefore, extended this findings to the Kenyan retail sector, where many participants operate without formal instruction but must still make high stakes choices regarding their asset protection.

Locally, the link between literacy and digital safety has been validated within the small business sector. Musau, Muathe, and Mwangi (2022) established that financial literacy among SME owners in Kiambu County significantly improved their ability to use digital platforms securely. While their research centered on business access, it provides a vital roadmap for the current study's focus on individual retail investors.

The empirical evidence confirm that financial knowledge serves as a fundamental instrument for minimizing investor vulnerability, though its efficacy is often dictated by the surrounding regulatory framework. While Hasan (2024) and Rashid et al. (2025) underscore how literacy reduces exposure to financial hazards and emotional triggers, Mubaraq et al. (2021) and Ajemunigbohun (2022) demonstrate that informed participants maintain superior mastery over their risk-taking tendencies. Furthermore, the link between literacy and safe digital financial engagement is strengthened by the findings of Musau et al. (2022)

However, most of these studies including foundational global research on retail portfolio choices (Lusardi & Mitchell, 2014; van Rooij et al., 2011) and local empirical assessments of enterprise finance (Musau et al., 2022) were conducted within traditional, highly regulated financial environments. This study addresses the existing contextual gap by assessing how these literacy protection dynamics function in Kenya's largely unregulated cryptocurrency market, where institutional safeguards are still under development.

2.3.2 Financial Awareness and the Level of Investor Protection outcomes

Empirical research indicates that an investor' level of awareness regarding financial products and market conditions is a cornerstone of safe participation in digital economies. Tang (2024) utilized an innovative search based index to demonstrate that higher financial awareness directly predicts responsible financial behavior, such as reduced credit delinquency and improved investment outcomes. This suggests that awareness serves as a critical foundation for individual security. This study applies this logic to Kenya's cryptocurrency sector, testing whether heightened awareness enables retail investors to distinguish between credible exchanges and fraudulent schemes.

The relationship between awareness and protection is often complex and mediated by external factors. In the Indian context, Saini et al. (2025) utilized structural equation modeling to show that financial awareness significantly boosts investor satisfaction and helps clarify investment

purposes. However, their research suggests that this relationship is often influenced by external market factors and individual life goals. Similarly, Irfan et al. (2023) observed in the Pakistani stock and real estate markets that while market knowledge is a primary driver of performance, it's direct link to formal investor protection can be weak if emotional factors like anxiety or optimism are not managed. This underscored a vital point: awareness must be paired with emotional intelligence to translate into actual protection.

In the local Kenyan context, the limits of awareness have been explored within traditional investment vehicles. Ndung'u (2023) employed a predictive correlational design to examine Real Estate Investment Trusts (REITs) in Kenya, finding that while investor awareness has a positive influence, it is often statistically insignificant when not supported by a robust regulatory framework. These results suggest that awareness alone may not guarantee safety if institutional systems are lacking. The current study extended this argument to the cryptocurrency market, which faces even greater structural gaps than the real estate sector. By examining how financial awareness interacts with regulatory awareness, this research sought to determine if a more holistic form of awareness can bridge the protection gap in Kenya's unregulated digital asset space.

Collectively, these studies establish that while financial awareness is a vital precursor to responsible behavior, its ability to protect an investor is often dependent on the market environment. Tang (2024) and Saini et al. (2025) affirm that awareness improves decision quality, yet Irfan et al. (2023) and Ndung'u (2023) caution that awareness without emotional control or regulatory support may be insufficient. This highlights a significant contextual gap, as most existing literature focuses on regulated real estate or stock markets. This study filled that void by investigating the effectiveness of financial awareness within the high risk, low regulation environment of Kenya's retail cryptocurrency market.

2.3.3 Financial Attitude and the Level of Investor Protection outcomes

The psychological disposition and internal mindset of an investor are critical determinants of how they engage with protective mechanisms. Kaur (2024) explored this relationship among retail equity investors in India, utilizing an ordinal regression approach to evaluate how perceptions of governance and anti fraud laws influence investor satisfaction. The findings revealed that an individual's attitude toward regulatory standards and corporate governance significantly shapes their confidence in market protection measures. This suggested that the

level of protection an investor feels is largely a product of their trust in the established rules of engagement.

The influence of attitude extends beyond immediate market participation to long term security strategies. Mustafa et al. (2023) employed structural equation modeling to analyze self-employed individuals in Malaysia, finding that financial attitude is a primary driver of sustainable retirement planning. Their research underscores that while literacy provides knowledge, it is the individual's attitude that dictates the actual implementation of protective financial habits. Furthermore, Razak and Mohamed (2024) utilized a SMART-PLS analysis in Somalia to demonstrate that a positive financial mindset is essential for advancing financial inclusion. Their study highlighted that an individual's willingness to engage with formal banking services is rooted in their financial attitude and saving habits, which ultimately impacts their socioeconomic stability.

In the Kenyan context, the impact of risk related mindsets has been evidenced through historical market data. Maritim et al. (2022) used a correlational research design to examine investors at the Nairobi Securities Exchange (NSE), discovering that an individual's attitude toward risk has a positive and significant effect on their portfolio choices. The study notably found that age serves as a moderator in this relationship, influencing how risk attitudes translate into investment decisions. While these findings provide valuable insights into traditional equity markets, they do not account for the unique pressures of the cryptocurrency market. In this digital environment, extreme price fluctuations often act as a catalyst for herd behavior, a behavioral phenomenon where investors bypass personal due diligence to follow collective market movements, significantly impacting their protection outcomes.

In summary, the literature indicates that financial attitude is a powerful predictor of an investor's protective behavior and market engagement. While Kaur (2024) and Mustafa et al. (2023) emphasize that attitudes toward regulation and planning are fundamental to security, Razak and Mohamed (2024) and Maritim et al. (2022) demonstrate that a positive or risk aligned mindset is necessary for effective participation in both formal banking and stock markets. However, a significant contextual gap persists, as these studies are largely situated in regulated environments or traditional sectors. The current study addressed this void by investigating how financial attitudes influence the level of investor protection in Kenya's retail cryptocurrency market, where the absence of institutional safety nets makes the investor's personal attitude the primary line of defense.

2.3.4 Regulatory Awareness, Financial Literacy and Investor Protection outcomes

The effectiveness of financial literacy in securing an investor is often contingent upon their understanding of the prevailing legal and institutional framework. Amnas et al. (2024) explored this dynamic in the Indian FinTech sector using partial least squares structural equation modeling (PLS-SEM). Their findings demonstrated that perceived regulatory support significantly moderates the relationship between technology usage and financial inclusion. This suggested that when investors believe a robust regulatory safety net exists, their digital literacy more effectively translates into secure and confident participation in formal financial services.

However, the moderating power of regulation can vary depending on the specific risk being addressed. In the Nigerian context, Usman et al. (2025) utilized a quantitative survey and PLS-SEM to examine the link between FinTech and financial crimes like money laundering. While their results confirmed that financial regulation acts as a significant moderator in mitigating technology induced crimes, they found that financial literacy alone did not establish a similar moderating effect. This highlighted a critical insight for the current study: in developing economies, the absence of specific, technology based laws can limit the protective power of an individual's knowledge, making Regulatory Awareness a vital secondary layer of defense.

The role of government policy as a moderator is further supported by research into long term financial security. Ghadwan et al. (2023) applied Structural Equation Modeling (SEM) to data collected during the COVID-19 pandemic, finding that perceived government policy significantly moderates the relationship between financial goal setting and retirement planning. Similarly, within the Kenyan business environment, Kuria (2022) employed a descriptive survey and stepwise regression to determine that business regulatory requirements significantly moderate the effect of firm specific factors on financial performance. Although Kuria's study focused on private security firms, the findings provided a local empirical basis for the argument that regulatory environments fundamentally alter how internal capabilities like literacy or firm assets result in successful outcomes.

These studies collectively suggest that individual competence whether through financial literacy or firm attributes is significantly enhanced or constrained by the regulatory environment. While Amnas et al. (2024) and Ghadwan et al. (2023) establish that perceived policy and support strengthen the impact of personal knowledge, Usman et al. (2025) and Kuria

(2022) highlight that without clear, specific laws, even high levels of literacy may fail to provide adequate protection. This reveals a persistent contextual gap: existing research has largely focused on regulated sectors like FinTech, retirement planning, or private security. The present study addresses this gap by testing the moderating role of Regulatory Awareness in Kenya's cryptocurrency market.A sector characterized by a lack of specific legislation, where an investor's awareness of what is and isn't regulated may be the most critical factor in their protection.

In the Kenyan context, the landscape of regulatory awareness is rapidly shifting from a period of cautionary advisories by the Central Bank of Kenya (CBK) to a more structured oversight regime. The introduction of the Virtual Assets Service Provider (VASP) Act (2025) represents a pivotal transition in the institutional environment. Awareness of this specific Act is expected to moderate the relationship between literacy and protection by providing investors with a formal legal reference point for identifying legitimate versus fraudulent platforms

2.4 Summary of Literature and Research Gaps

Table 1 below consolidates the key empirical studies reviewed and highlights the specific gaps this study seeks to address.

Table 2.1: *Summary of Empirical Review and Research Gaps*

Author &Year	**Research objective**	**Identified Gap**	**Present study contribution**
Hasan (2024)	Evaluated how digital financial literacy affects security and protection	Contextual Gap: Research was conducted in the Indonesian context	Investigation within the Kenyan context
Rashid et al. (2025)	Examined the link between finance, market knowledge and investor protection on investment performance.	Conceptual Gap: Investor protection was treated as a predictor	Investor protection treated as a predictor.
Mubaraq et al. (2021)	Investigated how risk tolerance and financial knowledge impact investment choices	Conceptual Gap: Focused on the link between knowledge and decision-making	Centered primarily on the nexus between literacy and behavioral choice.
Musau et al. (2022)	Looked at financial literacy and consumer protection for SMEs in Kenya	Methodological Gap: Utilized a descriptive research design.	Adoption of an explanatory research design
Saini et al. (2025)	Explored the relationship between investor satisfaction and financial awareness.	Contextual Gap: Study was limited to the Indonesian market	Investigation within the Kenyan context

Irfan et al. (2023)	Analyzed the impact of investor protection on traditional real estate and stock markets.	Contextual Gap: Focused on traditional stock and real estate markets.	Focuses specifically on retail cryptocurrency investors
Tang (2024)	Researched the connection between financial behavior and awareness.	Conceptual Gap: Explored the link between awareness and behavior.	Focuses on the relationship between awareness and the level of protection.
Ndung'u (2023)	Investor sentiments, awareness, and performance of REITs in Kenya.	Contextual & Structural Gap: Focuses on centralized, regulated, and tangible real estate assets.	Addresses decentralized, unregulated, and intangible digital assets (Cryptocurrency).design
Kaur (2024)	Investor perceptions of government and SEBI protection measures.	Methodological Gap: Utilized a desktop research design	Adoption of an explanatory research design.
Mustafa et al. (2023)	Examined the impact of financial literacy and disposition on retirement preparedness in Malaysia	Contextual Gap: Research was conducted in the Malaysian context	Investigation within the Kenyan context.
Razak, and Mohamed (2024)	Explored the interplay between literacy, behavior, and financial inclusion in Somalia	Conceptual Gap: Financial inclusion was used as the dependent variable thus showing a conceptual gap	Investor protection used as the dependent variable
Maritim et al. (2022)	Risk attitude and portfolio choice at the NSE, Kenya	Contextual Gap: Investigation was restricted to formal, regulated securities markets.	Addresses the research gap by exploring the unregulated, decentralized cryptocurrency market in Kenya.
Amnas et al.(2024)	Studied the connection between FinTech adoption and inclusion, emphasizing regulatory frameworks.	Conceptual Gap: Focused on inclusion metrics rather than safety and protection outcomes.	Specifically examines investor protection as the terminal variable of interest.
Usman et al. (2025)	Investigated FinTech, money laundering, and the role of literacy	Conceptual Gap: Regulations and literacy were treated as moderators for money laundering.	Focuses on the moderating role of regulatory awareness.
Ghadwan et al. (2023)	Explored retirement planning strategies and the influence of government policy interventions.	Contextual Gap: Study was conducted in Malaysia.	Investigation was conducted in Kenya
Kuria (2022)	Assessed the moderating effect of commercial regulations on the link between internal firm dynamics and profitability within Kenya's private security industry.	Conceptual Gap: The study utilized financial performance as the terminal dependent variable.	Focused on investor protection as the dependent variable.

