EFFECT OF ASSET ALLOCATION DECISIONS ON PORTFOLIO PERFORMANCE OF UNIT TRUSTS IN KENYA

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN FINANCE, FACULTY OF BUSINESS AND MANAGEMENT SCIENCES, UNIVERSITY OF NAIROBI

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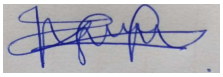
DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

Signed:  Date: 30th October 2023

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This research project has been submitted for examination with my approval as the University Supervisors.

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DEDICATION

I dedicate this work to my family and most of all to my wife Vivian Ngigi and daughter Natalie Ngigi for believing in me and their relentless support and inspirational encouragement. Your prayers and support brought me this far.

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variances
APT	Arbitrage Pricing Theory
CAPM	Capital Assets Pricing Model
CMA	Capital Markets Authority
DT-SACCO	Deposit Taking Saving and Credit Cooperative
ESG	Environmental, Social and Governance
MPT	Modern Portfolio Theory
NAV	Net Asset Value
ROI	Return on Investments
USD	United States Dollar
VIF	Variance Inflation Factor

ABSTRACT

The financial landscape of Kenya, like many emerging economies, is characterized by a diverse array of investment instruments, with unit trusts becoming increasingly significant. Understanding how asset allocation decisions impact the performance of these trusts is critical for both investors and policymakers. This need has been underscored by the growing prominence of unit trusts in the investment portfolios of many Kenyans. The primary objective of this study was to ascertain how asset allocation decisions influence the portfolio performance of unit trusts in Kenya, measured by risk-adjusted ROI. The study was based on modern portfolio theory, arbitrate pricing theory and capital asset pricing theory. The study assessed portfolio performance (Y) using risk-adjusted ROI. The independent variables under consideration were: Investment in real estate (X1), measured by the natural logarithm of investments held in real estate; Investment in government securities (X2); Investment in fixed deposits (X3); Investment in shares (X4); and Fund size (X5), all measured using the natural logarithm of their respective values. Secondary data was collected from various unit trusts spanning a period of five years (2018 to 2022). This data was subjected to rigorous descriptive statistics, correlation analyses, and regression analyses to discern patterns and relationships. Regression results underscored several noteworthy insights. Investments in real estate had a coefficient of 0.093 (p=0.001), while government securities recorded 0.044 (p=0.008). Notably, fund size emerged as a prominent determinant with a coefficient of 0.114 (p=0.001). Conversely, investments in fixed deposits and shares did not demonstrate a statistically significant impact on ROI. The regression model accounted for about 22.46% of the variability in ROI (R-squared =0.2246), indicating the existence of other influential factors not captured in the study. The study concludes that asset allocation decisions, particularly in real estate, government securities, and the overall fund size, play a pronounced role in influencing the portfolio performance of unit trusts in Kenya. Regulatory bodies and financial institutions in Kenya should emphasize financial literacy to help investors make informed decisions. Enhanced reporting and transparency in asset allocations, especially in impactful sectors like real estate and government securities, should be mandated. Future research endeavors should explore other potential determinants of portfolio performance, given the substantial unexplained variability observed in this study.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Portfolio performance is a critical factor to consider when evaluating a unit trust. It is a measure of the investment returns generated by the fund manager, which directly impacts the returns earned by investors in the fund (Zhang, Gong, Zhang & Chen, 2023). The quality of asset allocation decisions made by the fund manager directly impacts the portfolio performance of the unit trust (Bacon, 2023). If the fund manager makes effective asset allocation decisions, such as selecting assets that generate attractive returns while effectively managing risk, it is likely to lead to higher portfolio performance (Maunda, 2022). On the other hand, if the fund manager makes poor asset allocation decisions, such as investing in assets that underperform or failing to manage risk effectively, it is likely to result in lower portfolio performance (Mittal, 2022).

Modern portfolio theory, arbitrate pricing theory and capital asset pricing theory were all used to support this study. The anchor theory was the Modern Portfolio Theory (MPT) of Markowitz (1952), which puts an emphasis on how it is possible to maximize expected returns by creating weighted portfolio utilizing risks thresholds. The theory states that institutions may build portfolios that optimize anticipated return at specified risk levels. According to Ross's (1976) Arbitrage Pricing Theory (APT), an asset's expected return may be calculated based on how sensitive it is to different variables or sources of risk. A framework for determining the expected return of an asset or a portfolio based on its beta and the risk-free rate is provided by Sharpe's Capital Asset Pricing Mode (CAPM), which he developed in 1964. This estimate is essential for making judgments regarding asset allocation since it enables investors to weigh the probable returns of various assets and decide on an appropriate allocation.

In Kenya, the unit trust market has been steadily expanding. The net asset value (NAV) of the Kenyan unit trust business increased by 12.5% to Kshs 153.6 billion in the first half of 2022 compared to Kshs 136.5 billion in December 2021, according to the Capital Markets Authority (CMA), the country's capital markets regulator. By enhancing investor education, streamlining the regulatory environment, and fostering sector innovation, the CMA has been working to attract more Kenyans to participate in unit trusts. In Kenya, there has also been a rise in the use of digital platforms for unit trust investments, which enable investors to do so via their mobile devices and online. More Kenyans are now able to invest in unit trusts thanks to this, especially the younger generation who are more accustomed to using digital platforms (Cheruiyot & Jagongo, 2022).

1.1.1 Asset Allocation Decisions

The strategic process of dividing an investment portfolio across several asset classes, such as equities, bonds, cash, and alternative assets, is referred to as asset allocation. According to an investor's objectives, risk tolerance, and time horizon, the ideal combination of various asset classes must be determined (Jati, Hassan & Yusof, 2022). To accomplish specified goals, asset allocation decisions entail the selection and distribution of investment assets within a portfolio (Akintoye, Osei & Asenso-Boadi, 2021). Asset allocation entails establishing the right percentage of each asset class within a portfolio by evaluating the relative attractiveness of different asset classes, such as stocks, fixed income, real estate, or commodities (Ahmed, Rasool, Saleem, Khan & Kanwal, 2022).

The main factor affecting a portfolio's risk and return characteristics is its asset allocation. Investors can maximize the risk-return trade-off based on their unique

financial goals and risk tolerance by proactively distributing investments across various asset classes (Oniya, Adelowokan & Ayodele, 2020). Decisions on asset allocation provide diversification by distributing investments over a range of asset classes, industries, and geographical areas (Mittal, 2022). In spite of market swings and short-term volatility, asset allocation decisions help investors retain a long-term focus and a methodical approach to investment management (Zhang, Gong, Zhang & Chen, 2023).

Asset allocation decisions have been operationalized in a variety of ways by previous researchers. One common method is to measure asset allocation decisions in regards to the percentage of funds invested in each asset category (Bacon, 2023). Maunda (2022) operationalized asset allocation decisions in regards to proportion of investment in real estate, government securities, fixed deposits and shares. Real estate investments refer to the purchase, ownership, management, rental, or sale of properties, including land and buildings, with the goal of generating a return on investment (Keli, 2021). Government securities investments refers to the purchase of debt instruments issued by governments to finance their spending needs (Oniya, Adelowokan & Ayodele, 2020). Fixed deposit investments involve depositing a sum of money with a financial institution for a fixed period of time, usually ranging from several months to several years (Choudhary, & Sharma, 2021). Shares investments are a type of mutual fund that invests in short-term, low-risk securities such as government bonds, certificates of deposit, and fixed deposits (Nishath & Zehra, 2020). The current study operationalized asset allocation decisions into these four indicators.