2.5 Conceptual Framework

Daub et al. (2021) describe a conceptual framework as a structure of interconnected concepts and theories that guides the development of research objectives and questions while providing a basis for identifying relevant evidence to support the study. In the current study, investor protection constituted the dependent variable, regulatory awareness served as the moderating variable, while financial knowledge, financial awareness, and financial attitude were treated as the independent variables.

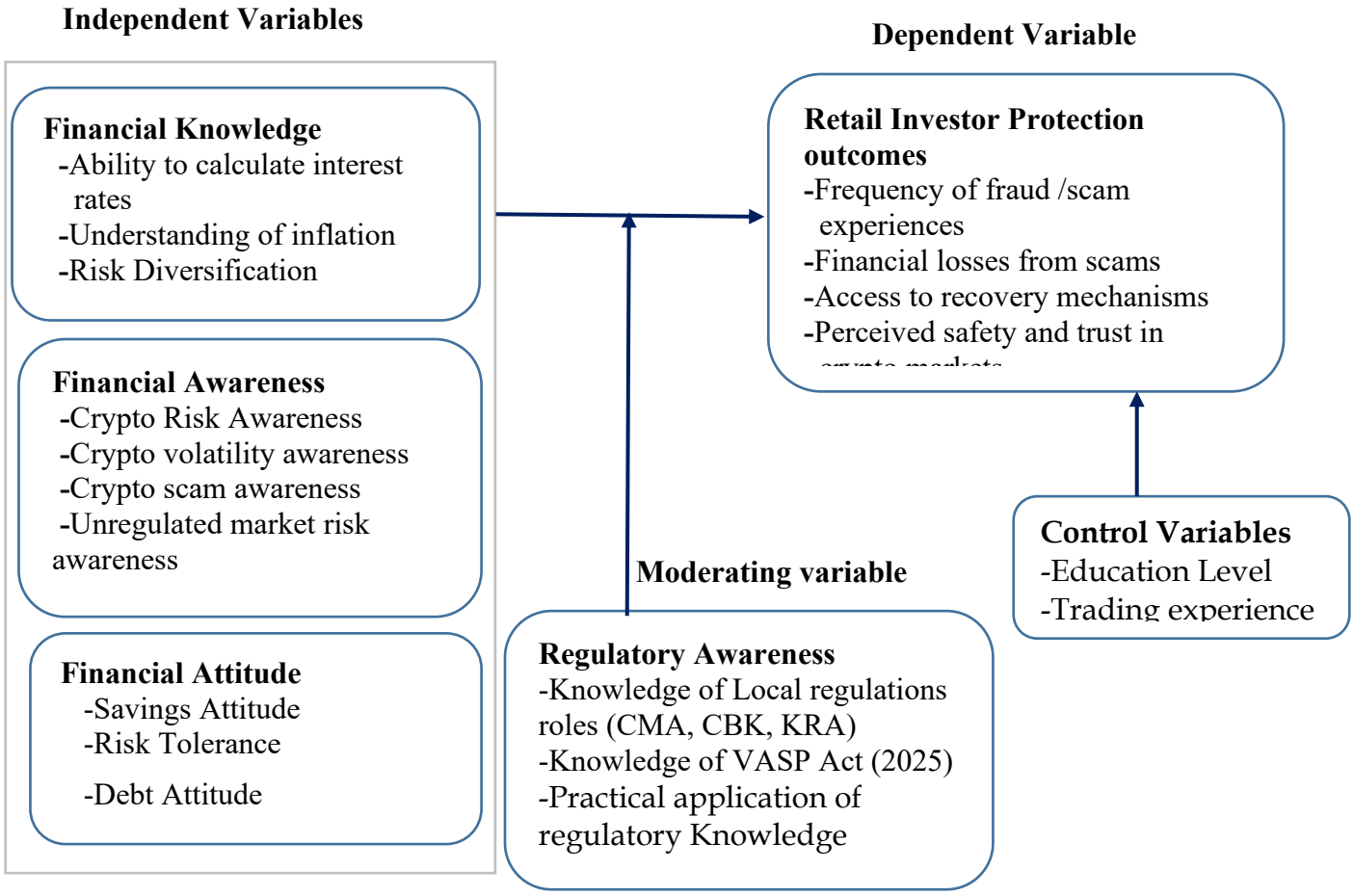

Figure 2.1: Conceptual Framework

The conceptual framework is primarily anchored on the Theory of Planned Behaviour (TPB) and Information Asymmetry Theory, with Exchange Theory providing complementary support for the moderating variable. The Theory of Planned Behaviour explains the financial attitude dimension by suggesting that an investor's psychological disposition, perceived behavioural control, and risk tolerance influence investment behaviour and exposure to fraudulent

cryptocurrency activities. Information Asymmetry Theory explains the relationship between financial knowledge, financial awareness, and retail investor protection outcomes by positing that reducing information gaps enhances informed decision-making and lowers vulnerability to scams, manipulation, and market-related risks. In addition, Exchange Theory, as conceptualized by Robson and Ladner (2006), supports the moderating role of regulatory awareness by suggesting that individuals evaluate potential costs and benefits before engaging in market transactions. In the cryptocurrency context, regulatory awareness enhances investors understanding of market risks, legal limitations, and available protection mechanisms. However, regulatory awareness does not directly determine retail investor protection outcomes; rather, it strengthens or weakens the relationship between financial literacy dimensions and retail investor protection outcomes by enhancing the protective efficacy of financial literacy.

2.5.1 Operationalization of Variables

Table 2.2: *Operationalization of variables*

Variable Type	Variable	Indicators	Measurement	Data Type	Justification
Independent Variable	Financial Knowledge	-Interest rate comprehension -Inflation understanding -Risk diversification	-Suppose you had KSh 10,000 earning 10% interest per year. After 2 years, how much would you have? -Imagine your savings earn 10% but inflation is 12%. After one year, can you buy more, same, or less? -Buying shares of one company is safer than buying many companies. True or False	Quantitative (Binary)	Lusardi & Mitchell (2011, 2014); OECD/INFE (2011); World Bank (2018)
	Financial Attitude	-Saving attitude -Risk tolerance -Debt attitude	-I prefer saving regularly rather than spending on luxuries. -I am comfortable taking risks for higher returns. -Borrowing is acceptable if it leads to financial improvement	Quantitative (Ordinal)	Potrich et al. (2016); Perry & Morris (2005)
	Financial Awareness	-Crypto risk awareness -Regulatory awareness -Regulated vs	-I am aware that cryptocurrency investments carry high risk.	Quantitative (Ordinal)	Emund (2010); OECD (2020);

		unregulated product awareness	-I know crypto assets are not regulated by CBK or CMA. -I can distinguish between licensed and unlicensed crypto platforms.		CMA (2023)
Moderating Variable	Regulatory Awareness	-Knowledge of local regulations (CBK, CMA, KRA) -Knowledge of international standards -Practical application (KYC usage, licensed platforms, tax compliance)	-I am familiar with CBK's position on cryptocurrencies. -I understand global AML/CFT frameworks. -I prefer using exchanges with KYC verification and licenses.	Quantitative (Ordinal)	IMF (2022); FATF (2021); CMA (2023)
Dependent Variable	Investor Protection	-Frequency of fraud/scam experiences -Financial losses from scams/manipulation -Access to recovery/legal redress -Perceived safety and trust in crypto markets	-How often have you experienced crypto fraud in the past 12 months? -How severe were your financial losses from scams? -To what extent were you able to recover lost funds or seek legal recourse? -How safe and fair do you consider the crypto market environment you use	Quantitative (Ordinal)	La Porta et al. (1998); Vo & Thai (2025); OECD (2017)

2.6 Chapter Summary

This chapter reviewed the theoretical and empirical foundations of the study. The research is anchored on the Theory of Planned Behavior and Information Asymmetry Theory, which explain how financial attitudes, behavioral control, and information gaps influence investor protection outcomes. Exchange Theory was incorporated as a supporting framework to explain how financial knowledge develops through social interactions.

The empirical review revealed contextual and conceptual gaps, particularly the limited focus on retail cryptocurrency markets and the absence of regulatory awareness as a moderating factor. These gaps justified the present study's examination of the relationship between financial literacy and retail investor protection outcomes in Kenya, moderated by regulatory awareness and controlled for education level and trading experience.

CHAPTER THREE:

RESEARCH METHODOLOGY

3.1 Introduction

This chapter described the research methods used to evaluate how financial literacy and the moderating factor of regulatory awareness impact the safety of cryptocurrency investors in Kenya. It detailed the specific plan for the study, including the population under study, the methods for selecting participants, and the processes for gathering and analyzing data. Additionally, it covers how the study ensures the accuracy of its results and adheres to ethical standards. The overall goal of this methodology was to generate trustworthy and useful data that directly answers the research questions.

3.2 Research Philosophy

In determining the methodological framework, this study adopted a positivist research philosophy over interpretivism. While interpretivism emphasizes subjective, socially constructed meanings (Saunders et al., 2019), it was deemed unsuitable for this study's requirement to establish broad, verifiable market patterns using standardized data. Conversely, positivism assumes social reality is objective and independent of the researcher, asserting that valid knowledge is derived solely from empirical, quantifiable observation (Creswell & Creswell, 2018). This philosophy is uniquely justified here because it provides a deductive framework to test pre-specified statistical hypotheses and enables the operationalization of behavioral constructs into distinct numeric scales. By maintaining researcher independence across the sample, a positivist stance supports the use of hierarchical multiple regression to isolate interaction effects, ensuring that the findings remain objective and generalizable to the broader retail cryptocurrency ecosystem in Kenya (Hair et al., 2019).

3.3 Research Design

Research design refers to the framework guiding data collection, measurement, and analysis procedures within a study (Creswell, 2014). This study adopted an explanatory research design using a quantitative cross-sectional survey approach. The explanatory design is uniquely justified because the study moves beyond mere description to evaluate the directional, predictive paths between financial literacy dimensions and retail investor protection outcomes (Saunders et al., 2019). This design provides the necessary structural framework to test causal hypotheses and mathematically isolate interaction effects through moderation analysis

(Kerlinger & Lee, 2000). Complementing this, a cross-sectional survey approach was chosen because it allows for the simultaneous measurement of independent, moderating, and dependent variables across a large, geographically dispersed sample at a single point in time (Sekaran & Bougie, 2016). This approach is highly appropriate for examining structural relationships and interaction trends within rapid-growth digital asset markets where long-term longitudinal tracking is practically constrained (Cooper & Schindler, 2014).

3.4 Target Population

The target population represents the entire group of individuals from which relevant data are drawn to answer the research questions (Saunders et al., 2019). For this study, the target population comprised retail cryptocurrency investors in Kenya, a segment of 4.25 million individuals according to the United Nations Conference on Trade and Development (UNCTAD, 2022). This specific population was chosen because retail investors are the most directly exposed to market volatility and scams resulting from low regulatory safety nets. To operationalize data collection across this decentralized ecosystem, participants were accessed via a multi-channel framework: virtual networks (centralized exchanges, peer-to-peer trading forums, and localized Telegram, WhatsApp, and X communities) and physical networks (blockchain meetups, fintech seminars, and Virtual Asset Chamber of Commerce forums). Combining these digital and physical access points provided a comprehensive, accessible pool of active investors capable of directly addressing the study's empirical objectives.

3.5 Sampling Design and Sample Size

Sample size refers to the number of individuals selected from the broader target population to provide the data necessary for investigation (Lakens, 2022). Deciding on a suitable sample size involves balancing several critical elements, including the overall research plan, the chosen confidence level, the allowed margin of error, and the level of diversity within the target group (Mugenda & Mugenda, 2003). For research involving widespread and non centralized groups, researchers often rely on mathematical equations to determine a sample size that is both feasible and sufficient for analysis.

This study therefore, employed Yamane's (1967) simplified formula to calculate a statistically reasonable minimum sample from the estimated 4.25 million cryptocurrency users, using a 95% confidence level and a 5% margin of error:

$$n = \frac{N}{1 + N(e^2)}$$

Where:

n is the calculated sample size needed.

N is the entire population size (4,250,000 retail cryptocurrency investors)

e is the degree of precision, set at a 0.05 margin of error.

$$n = \frac{4{,}250{,}000}{1 + 4{,}250{,}000(0.05^2)}$$

$$n = \frac{4{,}250{,}000}{10{,}626}$$

n=399.6≈400

Accordingly, a minimum sample size of 400 respondents was adopted. Although Yamane's formula is rooted in probability sampling, it is commonly applied in non-probability studies as a practical guide when no comprehensive sampling frame exists, particularly in decentralized, largely anonymous cryptocurrency communities. The sample size of 400 was further supported by multivariate analysis guidelines, which recommend at least 10–15 cases per predictor variable (Hair et al., 2019) and a minimum sample of 104 + m cases for regression analysis, where m represents the number of predictors (Tabachnick & Fidell, 2019). With up to five predictors, these guidelines require between 75 and 109 participants, thereby confirming that a sample of 400 respondents was statistically adequate for the study.

The respondents were recruited from both virtual and physical cryptocurrency communities in Kenya. Virtual forums included cryptocurrency trading groups on Telegram, Discord, WhatsApp, Reddit, Facebook, and X (formerly Twitter), as well as users of cryptocurrency exchange platforms and online investment communities where discussions on cryptocurrency trading frequently occur. Physical recruitment points included blockchain and fintech events, investment meetups, innovation hubs, and university business and technology forums where

cryptocurrency-related activities and discussions are conducted. These platforms and forums were selected because they provided direct access to active retail cryptocurrency investors within the Kenyan context.

3.5.1 Sampling Technique

This study utilized virtual snowball sampling, a non-probability chain-referral technique uniquely suited for accessing hidden, decentralized, or hard-to-reach populations where a formal, centralized sampling frame does not exist (Atkinson & Flint, 2001; Goodman, 1961). Because retail cryptocurrency investors in Kenya operate within highly dispersed, private, and unregulated digital spaces, constructing a complete, official registry is methodologically unfeasible (Dosek, 2021). The choice of this method is justified under modern survey research frameworks because it leverages pre-existing peer-to-peer trust networks to overcome anonymity and privacy concerns, allowing the study to penetrate encrypted, invite-only communication channels that are structurally closed to public recruitment (Baltar & Brunet, 2012; Tornava et al., 2025).

In execution, data collection was initiated by reaching out to active, strategic individuals ("seeds") within established online Kenyan crypto communities. After completing the survey, these initial participants sequentially shared the digital instrument link across their personal and professional social networks, including WhatsApp, Telegram, and X groups. This chain-referral momentum progressively expanded access to active retail traders across geographically isolated areas, maximizing recruitment efficiency until the statistical sample requirements were fully satisfied.

3.6 Data Collection Methods

Data collection instruments are the specific mechanisms researchers use to obtain information from study participants, including observation logs, surveys, interviews, and questionnaires (Kothari, 2004). This study employed a structured questionnaire to collect quantitative data from retail cryptocurrency investors. A structured format was selected because it maintains consistency across all participants, minimises potential researcher bias, and streamlines the data processing phase (Dillman et al., 2014). The questionnaire was divided into four sections: Section A captured general participant demographics; Section B measured financial literacy levels; Section C assessed investor protection standards; and Section D evaluated the extent of regulatory awareness. Responses were recorded on a five-point Likert scale. To guard against

automated bot responses common in digital asset communities, a CAPTCHA and an internal attention check question were embedded within the instrument.

3.6.1 Data Collection Procedure

Prior to fieldwork, official ethical authorization was obtained from the research supervisor and the National Commission for Science, Technology, and Innovation (NACOSTI). The survey was distributed via Google Forms, as most retail cryptocurrency investors are active in digital spaces. Administrators of relevant online communities were approached to obtain consent before sharing the survey with their members, ensuring that all participants had explicitly agreed to participate.

3.7 Research Quality

The integrity of the research instrument is determined by how well it maintains reliability, precision, and validity. This study evaluated research quality through pilot testing, reliability assessment, and validity verification**.** A preliminary pilot study comprising 10% of the total sample size (n = 40) was conducted to confirm that the survey questions are clear, relevant, and effective. Participants involved in the pilot testing were omitted from the main data collection process.

3.7.1 Reliability Analysis

The reliability concept denotes the capacity of a data-gathering tool to produce steady and dependable outcomes over time (Field, 2022). Internal consistency was assessed using Cronbach's Alpha, a statistical metric that produces scores between 0 and 1, with higher values indicating stronger consistency. A threshold of 0.7 and above was considered satisfactory for this study, confirming that the survey accurately reflected the intended variables. Items falling below this benchmark were modified or excluded to improve overall data quality.

3.7.2 Validity Test

Validity refers to the degree to which a research instrument accurately measures the specific concepts it is designed to evaluate (Connelly, 2018).To ensure the strength of the results, this study confirmed validity through three key perspectives: face, content, and construct. Face validity was established by having subject-matter experts and academic supervisors review the questionnaire to ensure that the items are clear, relevant, and aligned with the study's core goals. Following this, content validity was achieved by organizing the survey to mirror the study's

specific variables, ensuring that each section adequately represents the theoretical concepts it was intended to measure. Finally, construct validity was assessed by analyzing how well the individual survey items reflect the study's theoretical underpinnings. This process involves performing an Exploratory Factor Analysis (EFA) in SPSS to statistically confirm that measurement items load correctly onto their respective latent factors, such as Financial Literacy, Regulatory Awareness, and Investor Protection, thereby ensuring that the collected data accurately represents the underlying theoretical concepts.

3.8 Data Processing and Analysis

The information gathered from the questionnaires was systematically coded and verified for accuracy before being analyzed using SPSS. Descriptive statistics, including means, standard deviations, frequencies, and percentages, were computed to summarize respondent characteristics and the distribution of the study variables. Inferential statistics were used to test the study's hypotheses. Pearson correlation assessed relationships among variables, while hierarchical multiple regression examined the direct effects of financial literacy components and the moderating role of regulatory awareness through an interaction term.

3.8.1 Direct Effects Model

In this study, investor protection is operationalized as an individual-level outcome reflecting the extent to which retail cryptocurrency investors can avoid fraud, minimize financial losses, access recovery mechanisms, and perceive the market environment as safe. Unlike structural investor protection, which focuses on formal legal safeguards, this study measures the protective outcomes experienced by investors within the cryptocurrency ecosystem.

The baseline regression model incorporating control variables were specified as follows:

$$RIPO = \beta_0 + \beta_1 FK + \beta_2 FA + \beta_3 FAT + \beta_4 EDU + \beta_5 EXP + \varepsilon \ldots\ldots \text{ (Equation 1)}$$

Where;

RIPO = Retail Investor Protection Outcomes (Dependent Variable)

FK = Financial Knowledge

FA= Financial Awareness

FAT = Financial Attitude

EDU = Education Level (Control Variable

EXP = Cryptocurrency trading Experience (Control Variable)

βo= Constant

β_1, β_2, β_3 = Regression Coefficients

ϵ = error term

This model assessed the independent contribution of each financial literacy dimension to retail investor protection outcomes while controlling for demographic influences.The fitness of the regression model was examined using SPSS to evaluate how effectively the data aligns with the proposed framework. This process includes an assessment of the statistical contribution of each individual predictor. To ensure the validity of the findings, all hypotheses were tested at a 95% confidence level.

The final determinations was guided by the calculated p-value, such that if the p-value is recorded as less than 0.05, the null hypothesis was rejected, signifying that the model is statistically significant and that the independent variables serve as meaningful predictors of the dependent variable. Conversely, if the p-value exceeds the 0.05 threshold, the null hypothesis were maintained, indicating that the model is statistically insignificant and the variables do not adequately account for the variance observed in investor protection.

3.8.2 Testing for Moderation

To test the moderating role of regulatory awareness, hierarchical multiple regression analysis was employed. The study examined whether regulatory awareness moderates the relationship between the dimensions of financial literacy as measured by financial knowledge, financial awareness, and financial attitude. Prior to analysis, the predictor and moderator variables were standardized to reduce multicollinearity and improve interpretation of the interaction effects.

Interaction terms were then created by multiplying each financial literacy dimension with regulatory awareness, comprising of Financial Knowledge × Regulatory Awareness (FK × RA), Financial Awareness × Regulatory Awareness (FA × RA), and Financial Attitude × Regulatory Awareness (FAT × RA). Hierarchical multiple regression was considered

appropriate because it allows for the stepwise assessment of the additional variance explained by interaction terms (Hayes, 2018).

The moderation model was specified as:

$RIPO = \beta_0 + \beta_1 FK + \beta_2 FA + \beta_3 FAT + \beta_4 RA + \beta_5 EDU + \beta_6 EXP + \beta_7 (FK \times RA) + \beta_8 (FA \times RA) + \beta_9 (FAT \times RA) + \varepsilon$ …… (Equation 2)

Where;

RIPO = Retail Investor Protection Outcomes (Dependent Variable)

FK = Financial Knowledge

FA= Financial Awareness

FAT = Financial Attitude

RA= Regulatory Awareness

EDU = Education Level (Control Variable

EXP = Cryptocurrency trading Experience (Control Variable)

βo= Constant

$\beta_1, \beta_2, \beta_3 \ldots \beta_9$ = Regression Coefficients

ϵ = error term

Moderation was confirmed if the interaction coefficients were statistically significant ($p < 0.05$) and if the inclusion of the interaction terms resulted in a significant increase in the coefficient of determination (R^2).A simple slope analysis and interaction plot were subsequently generated to illustrate the conditional effect of financial literacy at low and high levels of regulatory awareness. Although the study variables were measured using five point Likert scale items, composite indices were generated by averaging multiple items for each distinct construct and therefore, the resulting composite scores were treated as continuous interval data, mathematically justifying the use of OLS hierarchical regression.

3.8.3 Diagnostic Testing

To ensure robustness of the regression results, diagnostic tests were conducted in SPSS. Multicollinearity were assessed using Variance Inflation Factor (VIF). Linearity and homoscedasticity assumptions were evaluated through residual plots, while standardized residuals were examined to detect potential outliers. All hypotheses were tested at a 95% confidence level ($\alpha = 0.05$), with p-values below 0.05 indicating statistical significance.

3.9 Ethical Consideration

The study fulfilled the ethical criteria provided for in the research methodology guideline of Strathmore Business School. To ensure all participants understand the purpose and importance of the project, every retail cryptocurrency investor included in the sample was provided with an introductory letter from the University. Importantly, the researcher is committed to maintaining the highest level of confidentiality regarding any information shared by the participants. To comply with national research regulations, formal permits were obtained from the National Commission for Science, Technology, and Innovation (NACOSTI). Finally, the study guarantees that the survey data collected was used exclusively for the academic goals outlined in this research, ensuring the privacy and security of the investors involved.

3.10 Chapter Summary

This chapter outlined the methodological framework used to investigate the effect of financial literacy dimensions and regulatory awareness on retail investor protection outcomes in Kenya's cryptocurrency market. The study adopted a quantitative approach using a hierarchical multiple regression model to evaluate the data collected from retail market participants. It detailed the research design, target population, sampling techniques, and data collection instruments, alongside pilot testing protocols used to ensure validity and reliability. Finally, the chapter discussed the diagnostic tests performed to validate the regression assumptions including linearity and multicollinearity as well as the strict ethical considerations maintained throughout the research process.