1.1.2 Portfolio Performance

The return on investment produced by a portfolio of assets over a specific time period is referred to as portfolio performance. It gauges how well a portfolio has done in

comparison to its benchmark or other portfolios of similar size (Wang & Chen, 2021). Portfolio performance is the measurement and assessment of how well a portfolio has done over a certain time period. It entails comparing the portfolio's returns to a predetermined benchmark or objective while taking into account measures like total return, risk-adjusted return, and other performance indicators (Kalima & Gopane, 2022). Investors can examine the profitability of their asset allocation strategies, evaluate the efficacy of their asset allocation decisions, and make educated modifications to maximize future returns and reduce risk (Choudhary & Sharma, 2021).

Appraisal of portfolio performance is essential because it gives investors a quantitative appraisal of the success of asset allocation choices and strategies. According to Akintoye, Osei, and Asenso-Boadi (2021), it aids investors in determining if their portfolio is producing sufficient returns, achieving their financial objectives, and exceeding or falling short of pertinent benchmarks. Investors can determine their portfolio's strengths and weaknesses by evaluating its performance. To make educated changes to improve future returns, it helps identify whether asset classes are contributing favorably or unfavorably to overall performance (Chen & Huang, 2019).

Profitability, liquidity, and efficiency are a few examples of the metrics that may be used to evaluate portfolio performance (Gardenberg & Serafeim, 2019). A unit trust’s portfolio performance is determined by how much returns it is making in relation to its investments. This covers figures for return on assets (ROA), net income, and gross profit margin. How quickly a firm can fulfill its immediate financial commitments is measured by its liquidity (Barardehi, Bernhardt & Davies, 2019). Efficiency assesses how effectively a business uses its resources and assets to produce sales and profits. Metrics like the asset turnover ratio fall under this (Nugroho & Sugiyanto, 2023). The

current study measured portfolio performance using return on investment as used before by Ogum and Jagongo (2022).

1.1.3 Asset Allocation Decisions and Portfolio Performance

Modern portfolio theory provides the concept of the efficient frontier, which represents the set of portfolios that offer the highest expected return for a given level of risk or the lowest risk for a given level of expected return. Asset allocation decisions guided by MPT aim to construct portfolios that lie on or near the efficient frontier, optimizing the risk-return trade-off (Markowitz, 1952). Asset allocation decisions based on MPT consider the correlations and volatilities of different assets to create a diversified portfolio that enhances risk-adjusted performance (Mutakyawa & Nkya, 2020).

Capital asset pricing model highlights the risk-return trade-off in asset allocation decisions. It suggests that investors can expect higher returns by assuming higher levels of systematic risk. By considering the risk-return trade-off, investors can determine an appropriate mix of assets in their portfolios to achieve their desired level of return while managing risk (Sharpe, 1964). It suggests that by diversifying investments across assets with different betas, investors can reduce unsystematic risk. Asset allocation decisions guided by CAPM can help achieve diversification benefits, potentially improving the risk-adjusted performance of the portfolio (Patel & Raval, 2020).

Asset allocation decisions are one of the key decisions for management of any organization. According to Quaicoe and Eleke-Aboagye (2021), the principal reason of holding diversified portfolio rather than a single investment is to maximize return while minimizing risk. Rehan, Alvi, Javed and Saleem (2021) pointed out that investment diversification is important in that it reduces the level of systematic risk incidental to a portfolio. The investment manager has a list of investment opportunities

and has to make a decision on the opportunities to focus on to maximize financial performance (Osewe, 2020). Ogum and Jagongo (2022) argue that investment decision affects financial performance of firms positively and significantly.

1.1.4 Unit Trusts in Kenya

Unit trusts funds in Kenya are regulated by the Capital Markets Authority (CMA). As per the 2022 CMA report, the Kenyan popularity and acceptance of unit trusts is now growing virtually from zero in 2001 to 22 according to licensed unit trusts by December 2022. Unit trusts can be viewed as the small investors answer for achieving investment diversification and it seems to be working well in the country. The net asset value of the Kenyan unit trust industry had grown by 12.5% to Kshs 153.6 billion in the first half of 2022 compared to Kshs 136.5 billion in December 2021(CMA, 2022).

To protect investors, the CMA sets out that the value of the fund's investments should not exceed the following limits: Listed securities on the NSE -80%; issued securities by the government of Kenya- 80%; immovable property – 25%; other collective investment schemes including umbrella schemes – 25%; other securities not listed on a securities exchange in Kenya -25%; off-shore investments-10% and related party balances- 10% (Cheruiyot & Jagongo, 2022). Oversight of the unit trusts has shifted away from compliance based towards risk based supervision in recent years. To this end, CMA provides asset class suggestions rather than recommending specific assets for investment (Wanyonyi, 2020).

The Kenyan investment sector has grown at an exponential rate in recent years, according to Deloitte (2022), and this trend is expected to continue. Unit trusts are increasingly investing in real estate due to the promise of higher returns. As investor confidence has grown, Kenya has seen and experienced a surge in real estate

investments. The primary motive for unit trusts to invest in real estate is diversification with the goal of increasing their return on investment (Maunda, 2022).

1.2 Research Problem

Asset allocation decisions are expected to have a direct impact on the risk and return characteristics of a portfolio. By allocating investments across asset classes in a diversified manner, investors can seek to balance the portfolio's risk exposure and potential for returns. Generally, a well-constructed portfolio is expected to provide a higher potential for returns relative to its risk level compared to a poorly allocated portfolio (Wang, Zhang, Ahmed & Shah, 2022). Depending on the allocation choices made, the portfolio may outperform or underperform the benchmark. The ability to make effective asset allocation decisions can contribute to generating superior risk-adjusted returns and potentially outperforming the market (Kong, Xiao & Liu, 2020).

Unit trusts are gaining importance as investment vehicles and this is evidenced by their increase in number from 0 in 2001 to 22 in 2022 (CMA, 2022). Portfolio performance for most unit trusts has been on the rise in the last 10 years while at the same time the number of unit trusts have been on the rise. However, there have been periods where performance either experienced significant fluctuations or deepened. According to Maunda (2022), asset allocation decisions has contributed to the fall in the portfolio performance of Kenyan unit trusts, particularly real estate investment concentration. Asset allocation decisions by unit trusts has been shown to be poor, inefficient, less transparent, and laborious, all of these factors have had a considerable impact on their portfolio performance (Ogum & Jagongo, 2022).

Globally, there exist empirical studies in this area but they exhibit conceptual, contextual and methodological gaps. Ali, Rehman, Suleman and Ntim (2022) examine the

mediating role of asset allocation decisions in enhancing a firm's performance in Pakistan. In contrast to unit trusts, the research concentrated on non-financial firms in Pakistan and therefore a contextual gap. Wang, Zhang, Ahmed and Shah (2022) determined the impact of investment behavior on financial markets during COVID-19 with respect to the UK. The study did not take into asset allocation decisions effect on ROI and therefore a conceptual gap. Ahmad, Wu and Abbass (2022) explored the mechanism by which recognition-based heuristic biases influence the investment decision-making of individual investors. The direct effect of asset allocation decisions on performance was not taken into account and therefore a conceptual gap.

Locally, Ogum and Jagongo (2022) sought to examine the impact of asset allocation decisions on the portfolio performance of DT-SACCOS in Nairobi City County. The study focused on DT-SACCOs whose nature of operations is different from unit trusts which are the focus of the current study. Keli (2021) attempted to ascertain how the performance of pension funds in Kenya is impacted by real estate investments. The research presents a conceptual gap as other types of investments such as shares and government boards were not taken into account. Wanyonyi (2020) focused on the effect of macroeconomic factors on portfolio performance of unit trusts in Kenya. The study revealed that interest rate, inflation rate, economic growth and money supply are statistically significant factors affecting portfolio performance of unit trusts.