CHAPTER FOUR

PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

This chapter presents and analyzes the empirical findings of the study. It begins with the response rate and data reliability, followed by demographic characteristics of respondents. Descriptive statistics are then presented for all study variables. The chapter further examines relationships among variables using correlation analysis and tests the study hypotheses through hierarchical multiple regression. The moderating effect of regulatory awareness on the relationship between financial literacy and retail investor protection outcomes is also analyzed in line with the study objectives.

4.2 Analysis of Survey Participation

The study targeted 400 respondents, of whom 332 successfully completed the survey, yielding a response rate of 83% as presented in Table 4.1. This exceeds the 70% threshold recommended by Mugenda and Mugenda (2003), who classify such a rate as excellent for purposes of analysis and reporting. The achieved sample of 332 respondents is further considered adequate for the objectives of this study, as it is sufficiently large to capture the key characteristics of the target population (Kothari, 2011).

Table 4.1: Breakdown of Data Collection Outcomes

Category	Count	Proportion (%)
Valid completed reponses	332	83.0%
Unresponsive	68	17.0%
Cumulative	**400**	**100.00**

The sample size satisfies the requirements of multivariate analysis particularly regression modelling, which requires a sufficiently large number of observations to ensure reliable parameter estimation and model stability (Hair et al., 2019). While the non-probability sampling technique limits statistical generalizability, the high response rate enhances the reliability and credibility of the findings. The data obtained therefore provide a reliable basis for drawing conclusions about the surveyed population of retail cryptocurrency investors in Kenya.

4.3 Reliability Test

To evaluate the internal consistency of the survey instruments, a reliability analysis was conducted. A preliminary pilot study preceded the primary data collection phase to ensure that the questionnaire effectively operationalized the targeted constructs. Reliability was measured using the Cronbach's Alpha coefficient, a standard metric in quantitative studies for assessing scale consistency (Sekaran & Bougie, 2013).The Cronbach's Alpha statistic ranges from 0 to 1. In scholarly research, coefficients exceeding 0.7 are typically regarded as satisfying the requirements for internal consistency, with higher scores signifying a more robust measurement scale

Table 4.2: Reliability Results

Variable	Cronbach's Alpha	Number of items	Comment
Financial knowledge	0.796	3	Reliability
Financial awareness	0.857	7	Reliability
Financial attitude	0.706	9	Reliability
Regulatory awareness	0.889	6	Reliability
Investor protection outcomes	0.762	7	Reliability

The findings presented in Table 4.2 indicate that all study variables achieved Cronbach's Alpha values above the recommended threshold of 0.7. Specifically, financial awareness ($\alpha = 0.857$) and regulatory awareness ($\alpha = 0.889$) exhibited high levels of internal consistency, suggesting that the items used to measure these constructs are highly reliable. Financial knowledge ($\alpha = 0.796$) and investor protection outcomes ($\alpha = 0.762$) also demonstrated acceptable reliability, while financial attitude ($\alpha = 0.706$), though relatively lower, still meets the minimum threshold for reliability.These findings confirm that the measurement items used for the independent variables (financial knowledge, financial awareness, and financial attitude), the moderating variable (regulatory awareness), and the dependent variable (retail investor protection outcomes) are internally consistent. Therefore, the instrument was deemed suitable for further statistical analysis, including correlation and regression modelling.

4.4 Demographic Characteristics

This section contains the gender of respondents, age of the respondents, education level and the trading experience.

4.4.1 Gender of the Respondents

The respondents were asked to indicate their gender. Results were shown in Figure 4.1.

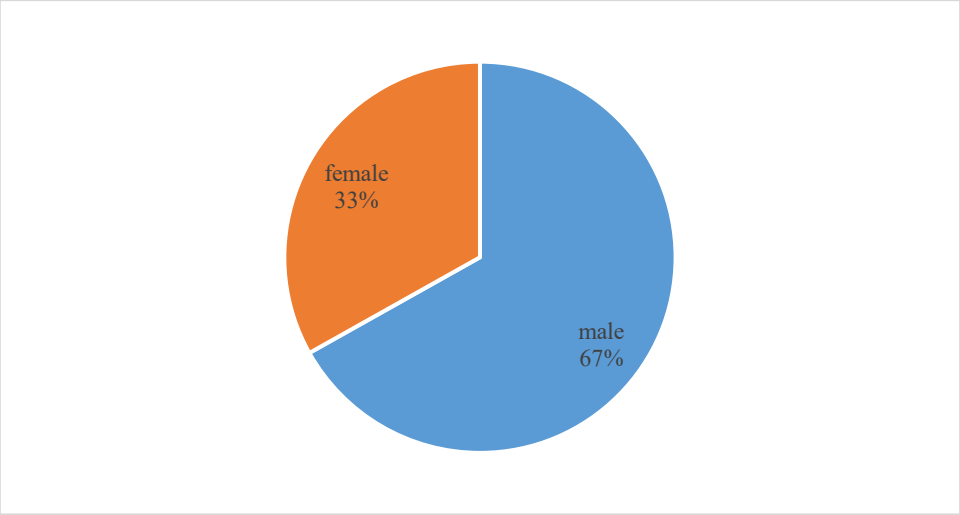

Figure 4.1: Gender of the Respondents

The findings reveal that the majority of respondents were male (67%), while female respondents accounted for 33%. This distribution is consistent with evidence from existing literature, as Barber and Odean (2001) demonstrated that men participate more actively in financial markets than women, attributing this to differences in financial confidence and risk tolerance. The gender skew therefore reflects the broader demographic reality of retail cryptocurrency investment in Kenya, rather than a limitation of the sampling approach.

4.4.2 Age of Respondents

The respondents were asked to indicate their age. Results are shown in Figure 4.2.

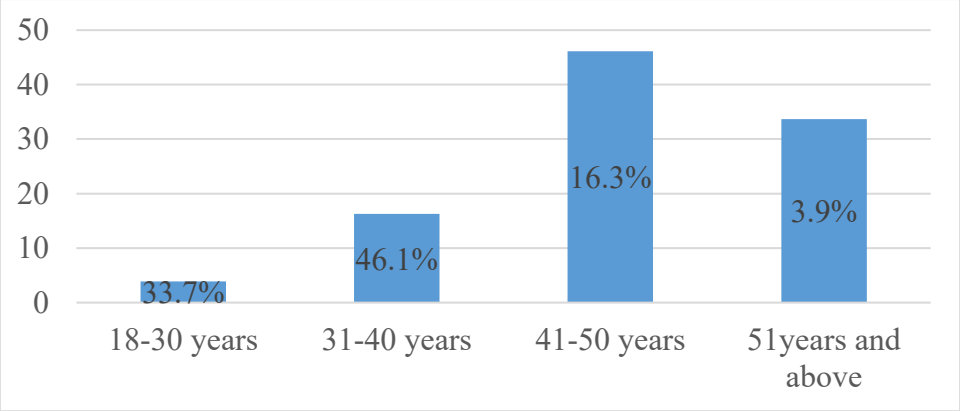

Figure 4.2: Age of the Respondents

The findings indicate that the largest proportion of respondents, 46.1%, were aged between years 31–40 , followed by 33.7% aged aged between years 18–30, 16.3% aged aged between years 41–50 , and 3.9% being over 51 years. This distribution aligns with the study on financial literacy and retail investor protection in Kenya's cryptocurrency market, as individuals aged 18-40 are more likely to engage with digital financial platforms and cryptocurrencies. Their dominance suggests that the findings largely reflect the experiences of active, tech-savvy retail investors, in which financial literacy and regulatory awareness are crucial to shaping investment decisions and enhancing investor protection outcomes.

4.4.3 Education Level

The respondents were asked to indicate their educational level. Results are shown in Figure 4.3.

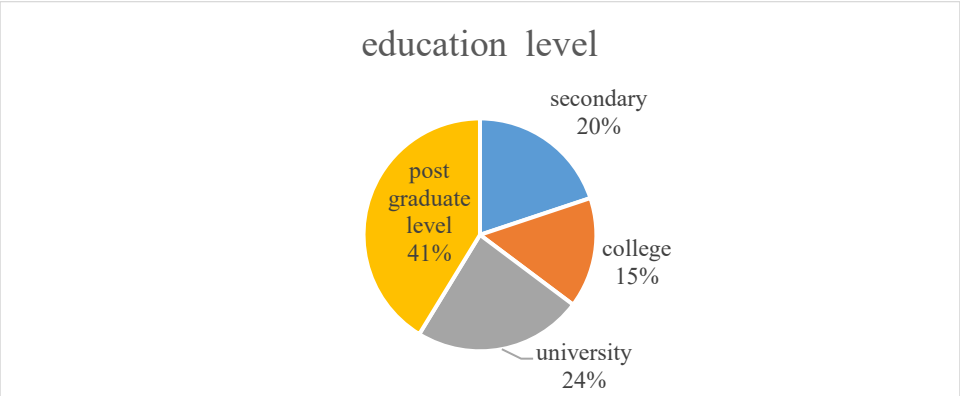

Figure 4.3: Education Level

The findings indicate that the largest proportion of respondents (41%) had postgraduate education, followed by 24% with undergraduate degrees, 20% with secondary education, and

15% with college-level qualifications. This suggests that cryptocurrency participation in the study sample is relatively high among individuals with advanced levels of education. The dominance of highly educated respondents implies that the findings may reflect individuals with stronger analytical capacity and financial comprehension. However, despite higher education levels, investor protection outcomes may still vary, highlighting that formal education alone may not be sufficient without specific financial literacy and regulatory awareness

4.4.4 Trading Experience

The respondents were asked to indicate their trading experience. Results are shown in Table 4.3.

Table 4.3: Trading Experience

Period (Years)	Count	Percent
6 Months – 1 Year	46	13.9
2 - 4	68	20.5
4 – 6	184	55.4
Over 6 Years	34	10.2
Total	**332**	**100**

The findings show that the largest proportion of respondents (55.4%) had between 4–6 years of trading experience, followed by 20.5% with 2–4 years, 13.9% with 6 months to 1 year, and 10.2% with more than 6 years of experience. This indicates that most participants are moderately experienced cryptocurrency investors.

The dominance of respondents with mid-level experience suggests that the study largely reflects the perspectives of investors who have had sufficient exposure to market dynamics, including volatility and potential risks. This level of experience may enhance practical decision making and risk recognition, thereby influencing investor protection outcomes. However, the relatively smaller proportion of very new and highly experienced investors implies that their perspectives may be less represented in the findings.

4.5 Descriptive Analysis

The data were collected from respondents who were asked to indicate their levels of agreement with various aspects related to the study variables.

4.5.1 Financial Knowledge

The descriptive statistics on financial knowledge are presented in Table 4.4.

Table 4.4: Financial Knowledge

		Frequency	**Percent**
Suppose you invest KSh 10,000 at 10% interest per year. After 2 years, how much will you have?	Not correct	56	16.9
	correct	276	83.1
	Total	332	100
		Frequency	**Percent**
If your savings earn 10% interest and inflation is 12%, after one year you can buy:	Not correct	32	9.6
	correct	300	90.4
	Total	332	100
		Frequency	**Percent**
Buying shares of only one crypto asset is safer than spreading investments across many assets	Not correct	322	97
	Correct	10	3
	Total	**332**	**100**

Based on the results in Table 4.4, the majority of respondents (83.1%) correctly answered the simple interest question, indicating adequate basic numeracy skills in financial contexts. A slightly higher proportion (90.4%) correctly identified the effect of inflation on purchasing power, suggesting awareness of how macroeconomic conditions affect savings. Notably, 97% correctly rejected the notion that concentrating investment in a single crypto asset is safer than diversification, reflecting a sound understanding of investment risk management principles.

These findings collectively suggest that the sampled retail cryptocurrency investors possess a relatively high level of financial literacy. This aligns with Lusardi and Mitchell (2014), who established that financial literacy particularly numeracy and understanding of risk diversification is positively associated with more informed investment decision-making and improved financial outcomes. In the context of this study, the high financial knowledge scores among respondents provide an important baseline for examining how financial literacy

interacts with investor protection outcomes and cryptocurrency investment behaviour in Kenya.

4.5.2 Financial Awareness

The respondents were asked to indicate their level of agreemenet on statements of financial awareness. Results are shown in Table 4.5.