The current study was motivated by the performance challenges facing unit trusts in Kenya. Effective asset allocation decisions are hypothesized to enhance portfolio performance. Although there were previous studies in this area, the studies have not addressed the effect of asset allocation decisions on portfolio performance among unit trusts in Kenya and therefore a conceptual gap. The current study leveraged on this

knowledge gap by answering the research question; what is the effect of asset allocation decisions on portfolio performance of unit trusts in Kenya?

1.3 Research Objective

The objective of this study was to establish the effect of asset allocation decisions on portfolio performance of unit trusts in Kenya

1.4 Value of the Study

Policymakers may benefit from the study's insights on the possible advantages of various investment strategies for unit trusts and the overall economy. The regulation of asset allocation choices, the supply of liquidity assistance to unit trusts, and the encouragement of financial innovation in the nation, for example, might all benefit from this information. The study may also assist decision-makers in identifying possible risks and weaknesses in the Kenyan unit trust market, particularly with relation to choices made about asset allocation. This might be helpful for developing laws and policies targeted at reducing these risks and fostering financial stability.

The study may offer Kenyan unit trusts important information on the connection between asset allocation choices and portfolio performance. Unit trusts could benefit from this information if they want to choose their investment strategies wisely and maximize their profits. Second, the study could enable unit trusts to more effectively manage their risk exposure by assisting them in better understanding the dangers linked to various investment products. Additionally, based on their financial objectives and risk tolerance, unit trusts in Kenya may receive useful advice from the study on how to maximize their investing strategy.

The research may add to the body of knowledge on the connection between portfolio performance and judgments about asset allocation, particularly in the context of

developing economies like Kenya. For academics and researchers working in relevant subjects, this could assist increase our understanding of the variables influencing unit trusts' success. The study may also provide light on the particular elements that influence portfolio performance in the Kenyan unit trust market, such as the effect of various investment vehicles.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter covers the theoretical framework, the determinants of portfolio performance, empirical literature review, a summary of research gaps and a conceptual framework.

2.2 Theoretical Framework

This segment examines the theories that underpin the study of asset allocation decisions and portfolio performance. The study reviewed the modern portfolio theory, arbitrate pricing theory and capital asset pricing theory.

2.2.1 Modern Portfolio Theory

Markowitz (1952) coined the theory on his write up for portfolio mixture and it is the anchor theory for the current study. This theory put an emphasis on how it is possible to maximize expected returns by creating weighted portfolio utilizing risks thresholds. The theory stated that institutions may build portfolios that optimize anticipated return at specified risk levels. This theory states that profit can be maximized by choosing proportions of different investments that will lower the investment risk level.

Unsystematic risks and systematic risks were defined by the theory as the two categories of hazards that investors should be aware of. Unsystematic risk is linked to the degree of volatility of a single investment, whereas systematic risk is inherent in market volatility across the board or in particular segments of it. Investors are consequently advised to combine their portfolios by ensuring that any specific risks incurred by one investment are mitigated by fewer specific risks in other investments (Oyedele & Olowe, 2020). This theory is critiqued by behavioural finance theorists for its assumptions and failure to

consider the role of human behaviour in maximizing returns (Mutakyawa & Nkya, 2020).

Modern portfolio theory is relevant to this study on the effect of asset allocation decisions on the portfolio performance of unit trusts in Kenya. MPT is a widely used framework for constructing portfolios of financial assets that seeks to optimize the expected return for a given level of risk. In the context of this study, MPT could be used to construct hypothetical portfolios of investment instruments and assess their risk-return profiles. This might be beneficial for determining which instruments offer the most alluring risk-return trade-offs and for directing the asset allocation choices of unit trusts.

2.2.2 Arbitrage Portfolio Theory

Ross, an economist, created the arbitrage portfolio theory (APT) in 1976. It demonstrates how the linear combination of several independent macroeconomic factors and portfolio asset returns relate to one another. With the use of the same asset and various risk factors, this theory makes one-period predictions about the returns on an asset. Its focus differs from normal investing analysis, and handling huge sums of money is where it excels. Prior to choosing the proper level of risk, it is essential to understand the level of risk to which your business is subject. The main finding of APT is that a small number of reliable determinants drive the long-term average returns of financial assets. (Ross, 1976).

Arbitrage portfolio theory acknowledges the numerous elements that contribute to daily stock and bond price volatility, but concentrates on the major dynamics affecting huge portfolios' aggregate assets. By recognizing these forces, we can have a better sense of how they affect portfolio results (Choi & Kim, 2021). Because it does not rely on

predicting how the market will operate, arbitrage pricing theory has been questioned. Instead, it publicly links the price of an asset to the underlying factors that influence it. The problem is that the theory doesn't specify what these components are, thus they have to be discovered through experimentation (Patel & Raval, 2020).

APT might be utilized in the context of this study to pinpoint the macroeconomic variables that are most crucial for calculating the expected return on various investment instruments. This may assist to inform the asset allocation methods and decisions made by unit trusts. The risk exposures of various investment instruments to various macroeconomic conditions might also be assessed using APT. This might assist in locating the sources of risk in the investment portfolios of unit trusts and provide guidance for their risk management tactics.

2.2.3 Capital Asset Pricing Model

William Sharpe created the Capital Asset Pricing Model (CAPM) in 1964. The expected return-risk connection and how to evaluate risk are predicted by the capital asset pricing model. The CAPM is frequently calculated using a mean-variance efficient portfolio with the same mean-variance. Asset pricing theorists use the CAPM to explain why certain assets have greater expected returns than others. These portfolios incorporate both conventional and non-conventional asset classes, such as real estate and commodities, and include risky capital assets that are weighted by their market value. According to Sharpe (1964), regardless of risk preferences, investors will hold onto risky assets in their portfolios since doing so rewards them for taking on systematic risk and defines their individual risk profiles by their covariance with the market.

CAPM critics argue that the model is oversimplified as a result of its two essential assumptions. The model assumes that investors can borrow or lend any amount of

money at a risk-free rate and that the risk-free rate is consistent across all investors regardless of the amount borrowed or lent (Saif, 2019). Second, all investors have equal expectations, resulting in comparable probability distributions for future returns over the same time span. As a result, CAPM can calculate the risk price and risk measure for a given asset (Yüksel & Taşdemir, 2020).

In the context of this study, CAPM could be used to estimate the expected returns on different investment instruments based on their systematic risk. This could help to identify which instruments offer higher expected returns given their level of systematic risk, and could be useful for guiding unit trusts' asset allocation decisions. Furthermore, CAPM could be used to evaluate the risk-adjusted performance of different investment instruments by comparing their actual returns to their expected returns based on their systematic risk. This could help to identify which instruments are generating excess returns relative to their level of risk, and which instruments are underperforming.

2.3 Determinants of Portfolio Performance

This section covers factors that are theoretically expected to influence portfolio performance of firms. The factors discussed in this section are asset allocation decisions, liquidity and firm size.

2.3.1 Asset Allocation Decisions

The quality of asset allocation decisions made by the fund manager directly impacts the portfolio performance of the unit trust (Bacon, 2023). If the fund manager makes effective asset allocation decisions, such as selecting stocks or other assets that generate attractive returns while effectively managing risk, it is likely to lead to higher portfolio performance (Maunda, 2022).

On the other hand, if the fund manager makes poor asset allocation decisions, such as investing in assets that underperform or failing to manage risk effectively, it is likely to result in lower portfolio performance. Moreover, asset allocation decisions can also impact the sustainability of a unit trust's performance over the long term leading to loss of investor funds (Mittal, 2022).

2.3.2 Liquidity

The capacity of a business to fulfill its immediate financial responsibilities, such as paying invoices and debts when they become due, is referred to as liquidity. As it enables the firm to take advantage of investment opportunities and weather unforeseen financial shocks, sufficient liquidity is essential for a company's financial health and growth (Guerini, Nesta, Ragot & Schiavo, 2020). High levels of liquidity can protect against financial risks and uncertainties from the standpoint of portfolio performance, enabling a business to continue operations and make money. On the other hand, inadequate cash levels may result in lost opportunities, greater borrowing costs, and even insolvency (Pattiruhu & Paais, 2020).

It is crucial to remember, too, that excessive liquidity can sometimes hurt a company's financial success. Lowered returns on investment and decreased profitability might arise from holding excessive amounts of cash or other liquid assets (Sari & Sedana, 2020). Furthermore, certain financial organizations could conceal underlying financial issues with excessive liquidity, which might eventually result in lower portfolio performance. Therefore, although while a link between liquidity and portfolio performance is typically assumed to be positive, the ideal degree of liquidity might vary depending on a number of variables, such as the sector the firm operates in, its business plan, and its risk appetite (Hacini, Boulenfad & Dahou, 2021).

2.3.3 Fund Size

The relationship between fund size and portfolio performance is a topic of debate in the field of finance. One argument suggests that larger fund size can lead to economies of scale, potentially benefiting portfolio performance. As funds grow in size, they may have access to lower trading costs, negotiate better fees with service providers, and attract top investment talent. These factors can enhance the fund's operational efficiency and potentially contribute to better portfolio performance (Mbugua & Njuguna, 2023).

On the other hand, some argue that there is an optimal fund size beyond which portfolio performance may be hindered. When a fund becomes too large, it may face capacity constraints in deploying capital effectively. Large-scale investment can lead to diminished liquidity, difficulties in finding suitable investment opportunities, and challenges in managing the portfolio's risk-return characteristics. These constraints may limit the ability to generate alpha or outperformance (Bilbao-Terol & López-de-Silanes, 2022).

2.4 Empirical Review

Local as well as global researches have determined the link between asset allocation decisions and portfolio performance, the objectives, methodology and findings of these studies are discussed.

2.4.1 Global Studies

Wang et al. (2022) determined the impact of investment behavior on financial markets during covid-19 with respect to the UK. This study was quantitative, where the data was gathered from the primary sources of information. The researcher adopted the non-probability convenience sampling through which 337 responses were gathered. The questionnaire was self-administered. Concerning the analysis, the SEM technique was

adopted. The study's analysis determined significant moderation of covid-19 uncertainty over the relationship of risk perception and general risk to tolerance. Similarly, the moderation of covid-19 uncertainty over the relationship of risk perception and financial risk to tolerance was also determined. The study did not take into asset allocation decisions effect on ROI and therefore a conceptual gap.

Guo and Zhang (2022) looked at a sample of Chinese mutual funds to see how fund size and performance related. A sample of 1,000 Chinese mutual funds that were listed on stock markets between 2000 and 2018 were employed in the study. According to the study's findings, a sample of Chinese mutual funds' performance and fund size have a bad association. This indicates that, even after accounting for additional performance-affecting variables, larger funds frequently underperform smaller funds. The study also discovered that funds that invest in illiquid equities had a larger negative association between fund size and performance. Due to the fact that the study was carried out in a developed setting, its conclusions may not be applicable in other circumstances.

Wang and Chen (2021) investigated how Taiwan's government securities affected portfolio performance. The CAPM serves as the study's theoretical foundation. The research design is a panel regression analysis, and the population of the study comprises of Taiwanese mutual funds. The study employs secondary data, which was collected from the Taiwan Economic Journal Database. The data was analyzed using the Fama-French three-factor model. The study finds that government securities have a positive and significant effect on portfolio performance in the Taiwanese market. This study presents a contextual gap as the focus was on Taiwanese market and therefore cannot be used to generalize other countries.

Kumar and Singh (2020) sought to compare the performance of actively managed and passively managed portfolios. The study was anchored on the efficient market hypothesis, which argues that it is difficult to beat the market consistently through active management. The research design employed was a quantitative study using a panel data regression analysis. The empirical results showed that passive portfolios outperformed active portfolios in terms of risk-adjusted returns, suggesting that investors may be better off investing in low-cost passive funds rather than actively managed funds. The study presents a conceptual gap as it did not take into account how the various asset allocation decisions influences performance.

Using the CAPM as the theoretical framework, Choudhary and Sharma (2021) sought to explore the effect of fixed deposits on the performance of Indian equities portfolios. Individual investors in India made up the population of the survey-style research study. Data were gathered using a standardized questionnaire, and regression analysis was used to examine the results. The findings indicated that the performance of Indian equities portfolios was positively impacted by fixed deposits. The study exposes a contextual gap because it was done in India, a country with a different social and economic climate than Kenya, the location of the current study.

2.4.2 Local Studies

In the Kenyan equities market during the COVID-19 epidemic, Mbugua and Njuguna (2023) aimed to look into the link between fund size and portfolio performance. 100 equities mutual funds that were listed on the Nairobi Securities Exchange between 2020 and 2022 were utilized as a sample in the study. To account for additional variables, like the age of the fund, management costs, and investment strategy, the study employed a multivariate regression model. According to the study's results, fund size and portfolio

performance during the COVID-19 pandemic are negatively correlated. The study also discovered that funds that invest in illiquid equities have a larger negative association between fund size and portfolio performance. The lack of consideration for asset allocation decisions in the study exposes a conceptual gap.

Ogum and Jagongo (2022) sought to examine the impact of asset allocation decisions on the financial performance of DT-SACCOS in Nairobi City County. A causal research design of research and a target populace of 40 DT-SACCOS was relied on. Secondary data matrices were used in collecting data from the finance managers. The study showed that: investment in shares had an insignificant inverse effect on the financial performance of DT-SACCOS in Nairobi City County while investment in lending to members for development had significant positive effect; investment in SACCO products had insignificant inverse effect. The study focused on DT-SACCOs whose nature of operations is different from unit trusts which are the focus of the current study.

Gachenga (2022) sought to assess the relationship between asset allocation decisions and liquidity of farmers-based DT SACCOs. Descriptive cross-sectional survey research design was employed where the study population consisted of 49 finance managers and 49 credit managers of the 49 farmers-based DT SACCOs respectively. The study analyzed data through multiple regression models. The regression models revealed that; lending decision, financial investment decision, research and development decision and human capital decision have a significant nexus with liquidity of farmers-based DT-SACCOs. The study reveals a conceptual gap as its operationalization of asset allocation decisions did not take into accounts the various asset classes.

Keli (2021) attempted to ascertain how the performance of pension funds in Kenya is impacted by real estate investments. Descriptive research design was used. The target

population was the 1340 pension funds in Kenya. The sample size was 134 pension funds which represented 10% of the entire population. Regression and correlation analysis were used to test the study hypotheses by establishing the relationship between real estate investments and performance. The study found that real estate investments, fixed income investments and listed equity had a positive and significant effect on the performance among pension funds in Kenya. This study presents a conceptual gap as it did not address some aspects of asset allocation decisions.