Table 4.5: Financial Awareness

Construct measure	Mean	Std.dev
I am aware that cryptocurrency prices are highly volatile.	3.24	1.38
I am aware that crypto markets are vulnerable to fraud and scams.	3.45	1.29
I am aware that crypto platforms can collapse or be hacked without warning.	3.24	1.38
I understand that crypto investments operate in largely unregulated markets	3.45	1.29
I am aware that peer to peer crypto trading carries high counterparty risk.	3.19	1.55
I stay informed about common crypto scams in Kenya and globally.	3.62	1.26
I always research new cryptocurrency projects before investing in them.	3.63	1.26

Table 4.5 presents the descriptive statistics for financial awareness among the sampled retail cryptocurrency investors. Across all seven statements, mean scores ranged from 3.19 to 3.63 on a five-point Likert scale, indicating a moderate to above-average level of financial awareness within the sample.The majority of respondents expressed awareness that cryptocurrency prices are highly volatile (mean = 3.24, std. dev = 1.38), while most of the respondents acknowledged that crypto markets are vulnerable to fraud and scams (mean = 3.45, std. dev = 1.29). A similar proportion agreed that crypto platforms can collapse or be hacked without warning (mean = 3.24, std. dev = 1.38), and most of the respondents demonstrated awareness that cryptocurrency investments operate in largely unregulated markets (mean = 3.45, std. dev = 1.29). These findings suggest that a majority of respondents have a reasonable grasp of the structural risks inherent in cryptocurrency markets.

However, awareness of peer to peer counterparty risk recorded the lowest mean score (mean = 3.19, std. dev = 1.55), with only half of respondents in agreement, indicating that this specific risk dimension is less well understood relative to other awareness items. The relatively high standard deviation further suggests considerable variation in respondents' familiarity with this concept. In contrast, respondents demonstrated stronger awareness of scam vigilance and due diligence practices, with most of the respondents reporting that they stay informed about common crypto scams in Kenya and globally (mean = 3.62, std. dev = 1.26), and most of the

respondents indicating that they research new cryptocurrency projects prior to investing (mean = 3.63, std. dev = 1.26).

Overall, the findings are consistent with Lusardi and Mitchell (2014), who argue that financial awareness is a critical component of investor decision making, particularly in high risk and lowly regulated markets. The moderate awareness levels observed, especially regarding counterparty risk, suggest that while respondents possess foundational risk awareness, targeted financial education interventions may be necessary to address specific knowledge gaps among retail cryptocurrency investors in Kenya

4.5.3 Financial Attitude

The respondents were asked to indicate their level of agreement with statements of financial attitude. Results are shown in Table 4.6.

Table 4.6: Financial Attitude

Construct measure	Mean	std.dev
I save regularly rather than spending all my income.	3.94	1.20
I am comfortable taking higher financial risks for higher returns.	3.78	1.41
I prefer making investment decisions carefully rather than quickly.	3.47	1.26
I believe it is important to plan for long-term financial security.	3.75	1.38
I am comfortable avoiding investments that seem too risky and therefore consider the risk before investment.	4.05	1.20
I avoid making investment decisions based on hype or fear of missing out	3.79	1.19
I am willing to accept losses if an investment becomes too risky.	3.06	1.38
I avoid emotional or impulsive decisions when trading crypto.	3.90	1.39
I avoid borrowing unless it is absolutely necessary	3.96	1.27

Results showed that majority of the respondents agreed that they save regularly rather than spending all their income (mean=3.94, std.dev=1.20). Similarly, most respondents indicated that they avoid borrowing unless absolutely necessary (mean = 3.96, std. dev. = 1.27) and avoid emotional or impulsive decisions when trading cryptocurrency (mean = 3.90, std. dev. = 1.39).

The results further revealed that respondents were generally cautious in their investment behavior. A majority agreed that they are comfortable avoiding investments perceived as excessively risky and therefore consider risk before investing (mean = 4.05, std. dev. = 1.20), which recorded the highest mean among the financial attitude indicators. In addition, respondents agreed that they avoid making invest

ment decisions based on hype or fear of missing out (mean = 3.79, std. dev. = 1.19), suggesting a relatively disciplined investment attitude.

Regarding financial planning and investment decision-making, respondents agreed that it is important to plan for long-term financial security (mean = 3.75, std. dev. = 1.38) and that they prefer making investment decisions carefully rather than quickly (mean = 3.47, std. dev. = 1.26). The findings also indicated that respondents were moderately comfortable taking higher financial risks for potentially higher returns (mean = 3.78, std. dev. = 1.41).

However, the statement regarding willingness to accept losses if an investment becomes too risky recorded the lowest mean score (mean = 3.06, std. dev. = 1.38), indicating mixed opinions among respondents. This suggests that although many respondents demonstrated awareness of risk management practices, some investors may still struggle to accept financial losses associated with cryptocurrency investments.

4.5.4 Regulatory Awareness

The respondents were asked to indicate their level of agreement on statements of financial awareness. Results are shown in Table 4.7.

Table 4.7: Regulatory Awareness

Construct measure	Mean	std.dev
I am aware of the role of the Capital Markets Authority (CMA) in investor protection.	4.11	1.12
I am aware that crypto income is taxable under Kenya Revenue Authority (KRA) regulations	3.59	1.26
I am aware that the Central Bank of Kenya (CBK) does not recognize cryptocurrencies as legal tender.	3.92	1.38
I follow updates from regulators such as CBK or CMA regarding digital assets. I am aware of past CBK and CMA warning on crytopcurrencies.	3.94	1.3
Regulatory information influences how I choose crypto exchanges or platforms.	3.78	1.35
I am aware of the provisions of Kenya's Virtual Asset Service Providers (VASP) Act, 2025	3.92	1.28

The findings indicate that most respondents (agree + strongly agree) were aware of the role of the Capital Markets Authority (CMA) in investor protection (mean = 4.11, std. dev = 1.12). In addition, most respondents acknowledged that cryptocurrency income is taxable under the Kenya Revenue Authority (KRA) regulations (mean = 3.59, std. dev = 1.26). Similarly, most of the respondents agreed that the Central Bank of Kenya (CBK) does not recognize cryptocurrencies as legal tender (mean = 3.92, std. dev = 1.38). The same proportion of respondents also indicated that they regularly follow updates from regulators such as the CBK

and CMA and are aware of previous warnings issued regarding cryptocurrencies (mean = 3.94, std. dev = 1.30).

Further findings indicate that most respondents agreed that regulatory information influences their choice of cryptocurrency exchanges or platforms (mean = 3.78, std. dev = 1.35). Additionally, most respondents indicated awareness of the provisions in Kenya's Virtual Asset Service Providers (VASP) Act, 2025 (mean = 3.92, std. dev = 1.28).

4.5.5 Investor Protection Outcomes

Respondents were required to indicate their level of agreement with statements relating to investor protection outcomes. The results are presented in Table 4.8.

Table 4.8: Investor Protection Outcomes

Statement	**Mean**	**std.dev**
I have experienced crypto fraud or scams in the past 24 months	3.42	1.28
I have suffered financial losses due to crypto fraud or manipulation	3.28	1.36
I was able to recover part or all of my lost funds after crypto fraud	3.08	1.34
I know what steps to take if I encounter fraud or lose funds on a crypto platform	3.11	1.36
I use safe practices such as two-factor authentication to protect my crypto accounts	3.74	1.27
I read and understand the terms and conditions before using a crypto platform	3.49	1.32
I feel reasonably safe participating in cryptocurrency markets and trust the platforms I use	3.25	1.29

The findings showed that a considerable proportion of respondents had experienced cryptocurrency fraud or scams within the past 24 months (mean = 3.42, std. dev. = 1.28). Similarly, many respondents agreed that they had suffered financial losses due to cryptocurrency fraud or market manipulation (mean = 3.28, std. dev. = 1.36), suggesting that exposure to fraudulent activities and investment risks remains relatively common among retail cryptocurrency investors.

The results further revealed moderate levels of preparedness and recovery capability among respondents. Respondents expressed mixed opinions regarding their ability to recover part or all of their lost funds after experiencing cryptocurrency fraud (mean = 3.08, std. dev. = 1.34). Likewise, respondents demonstrated only moderate awareness of the steps to take when encountering fraud or losing funds on cryptocurrency platforms (mean = 3.11, std. dev. = 1.36). These findings suggest that although some investors possess knowledge of fraud response mechanisms, a substantial proportion may lack adequate understanding of recovery procedures and consumer protection measures.

In terms of preventive behavior, respondents generally reported practicing basic cryptocurrency security measures. A majority agreed that they use safe practices such as two-factor authentication to protect their cryptocurrency accounts (mean = 3.74, std. dev. = 1.27), indicating relatively strong awareness of account security practices. In addition, respondents moderately agreed that they read and understand the terms and conditions before using cryptocurrency platforms (mean = 3.49, std. dev. = 1.32), suggesting a reasonable level of caution when engaging with digital financial services.

Regarding perceptions of market safety and trust, respondents expressed moderate confidence in participating in cryptocurrency markets and in the platforms they use (mean = 3.25, std. dev. = 1.29). This indicates that while some investors feel reasonably secure engaging in cryptocurrency transactions, concerns regarding fraud, manipulation, and platform reliability still persist among a notable proportion of participants.

4.6 Correlation Analysis

Correlation analysis was conducted to examine the direction and strength of relationships among the study variables. Results are presented in Table 4.9.

Table 4.9: Correlation Analysis

	Investor protection outcomes	**Financial knowledge**	**Financial awareness**	**Financial attitude**
Investor protection outcomes	1			
Financial knowledge	.416**	1		
	0.000			
Financial awareness	.599**	.214**	1	
	0.000	0.000		
Financial attitude	.789**	.337**	.517**	1
	0.000	0.000	0.000	

Financial knowledge was positively and significantly correlated with investor protection outcomes (r = 0.416, p = 0.000), indicating a moderate association. Financial awareness also showed a positive, significant relationship (r = 0.599, p = 0.000), indicating a moderately strong association. Financial attitude exhibited the strongest positive correlation with investor protection outcomes (r = 0.789, p = 0.000), indicating a strong association.

Additionally, the independent variables were positively correlated with one another (r = 0.214 to r = 0.517), indicating acceptable levels of association and no serious multicollinearity concerns. Overall, all dimensions of financial literacy are positively associated with investor protection outcomes, with financial attitude showing the strongest relationship.

4.7 Assumptions of Regression

Prior to hypothesis testing, diagnostic tests were conducted to verify that the data met the key assumptions of multiple regression, including linearity, normality, and multicollinearity.

4.7.1 Linearity

A linearity test was done using scatter plots. The linearity test for financial knowledge and investor protection outcomes was presented in Figure 4.3.