Wanyonyi (2020) focused on determining how selected macro-economic variables impact performance of unit trusts in Kenya. A ten-year period (2010-2019) was chosen for the study and the quarterly data from the period collected from a secondary source. A descriptive design was chosen and analysis was made using the multiple linear regression model to determine how the selected variables relate. The results showed that individually, interest rate, inflation rate, economic growth and money supply are statistically significant factors affecting financial performance while exchange rate does not substantially determine financial performance of unit trusts. The study reveals a conceptual gap as asset allocation decisions were not taken into account.

2.5 Summary of the Literature Review and Research Gaps

Based on the available literature, there are several research gaps in the relationship between asset allocation decisions and portfolio performance of Unit trusts in Kenya. These gaps can be classified into conceptual, contextual, and methodological categories. Conceptually, there was a need for a theoretical framework that explicitly outlines the underlying mechanisms through which asset allocation decisions affects portfolio performance of Unit trusts. The existing literature mostly focuses on case

studies and descriptive analyses, without providing a clear conceptual framework to guide the analysis.

Contextually, most of the existing literature on asset allocation decisions and portfolio performance have focused on developed economies, with limited attention given to emerging markets such as Kenya. This makes it difficult to generalize findings to the Kenyan context, which has its unique characteristics and challenges. Further, most of the studies on asset allocation decisions and portfolio performance have focused on traditional financial institutions, such as banks, with limited attention given to unit trusts. Methodologically, most of the existing literature on asset allocation decisions and portfolio performance of Unit trusts in Kenya are qualitative, descriptive, and based on case studies. There was a need for more quantitative studies that can provide robust statistical evidence on the relationship between asset allocation decisions and portfolio performance.

2.6 Conceptual Framework

Displayed in figure 2.1 is the predicted relationship between the variables. The predictor variable was asset allocation decisions given by the proportion of real estate investment, government securities investment, fixed deposit investment and shares investment. The control variable was fund size given by total assets. The response variable was portfolio performance given by risk-adjusted return on investment.

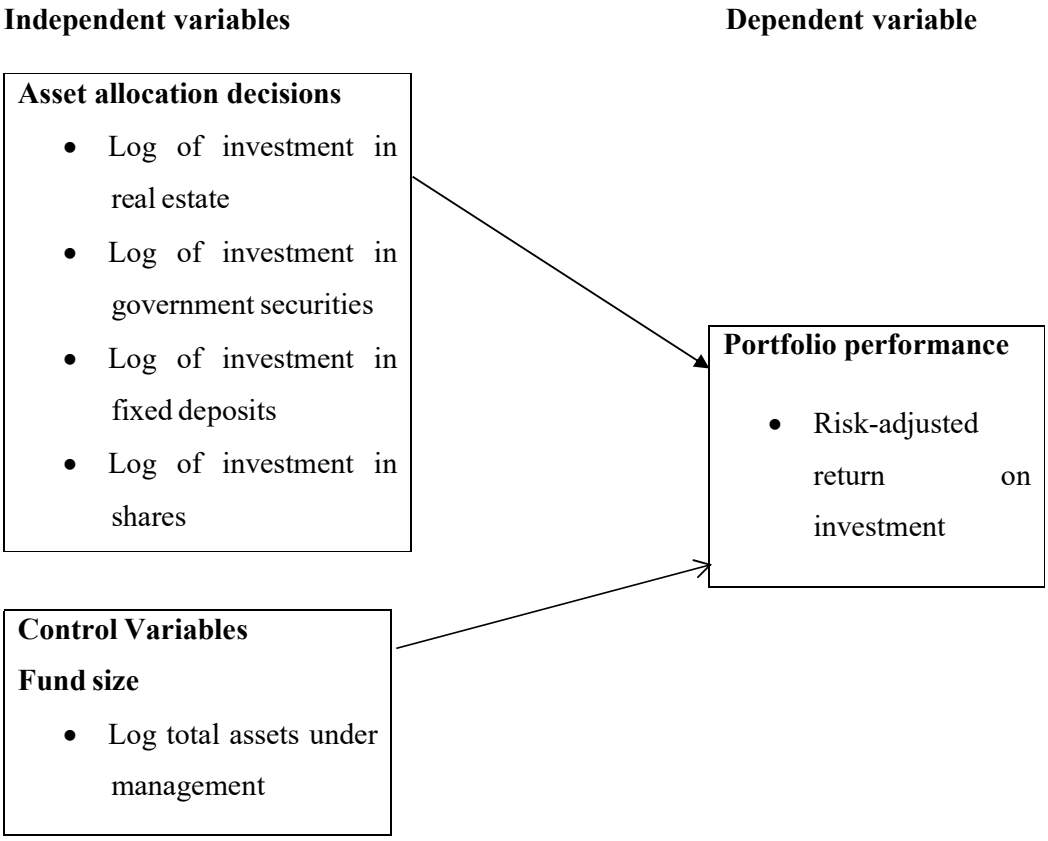

Figure 2.1: The Conceptual Model

Source: Researcher (2023)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter describes the methodology that was adopted to answer the research objective. The chapter covers the research design, the target population, data collection and analysis procedure.

3.2 Research Design

A descriptive research design was adopted in this study. This is because the study aimed to establish the relationship between asset allocation decisions and portfolio performance of unit trusts in Kenya using secondary data. The use of quantitative research design enabled the researcher to analyze numerical data and test hypotheses statistically. This provided more accurate and objective results that can be replicated and generalized to a larger population. Additionally, quantitative research allows for a larger sample size, which increases the representativeness of the findings. The data collected was analyzed using statistical software, which helped to eliminate errors and biases that may arise in manual analysis (Cooper & Schindler, 2018).

3.3 Population and Sample

A population is all observations from a collection of interest like events specified in an investigation (Burns & Burns, 2018). In this respect, the focus population of this research was the 22 unit trusts in Kenya as at 31st December 2022 (CMA, 2022). Since the target population was relatively small, the study was a census.

3.4 Data Collection

This study used secondary data. The data collection instrument was a secondary data collection schedule that captured the various variables for a period of five years. Every

year, CMA requires all registered unit trusts to disclose their financial reports publicly. Data was collected for each variable; real estate, government securities, fixed deposits, shares, fund size and portfolio performance from the financial reports of the 22 unit trusts for the five years between 2018 and 2022.

3.5 Data Analysis

Descriptive, correlation and regression analysis were conducted. Descriptive analysis involved calculating measures such as mean, median, mode, standard deviation, and range to describe the distribution of variables such as asset allocation decisions, portfolio performance, and fund size among unit trusts in Kenya. Correlation analysis involved examining the strength and direction of the relationship between asset allocation decisions and portfolio performance, as well as the relationship between portfolio performance and fund size. Multiple regression analysis was used to estimate the effect of asset allocation decisions on portfolio performance while controlling for other factors that may influence the relationship.

3.5.1 Analytical Model

The following equation was applicable:

$$Y_{it} = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{5t} + \varepsilon_t$$

Where: Y = Portfolio performance measured by risk-adjusted ROI

β_0 =y intercept of the regression equation.

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ =are the slope of the regression

X_1 = Investment in real estate as measured by the natural logarithm of value of investments held in real estate

X_2 = Investment in government securities measured as natural logarithm of value of government securities investments

X_3 = Investment in fixed deposit measured as natural logarithm of value of fixed deposits held.

X_4 = Investment in shares measured as natural logarithm of value of total shares held

X_5 = Fund size as measured by natural logarithm of total fund value

ε =error term

3.5.2 Diagnostic Tests

The researcher conducted diagnostic tests to ensure that the assumptions of the statistical tests used in the analysis were met. Diagnostic tests helped to identify potential problems such as outliers, Multicollinearity, heteroscedasticity, and normality of residuals, which may affect the validity and reliability of the results. Table 3.1 shows the tests that were conducted.

Table 3.1: Diagnostic Tests

Assumption	Description	Type of Tests	Interpretations	Treatment
Normality Test	Normally distributed data assumes a bell-shaped curve. It implies that errors should be distributed normally.	Jarque-Bera test	p > 0.05 suggest that variables are distributed normally.	Data transformed using logs and square roots.
Stationarity test	In order to evaluate whether or not a time series variable has a unit root and whether or not it is stationary	Levin-Liu test	If p values are below 0.05, unit roots exist.	Use Natural log of variables
Homoscedasticity	Homogeneity of variance is a presumption that outcome variable exhibits similar magnitude of variation across entire values of explanatory variables.	Breusch Pagan Test	P > 0.05 implies homoscedasticity	Data transformed using logs and reciprocal techniques.
Multicollinearity test	Multicollinearity is a situation where the explanatory variables are highly correlated.	Variance Inflation Factor	VIF factor >10 infers presence of multicollinearity.	Obtaining additional data and omitting collinear variables.

3.5.3 Tests of Significance

The t-test and F-test was used to test the significance of individual coefficients and overall model fit, respectively. The F-test was used to test the overall significance of the regression model. It compared the variance explained by the model to the variance that cannot be explained by the model. The t-test was used to test the significance of individual coefficients in a regression model.

CHAPTER FOUR: DATA ANALYSIS RESULTS AND FINDINGS

4.1 Introduction

This chapter primarily presents the analysis of the data collected, the results and the discussion of findings where the current study findings are related with previous studies. Specifically, the chapter covers the descriptive analysis, diagnostic tests, correlation, and regression analysis conducted to achieve the objective of this research study.

4.2 Descriptive Statistics

Table 4.1 contains summary statistics for the study variables, which are essential for understanding the distribution and characteristics of the data. The data was collected for a 5-year period (January 2018 to December 2022). 22 firms had complete data set for the study period leading to 110 data points that were considered adequate.

Table 4.1: Descriptive Results

	N	Minimum	Maximum	Mean	Std. Deviation
ROI	110	-.3061	.2966	.0663	.1101
Real estate	110	4.3175	8.0294	6.6259	.4144
Government securities	110	5.0182	7.3952	5.9085	.4116
Fixed deposit	110	4.0943	8.5217	7.7437	.7817
Shares	110	5.0869	8.9166	7.8216	.5123
Fund size	110	6.7611	8.7303	7.9419	.5103
Valid N (listwise)	110				

Source: Field data (2023)

The ROI, which represents the risk-adjusted portfolio performance of the unit trusts, has been recorded for 110 observations, covering each unit trust annually over a 5-year period. The values of ROI varied widely: the lowest being -30.61%, indicating a significant loss, and the highest being 29.66%, suggesting a notable gain. The average

ROI over this period stood at 6.63%. However, there was substantial variability in the ROI values, as evidenced by a standard deviation of 11.01%.

The investment in real estate, after undergoing a logarithmic transformation, showed values ranging from 4.3175 to 8.0294 among the 110 observations. The average value of these logarithmically transformed investments was 6.6259, suggesting a moderate level of investment in real estate. The investments in real estate demonstrated a fairly stable trend, with a standard deviation of 0.4144, indicating consistency among unit trusts in their allocations to this asset.

For investments in government securities, the logarithmic values ranged from a low of 5.0182 to a high of 7.3952. The mean investment value, after transformation, was 5.9085, suggesting a typical level of allocation to this type of asset. The standard deviation of 0.4116 underscores that the investment values in government securities were quite consistent across the unit trusts, with minor deviations from the mean.

Investments in fixed deposits showed a broader range compared to other assets. The logarithmically transformed values varied from a minimum of 4.0943 to a maximum of 8.5217. With an average value of 7.7437, it suggests that unit trusts had a strong inclination towards fixed deposits. However, the relatively high standard deviation of 0.7817 implies there was more variability in investments in fixed deposits across unit trusts compared to real estate and government securities.

The unit trusts' investment in shares, as represented by logarithmically transformed values, ranged between 5.0869 and 8.9166. The mean value was 7.8216, indicating a substantial allocation towards shares. The standard deviation stood at 0.5123, suggesting a moderate level of variability in the investments in shares across the unit trusts in Kenya.

The fund size, when represented through logarithmic values, spanned from 6.7611 to 8.7303 among the 110 observations. The average size of the funds was 7.9419, reflecting the general scale of unit trusts. The standard deviation was 0.5103, suggesting a moderate degree of variation in the fund sizes of these unit trusts.

4.3 Diagnostic Tests

Before moving on to equation estimation, diagnostic tests were done to make sure that there are no breaches of the traditional linear regression model assumptions. Parameter estimations are skewed as well as inefficient whenever the assumptions of a classical regression model are broken. The diagnostic tests conducted are discussed in this section.

4.3.1 Normality Test

Table 4.3 shows the results of the Jarque-Bera normality test for the study. The Jarque-Bera test is a statistical test that is used to test the null hypothesis that the data is normally distributed. The test statistic is distributed as a chi-squared with 2 degrees of freedom. A p-value of 0.05 or less is generally considered to be statistically significant.

Table 4.2: Test for Normality

	Jarque-Bera Coefficient	**P-value**
ROI	3.294	0.126
Real estate	3.591	0.202
Government securities	6.306	0.304
Fixed deposit	4.431	0.406
Shares	2.765	0.417
Fund size	4.241	0.402

Source: Research Findings (2023)

The p-values for all of the study variables are greater than 0.05, which indicates that we cannot reject the null hypothesis that the data is normally distributed. In other words, the data is not significantly different from a normal distribution.

4.3.2 Multicollinearity Test

Table 4.2 shows the results of the multicollinearity test for the independent variables in the study. The tolerance statistic is a measure of how much variance in a variable is not explained by the other variables. A tolerance value of 1 indicates that the variable is not correlated with any of the other variables. A tolerance value of 0 indicates that the variable is perfectly correlated with one or more of the other variables. The VIF (variance inflation factor) is a measure of how much the variance of an estimated coefficient is inflated due to multicollinearity. A VIF value of 1 indicates that there is no multicollinearity. A VIF value greater than 10 indicates severe multicollinearity.

Table 4.3: Multicollinearity

	Collinearity Statistics	
Variable	**Tolerance**	**VIF**
Real estate	0.519	1.927
Government securities	0.631	1.585
Fixed deposit	0.802	1.247
Shares	0.824	1.214
Fund size	0.719	1.391

Source: Research Findings (2023)

The tolerance values for all of the independent variables are less than 1, which indicates that there is some degree of multicollinearity among the variables. However, the VIF values are all less than 10, which indicates that the multicollinearity is not severe.

4.3.3 Heteroscedasticity Test

Table 4.4 shows the results of the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity. The Breusch-Pagan test is a statistical test that is used to test the null

hypothesis that the variance of the error terms is constant. The test statistic is distributed as a chi-squared with 1 degree of freedom. A p-value of 0.05 or less is generally considered to be statistically significant. The p-value for the Breusch-Pagan test in Table 4.4 is 0.6934, which is greater than 0.05. Therefore, the null hypothesis that the variance of the error terms is constant is not rejected. This implies that the data does not show any significant heteroscedasticity.