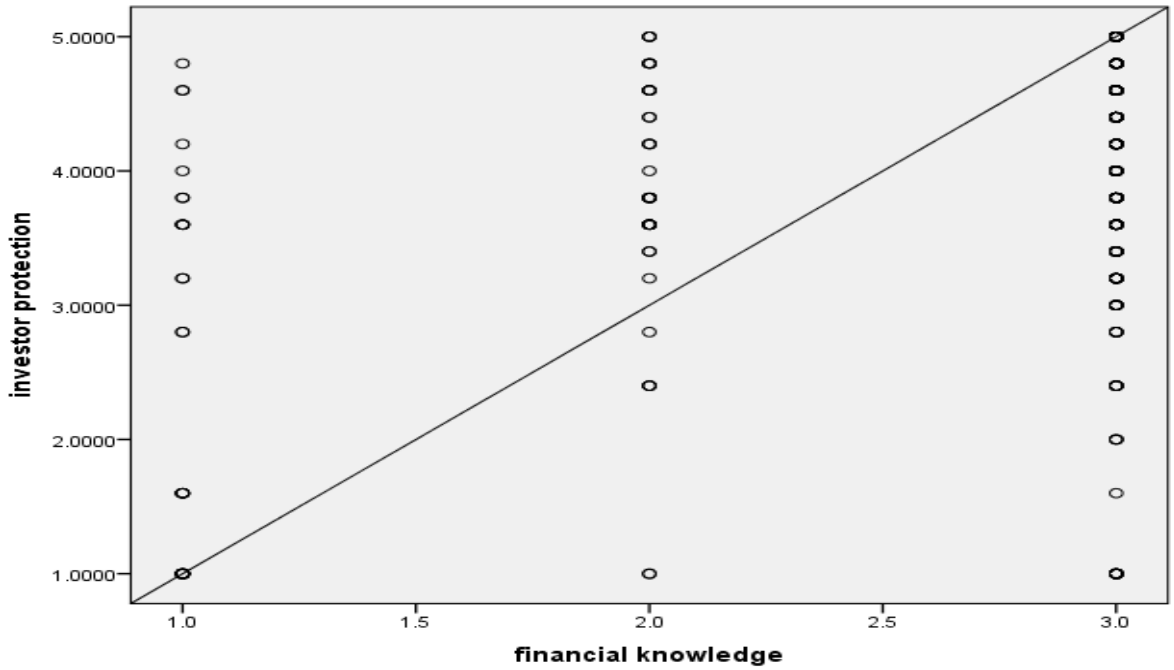

Figure 4.3: Financial knowledge and investor protection outcomes

The results indicate a positive linear relationship between Financial knowledge and investor protection outcomes. The general upward trend of data points confirms that as financial knowledge increases, investor protection outcomes improve correspondingly, satisfying the linearity assumption for this variable. This implies that individuals who are more informed about financial concepts, risks, and regulations are better equipped to safeguard their investments and avoid potential losses.

A linearity test was done using scatter plots. The linearity test for financial awareness and investor protection outcomes was presented in Figure 4.4.

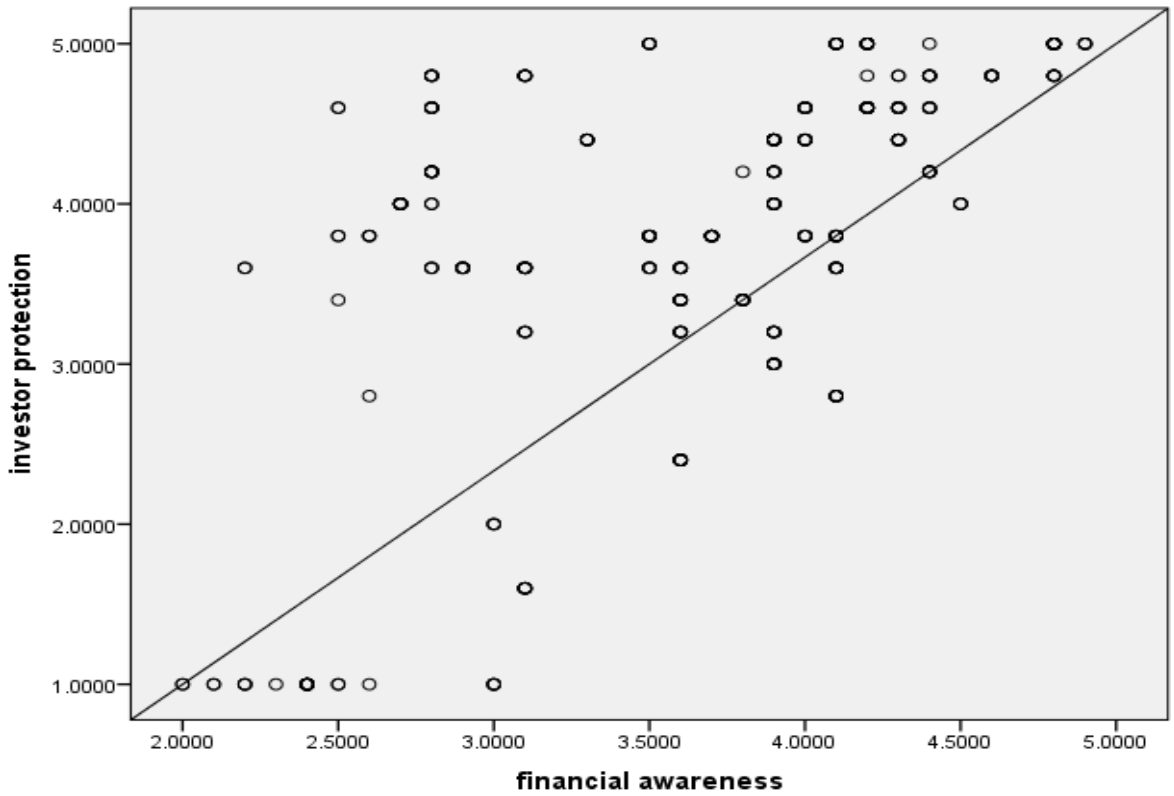

Figure 4.4: Financial awareness and investor protection outcomes

Figure 4.4 presents the scatter plot for financial awareness and investor protection outcomes. The data points follow a generally upward trend, confirming a positive linear relationship between the two variables. As financial awareness increases, investor protection outcomes improve correspondingly, satisfying the linearity assumption for this variable.

The linearity test for financial attitude and investor protection outcomes was presented in Figure 4.5.

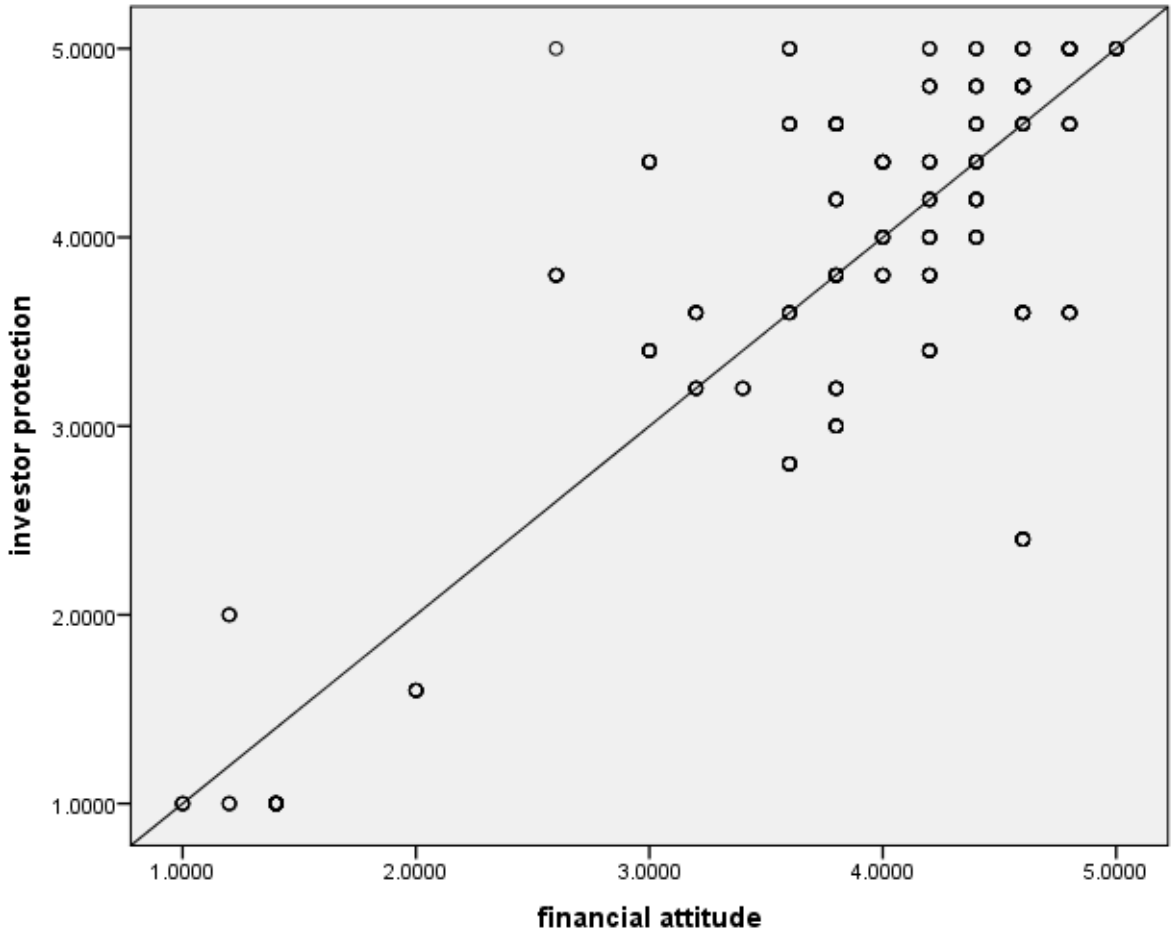

Figure 4.5: Financial attitude and investor protection outcomes

Figure 4.5 demonstrates the relationship between financial attitude and investor protection outcomes. The scatter plot reveals a positive linear correlation, as evidenced by the upward trajectory of the data points from the lower left to the upper right. These results suggest that respondents with more responsible financial attitudes, characterized by disciplined decision-making and risk awareness, tend to report higher levels of investor protection. While the general trend is positive, the variance in data points suggests that factors beyond financial attitude also influence protection outcomes within the volatile cryptocurrency market.

4.7.2 Normality

Having confirmed linearity for all three independent variables, the study proceeded to assess the normality of regression residuals using P-P plots. Results are presented in Figure 4.6.

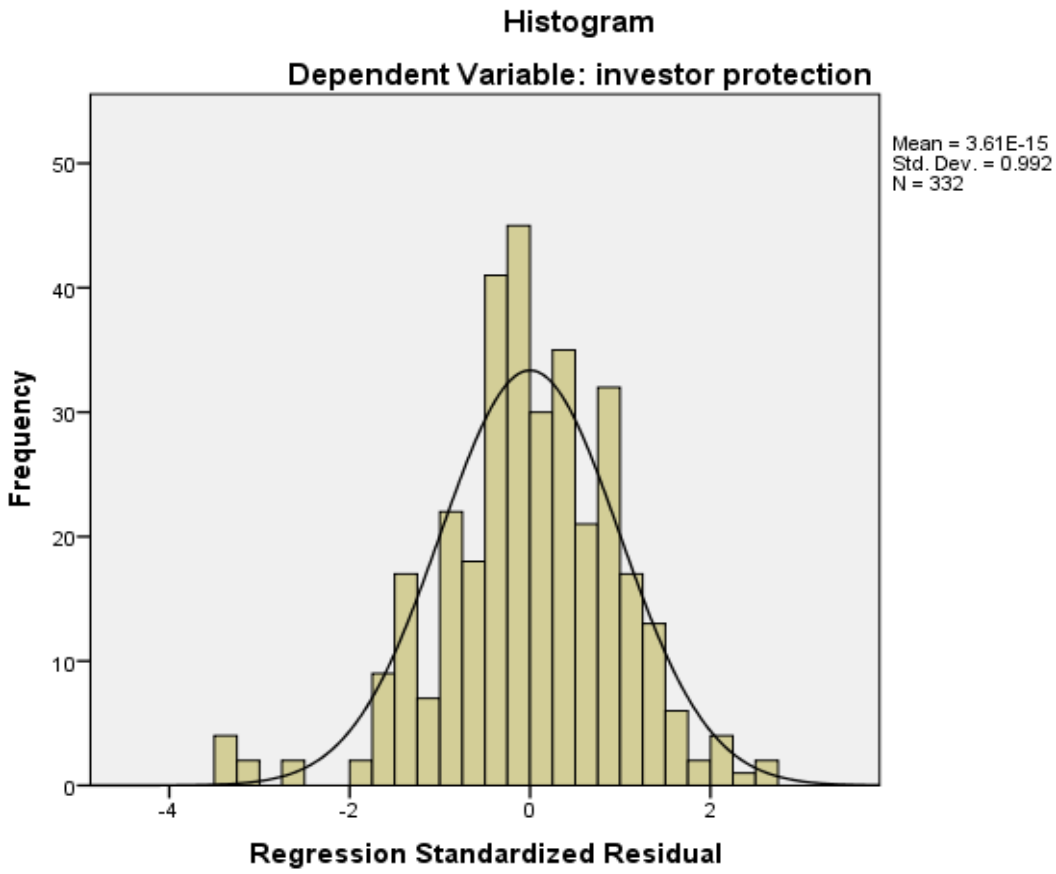

Figure 4.6: Normality Plot

Figure 4.6 illustrates the distribution of regression standardized residuals for the dependent variable, investor protection outcomes. The residuals display an approximately normal distribution, as shown by the bell-shaped pattern, with a concentration of values around the center and fewer observations toward the tails. In addition, the normal curve closely aligns with the observed distribution, confirming that the normality assumption was satisfied.