Table 4.4: Heteroskedasticity Results

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity		
chi2(1)	=	0.7318
Prob > chi2	=	0.6934

Source: Research Findings (2023)

4.3.4 Autocorrelation Test

The Durbin-Watson statistic is a test statistic used to detect autocorrelation in the residuals from a regression analysis. The Durbin-Watson statistic ranges in value from 0 to 4. A value of 2 indicates that there is no autocorrelation. A value less than 2 indicates positive autocorrelation. A value greater than 2 indicates negative autocorrelation. The Durbin-Watson statistic for this study is 1.867, which is close to 2. This indicates that there is no significant autocorrelation in the residuals of the model. The results are as shown in Table 4.5

Table 4.5: Test of Autocorrelation

Durbin Watson Statistic
1.867

Source: Research Findings (2023)

4.3.5 Stationarity Test

Table 4.6 shows the results of the Levin-Lin-Chu unit root test for the study variables. The Levin-Lin-Chu test is a statistical test that is used to test the null hypothesis that a time series variable has a unit root. A unit root means that the variable has a constant trend and does not tend to revert to its mean over time. A p-value of 0.05 or less is generally considered to be statistically significant.

Table 4.6: Levin-Lin Chu unit-root test

Levin-Lin Chu unit-root test		
Variable	**Statistic**	**p value**
ROI	6.4729	0.0000
Real estate	7.3963	0.0000
Government securities	6.2139	0.0000
Fixed deposit	7.8785	0.0000
Shares	6.8461	0.0000
Fund size	6.8194	0.0000

Source: Research Findings (2023)

The p-values for the Levin-Lin-Chu test for the study are all less than 0.05, which indicates that we can reject the null hypothesis that the variables have unit roots. This implies that the study variables are all stationary.

4.3.6 Hausman Test

When using panel data, it is essential to establish if a fixed effect or random effect model is more desirable. For the purpose of choosing the best panel regression model, the Hausman specification test was used. In essence, a Hausman specification test determines if the unique errors have a relationship to the regressors, with the null hypothesis being that they do not (random effect is preferred). Fixed effects were utilized if the P-value was significant (below 0.05), while random effects were used otherwise. The results of the Hausman test are shown in Table 4.7.

Table 4.7: Hausman Test Results

chi2(5)	P-Value
24.38	0.0000

Null Hypothesis: The appropriate model is Fixed Effects

Source: Research Findings (2023)

4.4 Correlation Results

To determine the degree and direction of link between each predictor variable and the response variable, correlation analysis was carried out. The Correlation results are as displayed in Table 4.8

Table 4.8: Correlation Results

		ROI	Real estate	Government securities	Fixed deposit	shares	Fund size
ROI	Pearson Correlation	1					
	Sig. (2-tailed)						
Real estate	Pearson Correlation	.307	1				
	Sig. (2-tailed)	.001					
Government securities	Pearson Correlation	.327**	.251**	1			
	Sig. (2-tailed)	.000	.008				
Fixed deposit	Pearson Correlation	.050	.034	.175	1		
	Sig. (2-tailed)	.602	.723	.067			
shares	Pearson Correlation	.127	-.034	.078	-.030	1	
	Sig. (2-tailed)	.185	.723	.415	.755		
Fund size	Pearson Correlation	.352**	-.126	-.129	-.110	.187	1
	Sig. (2-tailed)	.000	.189	.180	.251	.051	

**. Correlation is significant at the 0.01 level (2-tailed).
b. Listwise N=110

Source: Research Findings (2023)

The Pearson Correlation coefficient between ROI and investment in real estate is 0.307, indicating a positive, moderate linear relationship. This suggests that as investments in

real estate increase, there's a tendency for the ROI to also increase, and vice versa. The significance value (p-value) is 0.001, which is less than 0.05. This indicates that the correlation is statistically significant, suggesting a meaningful relationship between real estate investment and ROI.

Investment in government securities has a Pearson Correlation coefficient of 0.327 with ROI, suggesting a slightly stronger positive relationship compared to real estate. As the investments in government securities rise, the ROI is likely to increase as well. The p-value is 0.000 (less than 0.01), making this correlation statistically significant at the 1% level, underscoring the importance of government securities in influencing ROI.

The correlation coefficient between fixed deposits and ROI is 0.050, which denotes a very weak positive relationship. This means changes in fixed deposit investments might not substantially influence the ROI. With a p-value of 0.602 (greater than 0.05), this correlation is not statistically significant, suggesting that the observed relationship might be due to random chance.

Shares have a Pearson Correlation coefficient of 0.127 with ROI. This denotes a weak positive relationship, implying that the ROI may slightly increase with a rise in shares investment, though not very robustly. The p-value is 0.185, indicating that the correlation is not statistically significant. Therefore, the relationship observed might not be reliable or consistent across different samples.

The fund size showcases a Pearson Correlation coefficient of 0.352 with ROI. This points to a moderate positive relationship, suggesting that as the size of the fund grows, the ROI also tends to increase. This correlation is statistically significant with a p-value of 0.000 (less than 0.01), highlighting the potential influence of fund size on ROI.

4.5 Regression Results

To determine the extent to which performance of unit trusts is described by the chosen variables, regression analysis was used. In Table 4.9, the regression's findings were displayed. The R square value of 0.2246 indicates that approximately 22.46% of the variability in ROI can be explained by the model. This suggests there may be other factors not included in the model that affect ROI. The Wald test statistic value of 5.999 tests the joint significance of all the coefficients in the model. With a value of 0.000, this suggests that the model as a whole is statistically significant.

Table 4.9: Regression Results

ROI	Coef.	std.err	z	P>|z|	[95% conf.interval]	
Real estate	0.093	0.025	3.21	0.001	0.032	0.131
Government securities	0.044	0.012	2.64	0.008	0.058	0.008
Fixed deposit	0.006	0.099	1.19	0.232	0.312	0.075
Shares	0.055	0.025	1.25	0.217	0.488	0.114
Fund size	0.114	0.023	4.31	0.001	0.446	0.492
_cons	0.288	0.126	2.2	0.000	0.523	0.030
R squared =0.2246						
Wald chi2(5)=5.999						
Prob>chi2=0.000						

Source: Research Findings (2023)

For every unit increase in investment in real estate, the ROI is expected to increase by 0.093 units, holding other variables constant. The standard error for this coefficient is 0.025. The z-value of 3.21 and a p-value (P>|z|) of 0.001 (less than 0.05) indicate that the relationship is statistically significant. The 95% confidence interval for the coefficient ranges between 0.032 and 0.131, meaning we are 95% confident that the true coefficient value lies within this range.

Every unit increase in investment in government securities is associated with an expected 0.044-unit increase in ROI, keeping all else constant. With a standard error of

0.012 and a z-value of 2.64, the p-value of 0.008 suggests that this relationship is statistically significant at the 5% level. The 95% confidence interval for the coefficient is between 0.058 and 0.008.

The coefficient for fixed deposit investment is 0.006, indicating a small expected increase in ROI for each unit increase in fixed deposit, other variables being constant. However, with a z-value of 1.19 and a p-value of 0.232, this relationship is not statistically significant. The 95% confidence interval ranges between 0.312 and 0.075, but due to the lack of statistical significance, this range may not be very informative.

For every unit increase in investment in shares, the ROI is predicted to increase by 0.055 units, other factors held constant. The standard error is 0.025. With a z-value of 1.25 and a p-value of 0.217, this relationship is not statistically significant. The 95% confidence interval for this coefficient lies between 0.488 and 0.114.

A unit increase in fund size is associated with an expected ROI increase of 0.114 units. With a standard error of 0.023 and a z-value of 4.31, the relationship is statistically significant as evidenced by a p-value of 0.001. The 95% confidence interval ranges from 0.446 to 0.492.