4.7.3 Assumptions of Multicollinearity

Multicollinearity arises when independent variables are highly correlated, which may affect the accuracy of regression estimates. To assess this assumption, tolerance values and the Variance Inflation Factor (VIF) were examined, with the results summarized in Table 4.10.

Table 4.10: Multicollinearity Test

	Tolerance	VIF
Financial knowledge	0.877	1.140
Financial awareness	0.706	1.416
Financial attitude	0.668	1.497
Education level	0.737	1.357
duration	0.737	1.357
average		**1.353**

The findings indicate that all tolerance values exceeded the minimum threshold of 0.2, while all VIF values remained below 10. These results suggest that the independent variables did not exhibit problematic levels of multicollinearity. Therefore, the data were considered suitable for regression analysis.

4.8 Regression results

4.8.1 Regression Analysis before Moderation

A regression analysis was performed to determine how financial knowledge, awareness, and attitude influence investor protection outcomes. The resulting model summary is detailed in Table 4.11.

Table 4.11: Regression Analysis before moderation

Model	R	R Square	Adj.R^2	Standard Error of the Estimate
1	.839a	0.704	0.699	0.59929

The findings presented in Table 4.11 show a strong positive association between the independent variables (financial knowledge, financial awareness, and financial attitude) and investor protection outcomes (R = 0.839). The model further indicates that 70.4% of the variation in investor protection outcomes was explained by the independent variables (R^2 = 0.704). Additionally, the adjusted R^2 value of 0.699, which is close to the R^2 value, suggests that the regression model was appropriately specified and that the included variables contributed meaningfully without evidence of overfitting.

Table 4.12 provides the results of the analysis of the variance (ANOVA).

Table 4.12: Analysis of Variance

	Sum of Squares	df	Mean Square	F	Sig.
Regression	278.192	5	55.638	154.915	.000b
Residual	117.084	326	0.359		
Total	395.276	331			

Table 4.12 indicates that the overall regression model is statistically significant, as evidenced by an F-statistic of 154.915 and a p-value of 0.000. This p-value is lower than the conventional 0.05 significance level. This implies that financial knowledge, financial awareness, and financial attitude jointly have a statistically significant effect on investor protection outcomes at the 95% confidence level.

Regression coefficients were presented in Table 4.13

Table 4.13: Regression of Coefficient

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-1.154	0.214		-5.403	.000
Financial knowledge	0.258	0.054	0.152	4.731	<.001
Financial awareness	0.364	0.056	0.233	6.487	<.001
Financial attitude	0.680	0.042	0.604	16.368	<.001
Education level	0.014	0.033	0.015	0.428	0.669
Trading experience	0.116	0.045	0.090	2.574	0.011

Optimal model

RIPO =-1.154 + .258(FK) + 0.364(FA) + 0.680(FAT) + 0.014(EDU)+ 0.116(EXP)

Where;

RIPO = Retail Investor Protection Outcomes (Dependent Variable)

FK = Financial Knowledge (Independent variable)

FA= Financial Awareness (Independent variable)

FAT = Financial Attitude (Independent variable)

EDU = Education Level (Control Variable)

EXP = Cryptocurrency trading Experience (Control Variable)

Among the financial literacy dimensions, financial attitude was the most influential predictor of retail investor protection outcomes (β = 0.604, p <.001), followed by financial awareness (β = 0.233, p <.001) and financial knowledge (β = 0.152, p<.001). All three dimensions exerted positive, statistically significant effects. The primary influence of financial attitude suggests that behavioural disposition and emotional discipline are more proximate determinants of investor protection than knowledge or awareness alone.

Regarding the control variables, trading experience had a positive and significant effect on investor protection outcomes (β = 0.090, p = 0.011 indicating that experienced investors likely benefit from accumulated market exposure. Conversely, Education Level recorded a positive but statistically insignificant effect (β = 0.015, p = 0.669), suggesting that domain-specific financial literacy is a more critical determinant than general educational credentials in the cryptocurrency market.

4.8.2 Regression Analysis after Moderation

The study sought to assess the moderating role of regulatory awareness on the relationship between financial literacy and retail investor protection outcomes in Kenya's cryptocurrency market. Results are shown in Table 4.14.

Table 4.14: Model summary after moderation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.869a	0.756	0.75	0.54683

The results in Table 4.14 indicate that the moderated model explains 74.5% of the variance in retail investor protection outcomes (R^2 = .756, Adjusted R^2 = .750). Compared to the baseline model (R^2 = .704), the inclusion of the regulatory awareness moderation term yielded an incremental variance (ΔR^2) of .052. This confirms that regulatory awareness contributes meaningfully to explaining investor protection outcomes beyond the direct effects of financial literacy alone. The Adjusted R^2 of .750, which remains close to the R^2 value, further confirms that the moderated model is well specified and robust.

Table 4.15: Analysis of Variance

	Sum of Squares	df	Mean Square	F	Sig.
Regression	298.692	8	37.336	124.862	.000b
Residual	96.584	323	0.299		
Total	395.276	331			

Table 4.15 indicates that the moderated regression model is a statistically significant predictor of investor protection outcomes, as evidenced by an F-statistic of 124.862 and a p-value of < .001. This confirms that the model's predictive power is significant and that the results are not due to random chance, providing a reliable basis for the subsequent coefficient analysis.

Table 4.16: Regression of Coefficient

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-2.512	0.556		-4.519	0.000
Financial Knowledge	0.918	0.19	0.586	4.82	0.000
Financial Awareness	0.327	0.057	0.291	5.732	0.000
Financial Attitude	0.613	0.15	0.55	4.087	0.000
Education Level	0.02	0.03	0.021	0.651	0.516
Duration	0.113	0.041	0.088	2.741	0.006
X1.M	0.047	0.011	0.178	4.446	0.000
X2.M	0.142	0.045	0.635	3.169	0.002
X3.M	0.035	0.012	0.165	3.015	0.003

Table 4.16 presents the coefficient estimates for the moderated regression model. The findings show that the interaction term between financial knowledge and regulatory awareness (X1.M) was positive and statistically significant ($\beta = 0.178$, $p = 0.000$). This demonstrates that regulatory awareness significantly moderates the relationship between financial knowledge and retail investor protection outcomes. The positive interaction coefficient further implies that higher levels of regulatory awareness strengthen the influence of financial knowledge on investor protection outcomes.

The findings show that the interaction term between financial awareness and regulatory awareness (X2. M) was positive and statistically significant ($\beta = 0.635$, $p = 0.002$). This demonstrates that regulatory awareness significantly moderates the relationship between financial awareness and retail investor protection outcomes. The positive interaction

coefficient further implies that higher levels of regulatory awareness strengthen the influence of financial awareness on investor protection outcomes.

The findings show that the interaction term between financial attitude and regulatory awareness (X3.M) was positive and statistically significant ($\beta = 0.165$, $p = 0.003$). This demonstrates that regulatory awareness significantly moderates the relationship between financial attitude and retail investor protection outcomes. The positive interaction coefficient further implies that higher levels of regulatory awareness strengthen the influence of financial attitude on investor protection outcomes.

With regard to the direct effects, financial knowledge ($\beta = 0.586$, $p < .000$), financial awareness ($\beta = 0.291$, $p < .000$), and financial attitude ($\beta = 0.550$, $p < .000$) remained statistically significant predictors of investor protection outcomes. Among the control variables, trading experience had a significant positive effect ($\beta = 0.088$, $p = 0.006$), while education level produced a positive but statistically insignificant effect on investor protection outcomes ($\beta = 0.651$, $p = 0.516$). These findings suggest that although financial literacy plays a key role in investor protection, its effectiveness is further strengthened when supported by higher levels of regulatory awareness.

4.8.3 Chapter Summary

This chapter presented the empirical findings and statistical analyses regarding the effect of financial literacy dimensions and regulatory awareness on retail investor protection outcomes in Kenya's cryptocurrency market. The demographic profiling of the respondents established baseline characteristics concerning age, gender, and education levels before diving into descriptive statistics. Evaluation of the primary variables via means and standard deviations revealed a moderate baseline of general financial knowledge but identified a critical deficit in regulatory awareness among local retail traders. Crucially, after validating necessary diagnostic assumptions including normality, linearity, homoscedasticity, and multicollinearity hierarchical multiple regression analysis was executed. The inferential results demonstrated that while financial knowledge significantly predicts protective outcomes, the introduction of regulatory awareness accounts for a statistically significant incremental variance, confirming its vital role in enhancing retail investor protection.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a synthesis of the study findings in relation to the stated research objectives. The study examined the effect of financial literacy, operationalized as financial knowledge, financial awareness, and financial attitude, on retail investor protection outcomes in Kenya's cryptocurrency market. Regulatory awareness was tested as a moderating variable, while education level and trading experience served as control variables. The chapter offers practical recommendations for policymakers and practitioners, acknowledges the study's limitations, and outlines areas for future research to enhance the security of the digital asset environment.

5.2 Summary of Research Findings

The empirical results indicate that all three dimensions of financial literacy significantly influence retail investor protection outcomes in Kenya's cryptocurrency market. Specifically, financial knowledge, financial awareness, and financial attitude were found to be positively and significantly correlated with investor protection outcomes. Multiple regression analysis confirmed that financial attitude is the most potent predictor of market safety followed by financial awareness and financial knowledge. Among the control variables, formal academic education demonstrated an insignificant effect, whereas practical cryptocurrency trading experience exerted a positive and significant direct impact on individual protection outcomes

5.3 Discussions

5.3.1 Demographic Foundations and Market Implications

The demographic breakdown of the sample provides critical context for understanding broader market dynamics. The data was highly characterized by male respondents and younger population. While this reflects digital asset adoption trends in Kenya, it means current investor protection insights are mostly shaped by technologically engaged young men.

While the high proportion of university and postgraduate-educated respondents might overestimate baseline literacy levels relative to the general population, the statistical insignificance of formal education in the regression models reveals a critical insight: safe

market navigation is driven by specialized practical capabilities rather than traditional academic credentials.

5.3.2 Financial Knowledge and Retail Investor Protection Outcomes

The positive, significant effect of financial knowledge on protection outcomes aligns with Hasan (2024), who argued that foundational financial literacy acts as a prerequisite for risk reduction. Empirically, these results demonstrate that baseline financial numeracy provides the cognitive competence required to decode complex investment structures, forming an essential self-regulatory protection line in decentralized systems. When evaluated against theory, this pathway directly supports and validates the Theory of Planned Behaviour (TPB). Under TPB, an individual's behavioural intentions and perceived behavioural control are shaped by their underlying knowledge base. Adequate technical knowledge provides the analytical capacity required to evaluate asset risk, directly fostering the confidence needed to enact protective behaviours. However, the relatively low coefficient of knowledge compared to attitude supports Mustafa et al. (2023), confirming that while knowledge provides a conceptual foundation, it does not automatically guarantee protective action if psychological and behavioural discipline is lacking. This indicates that TPB is supported but qualified; knowledge only modifies behavioral control when paired with execution discipline.

5.3.3 Financial Awareness and Retail Investor Protection Outcomes

The finding that financial awareness significantly drives retail protection outcomes confirms its status as a critical line of protection. This direct effect supports Tang (2024) regarding the predictive power of asset-specific risk awareness on investment security, while diverging from findings of Irfan et al. (2023) and Ndung'u (2023). Theoretically, this relationship provides robust empirical validation for Information Asymmetry Theory, which is fully supported by the findings. Cryptocurrency markets are structurally defined by high information asymmetry, where platform developers, promoters, and malicious actors possess vastly superior technical information than retail participants. The statistical significance of this path demonstrates that heightened financial awareness directly reduces this data deficit. By actively tracking global scam indicators and platform security updates, retail investors narrow the asymmetry gap, effectively reducing their exposure to systemic fraud and lowering the frequency of catastrophic financial losses.

5.3.4 Financial Attitude and Retail Investor Protection Outcomes

s the strongest predictor in the entire model, financial attitude emerges as the primary determinant of retail investor safety, supporting the conclusions of Maritim et al. (2022) and Razak and Mohamed (2024). This outcome represents a profound application and strong support for the core premise of the Theory of Planned Behavior, which states that attitude toward a behaviour is the ultimate driver of actual execution. In this context, an investor's internal discipline translates theoretical knowledge into active, everyday defensive habits. However, as Mustafa et al. (2023) caution, individual attitude faces structural limits when institutional safeguards are entirely absent. Because Kenya's crypto environment lacks comprehensive central protection, the high predictive value of attitude proves that the entire burden of protection currently rests on the psychological self-regulation of the individual investor, confirming that TPB operates perfectly even within a state of regulatory vacuum.

5.3.5 Moderating Role of Regulatory Awareness

The confirmation that regulatory awareness significantly moderates the relationship between financial literacy dimensions and protection outcomes supports Kuria (2022) and Amnas et al. (2024). This interaction effect is directly explained through Exchange Theory, specifically adhering to and supporting the framework established by Robson and Ladner (2006). Robson and Ladner posit that human choices are determined by a calculated cognitive process where actors rigorously weigh tangible and intangible costs against expected benefits before entering an exchange. The significant interaction terms demonstrate that localized regulatory awareness fundamentally alters this cost-benefit calculus for Kenyan crypto investors. When an investor is explicitly aware of the legal boundaries, KRA tax implications, and official warnings from the CBK and CMA, they no longer operate on speculative optimism. Instead, regulatory awareness injects a realistic understanding of institutional limitations and the complete absence of state-backed recovery mechanisms into their exchange matrix. This realization forces the literate investor to take fewer arbitrary risks, thereby optimizing their protection outcomes and suppressing fraud exposure..

5.4 Actionable Insights for practitioners and Legislators

The findings of this study provide a foundation for several strategic recommendations aimed at enhancing retail investor protection within Kenya's cryptocurrency market. Primarily, policymakers and financial regulators, including the CMA and the CBK, should prioritize the

strengthening of financial literacy initiatives that are specifically tailored to the unique risks of digital assets. These programs must be integrated into national financial inclusion and digital asset policies to ensure that as participation in the market grows, it is accompanied by a robust understanding of protective measures. Parallel to these efforts, authorities should intensify public education regarding the legal status of cryptocurrencies and the specific provisions of the VASP Act 2025. Because regulatory awareness acts as a significant moderator, providing timely and accessible updates on taxation and market warnings is essential for ensuring that investors can make informed and compliant decision making choices.

Further, financial educators and practitioners should shift their focus beyond technical knowledge to encompass the development of positive financial attitudes, such as patience and long term planning. By designing training frameworks that address behavioural biases like the fear of missing out or overconfidence, educators can help investors mitigate the emotional triggers that often lead to impulsive and risky trading behaviours. These educational programs should also move toward more practical applications, incorporating trading experience through simulations and real world case studies. Since the study found that general academic education does not significantly impact protection outcomes, specialized training remains the most effective tool for equipping investors with the necessary judgment to navigate market volatility.

Finally, individual investors are encouraged to adopt a more proactive role in their own protection by consistently seeking out information and researching new projects before committing capital. Rather than relying on speculative hype, investors should be guided toward structured decision making and the use of peer networks or mentorship programs. Such collaborative environments allow less experienced individuals to benefit from the trading experience of seasoned market participants, thereby fostering a more resilient and informed investor community in Kenya.

5.5 Study Limitations

This study focused solely on retail investors in Kenya's cryptocurrency market, limiting the applicability of the findings to other financial markets or countries with different regulatory environments. The research was conducted within a limited timeframe, restricting the ability to capture changes in investor behavior and regulatory developments over time. The use of structured questionnaires constrained the depth of responses, as participants were limited to

predefined options and could not provide detailed explanations. Additionally, the sample may not fully represent all categories of cryptocurrency investors, particularly those with limited access to digital platforms, which may affect the findings' comprehensiveness. Notably, the sample exhibited a gender imbalance; this skew may reflect either the actual composition of Kenya's cryptocurrency market or a bias introduced by the snowball sampling technique, thereby limiting the generalizability of the findings across genders.

5.6 Recommendations for Future Research

This study focused on the effect of financial literacy on retail investor protection outcomes within Kenya's cryptocurrency market, with regulatory awareness considered as a moderating variable, using a cross-sectional research design. Future research may consider employing a longitudinal approach to assess how financial literacy, regulatory awareness, and investor protection outcomes change over time, given the rapidly evolving nature of cryptocurrency markets. Further studies could also examine additional factors such as technological literacy, income levels, psychological biases, and risk tolerance in order to provide a broader understanding of investor protection.

Moreover, since the current study adopted a quantitative approach, future researchers may integrate qualitative methods, such as interviews and focus group discussions, to generate deeper insights into investors' experiences, perceptions, and behavioral patterns in cryptocurrency markets.

5.7 Conclusion

In conclusion, this study establishes that safeguarding retail cryptocurrency investors in Kenya is a multi-dimensional process driven heavily by internal behavioral controls and bounded by external regulatory context. The empirical evidence demonstrates that traditional formal education is insufficient for safe market navigation; instead, specialized practical trading experience and a disciplined financial attitude act as the most robust defenses against retail market exploitation. While foundational financial knowledge and localized asset awareness are critical for closing the information asymmetry gap between retail participants and complex digital asset platforms, their protective capacity is maximized only when an individual possesses the psychological discipline to resist speculative hype and fear-of-missing-out (FOMO) biases. Furthermore, the significant interaction of regulatory awareness confirms that

internal capabilities achieve maximum efficacy when paired with clear institutional boundaries, such as those introduced under the VASP Act 2025 and official tax frameworks. Ultimately, until comprehensive statutory investor protections are completely operationalized by the state, the burden of protection rests squarely on fostering specialized, behaviorally disciplined financial literacy dimensions alongside a transparent understanding of the structural limits of decentralized financial ecosystems.

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APPENDICES

Appendix I: Letter of Introduction

Dear (Respondent)

RE: DATA COLLECTION

I am a student at Strathmore University pursuing a master's degree in Commerce. I am now working on a research thesis on "Assessing the Effect of Financial Literacy on Investor Protection: Moderating Role of Regulatory Awareness in Kenya's Retail Cryptocurrency Market".

You have been selected as a respondent in my study which is likely to take 15 minutes of your time. The questionnaire is strictly for academic purpose and the information rendered was kept confidential. Your participation in this study is voluntary and you are free to withdraw your participation from this study at any time Please fill it as accurately as possible by ticking the appropriate response or writing a brief explanation in the spaces provided.

Should you have any questions regarding this study, please contact me on catherinendolo@strathmore.edu I will greatly appreciate your participation.

Yours Faithfully,

Catherine Ndolo
MCOM Student
School of Business - Strathmore University

Appendix II: Questionnaire

This questionnaire is for academic perposes only. All responses will be treated with strict confidentiality.Please tick and fill where appropriate.

Screening and Eligibility

Age Verification - Are you above 18 years of age? YES{ } NO{ }

Nationality- Are you a Kenyan national or a resident currently living in Kenya?
YES{ } NO{ }

(If you have selected NO in any or both of the questions above, please do not proceed with the survey)

SECTION I

Section A: Demographic Data

1. Gender

a) Male { } b) Female { }

2. Age

a) 18-30 years { } b) 31-40 years { }

c) 41-50 years { } d) 51 years & above { }

3. Highest level of education

a) Secondary level { } b) College level { }

c) University level { } d) Post graduate level { }

4. How long have you been a retail cryptocurrency investor?

a) 6 Months – 1 Year { } b) 2 Years - 4 Years { }

c) 4 Years – 6 Years { } d) More than 6 Years { }

Section B: Financial Knowledge

(Objective test – Binary)

1. Suppose you invest KSh 10,000 at 10% interest per year. After 2 years, how much will you have?
   { }Less than 11,000
   { }Exactly 11,000
   { }More than 11,000
2. If your savings earn 10% interest and inflation is 12%, after one year you can buy:
   { }More
   { }Same
   { }Less
3. Buying shares of only one crypto asset is safer than spreading investments across many assets.
   { }True
   { }False

These three items will be coded as 1 = correct, 0 = incorrect

To confirm you are reading these questions, please select **"Agree"** Disagree{ } Agree{ } Neutral{ }

SECTION II:

What follows are the items used to measure constructs in the model. They are grouped according to the constructs for easy reference.

Using the scale of 1-5 where: 5= Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1= Strongly Disagree

Financial Awareness (Objective test – Binary)	**1**	**2**	**3**	**4**	**5**
I am aware that cryptocurrency prices are highly volatile.					
I am aware that crypto markets are vulnerable to fraud and scams.					
I am aware that crypto platforms can collapse or be hacked without warning.					
I understand that crypto investments operate in largely unregulated markets					
I am aware that peer to peer crypto trading carries high counterparty risk.					
I stay informed about common crypto scams in Kenya and globally.					

I always research new cryptocurrency projects before investing in them.					
Financial Attitude (Market Risk)	**1**	**2**	**3**	**4**	**5**
I save regularly rather than spending all my income.					
I am comfortable taking higher financial risks for higher returns.					
I prefer making investment decisions carefully rather than quickly.					
I believe it is important to plan for long-term financial security.					
I am comfortable avoiding investments that seem too risky and therefore consider the risk before investment.					
I avoid making investment decisions based on hype or fear of missing out					
I am willing to accept losses if an investment becomes too risky.					
I avoid emotional or impulsive decisions when trading crypto.					
I avoid borrowing unless it is absolutely necessary					
Investor Protection outcomes	**1**	**2**	**3**	**4**	**5**
I have experienced crypto fraud or scams in the past 24 months.					
I have suffered financial losses due to crypto fraud or manipulation					
I was able to recover part or all of my lost funds after crypto fraud.					
I know what steps to take if I encounter fraud or lose funds on a crypto platform.					
I use safe practices such as two-factor authentication to protect my crypto accounts.					
I read and understand the terms and conditions before using a crypto platform.					
I feel reasonably safe participating in cryptocurrency markets and I trust the platforms I use for crypto trading.					
Regulatory Awareness	**1**	**2**	**3**	**4**	**5**
I am aware of the role of the Capital Markets Authority (CMA) in investor protection.					
I am aware that crypto income is taxable under Kenya Revenue Authority (KRA) regulations					
I am aware that the Central Bank of Kenya (CBK) does not recognize cryptocurrencies as legal tender.					
I follow updates from regulators such as CBK or CMA regarding digital assets. I am aware of past CBK and CMA warning on crytpcurrencies.					
Regulatory information influences how I choose crypto exchanges or platforms.					
I am aware of the provisions of Kenya's Virtual Asset Service Providers (VASP) Act, 2025					

Appendix III: Timeline of Activities

Date/Activities	Sept to Dec 2025	Jan 2026	Feb & Mar 2026	April 2026	May 2026
Proposal Development					
Proposal defense & Ethical clearance					
Data Collection					
Data Analysis					
Submission and Final report handover					

Appendix IV: Ethical Approval Clearance

Strathmore UNIVERSITY

26th March 2026

Mrs Ndolo Catherine,
catherine.ndolo@strathmore.edu

Dear Mrs Ndolo,

RE: Financial Literacy and Retail Investor Protection in Kenya's Cryptocurrency Market

This is to inform you that SU-ISERC has reviewed and **approved** your above **SU-masters** research proposal. Your application reference number is **SU-ISERC3432/26.** The approval period is from **26th March 2026 to 25th March 2027.**

This approval is subject to compliance with the following requirements:

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

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

Yours sincerely,

Mr Ambrose Rachier,
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