The regression model's coefficient was as follows;

$$\mathbf{Y = 0.288 + 0.093X_1 + 0.044X_2 + 0.114X_3}$$

Where:

Y = ROI X_1 = Investment in real estate; X_2=Investment in government securities; X_3 = Fund size

4.6 Discussion of Research Findings

The primary goal of the study was to determine the effect of asset allocation decisions on the portfolio performance of unit trusts in Kenya, with portfolio performance gauged by the risk-adjusted ROI. To achieve this, the research employed secondary data from each unit trust over a span of five years (from 2018 to 2022) collected annually. The independent variables in the study were investments in real estate, government securities, fixed deposits, shares, and the fund size. Each of these independent variables was measured using the natural logarithm of the value of investments held in their respective categories.

Correlation analyses revealed the strength and direction of relationships between ROI and the chosen independent variables. Notably, investments in real estate and government securities showed a moderate and statistically significant positive correlation with ROI. In contrast, fixed deposits and shares presented a weak relationship with ROI, lacking statistical significance. The fund size demonstrated a moderate, statistically significant positive relationship with ROI, emphasizing its potential influence on portfolio performance.

The regression analysis aimed to decipher the influence of each asset allocation decision on ROI. Key findings from the analysis include significant positive effects on ROI from investments in real estate, government securities, and an increase in fund size. Specifically, real estate investment stood out with an expected ROI increase of 0.093 units for every unit increase in investment. Government securities and fund size followed suit with their respective coefficients. However, investments in fixed deposits and shares did not exhibit a statistically significant impact on ROI. The model as a whole was statistically significant, but it's worth noting that it explained just over 22% of the

variability in ROI, suggesting the presence of other influential factors not captured in the model.

The current study aligns with the broader canvas of financial literature that strives to comprehend investment behaviors and decisions in various markets. Taking cues from Wang et al. (2022), which emphasized the effect of COVID-19 on investment behaviors in the UK, we recognize that external factors such as pandemics can influence investment decisions. While Wang et al. shed light on risk perceptions during these tumultuous times, our study focused on tangible asset allocation decisions and their repercussions on ROI, thus highlighting a novel dimension of financial market behavior in the face of a global crisis.

Guo and Zhang (2022) offered intriguing insights into the Chinese mutual funds market, identifying a negative correlation between fund size and performance. This observation echoes our findings where fund size proved to be a determinant in influencing the ROI of unit trusts in Kenya. However, the directional relationship in our study diverges from Guo and Zhang's, emphasizing the importance of contextualizing findings within specific market dynamics. Wang and Chen's (2021) exploration into the Taiwanese market emphasized a positive relationship between government securities and portfolio performance. This aligns with our findings, further reinforcing the notion that government securities are a reliable and favorable asset class across various financial ecosystems.

Kumar and Singh (2020) and Choudhary and Sharma (2021) provided foundational perspectives on asset management approaches and the role of fixed deposits, respectively. While Kumar and Singh championed passive portfolios, Choudhary and Sharma highlighted the positive influence of fixed deposits on Indian equity portfolios.

Our study found that fixed deposits didn't exhibit a statistically significant impact on ROI in the Kenyan context, hinting at geographical and economic divergences in asset allocation outcomes. Notably, local studies, such as those by Mbugua and Njuguna (2023) and Ogum and Jagongo (2022), provided vital localized insights, albeit with certain conceptual gaps. Mbugua and Njuguna's conclusions about the negative relationship between fund size and performance during COVID-19 offers a nuanced perspective when juxtaposed with our results. Ogum and Jagongo's study on DT-SACCOS in Nairobi pointed to the intricacies of asset allocation within specific institutional settings. Together, these studies, along with others like Gachenga (2022), Keli (2021), and Wanyonyi (2020), underscore the multifaceted nature of investment behaviors and decisions, emphasizing the necessity for a comprehensive, contextual, and holistic examination.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter reviews the results from the previous chapter, it further derives conclusions as well as the limitations encountered during the study. In addition, recommends policies that can enforce to boost the return on investments among unit trusts. Finally, the chapter gives suggestions of areas where further studies can be done.

5.2 Summary of Findings

The primary goal of the study was to determine the effect of asset allocation decisions on the portfolio performance of unit trusts in Kenya, with portfolio performance gauged by the risk-adjusted ROI. To achieve this, the research employed secondary data from each unit trust over a span of five years (from 2018 to 2022) collected annually. The independent variables in the study were investments in real estate, government securities, fixed deposits, shares, and the fund size. Each of these independent variables was measured using the natural logarithm of the value of investments held in their respective categories.

The descriptive analysis illuminated the distribution of ROI and investments across unit trusts. The ROI ranged between -0.3061 and 0.2966 with an average (mean) of 0.0663. Investments in real estate, government securities, fixed deposits, and shares demonstrated varied means and spreads, indicating different average investment levels and diversities among the trusts. Fund size, too, portrayed a diversity with its mean landing at 7.9419. These statistics offer a foundational understanding of the general investment behavior and performance across unit trusts in the given timeframe.

Correlation analyses revealed the strength and direction of relationships between ROI and the chosen independent variables. Notably, investments in real estate and government securities showed a moderate and statistically significant positive correlation with ROI. In contrast, fixed deposits and shares presented a weak relationship with ROI, lacking statistical significance. The fund size demonstrated a moderate, statistically significant positive relationship with ROI, emphasizing its potential influence on portfolio performance.

The regression analysis aimed to decipher the influence of each asset allocation decision on ROI. Key findings from the analysis include significant positive effects on ROI from investments in real estate, government securities, and an increase in fund size. Specifically, real estate investment stood out with an expected ROI increase of 0.093 units for every unit increase in investment. Government securities and fund size followed suit with their respective coefficients. However, investments in fixed deposits and shares did not exhibit a statistically significant impact on ROI. The model as a whole was statistically significant, but it's worth noting that it explained just over 22% of the variability in ROI, suggesting the presence of other influential factors not captured in the model.

5.3 Conclusions

The primary objective of the study was to ascertain how asset allocation decisions influence the portfolio performance of unit trusts in Kenya. After comprehensive analyses, the study revealed distinct relationships between certain asset allocations and portfolio performance, particularly when measured using the risk-adjusted ROI. The standout asset categories that seemed to have a substantial impact on performance were real estate, government securities, and the overall size of the fund.

Real estate and government securities emerged as particularly influential in determining ROI. Both these asset categories showcased not only a positive correlation with ROI but also significant positive coefficients in the regression analysis. This suggests that higher allocations to these areas could be associated with better portfolio performance. On the other hand, investments in fixed deposits and shares, despite being part of the portfolios, didn't display a statistically significant relationship with ROI. This indicates that, at least within the parameters of this study, they may not be the primary drivers of portfolio performance in the context of Kenyan unit trusts.

While the results are enlightening, it's vital to approach them with a degree of caution. The regression model, though statistically significant, accounted for just over 22% of the variability in ROI. This points to the existence of other influential factors and investment decisions not covered in the study. It underscores the intricate nature of investment dynamics where multiple factors, some beyond the scope of this research, play a role in shaping portfolio performance.

5.4 Recommendations for Policy and Practice

It is vital for regulatory bodies and financial institutions in Kenya to emphasize and bolster financial literacy initiatives. Given the discernible impact of certain asset allocations on portfolio performance, investors must be equipped with the knowledge to understand the implications of these findings. By promoting financial education, investors can make more informed decisions regarding their investments in unit trusts, ensuring they are better aligned with asset allocations that historically yield higher returns.

Regulatory bodies should consider implementing policies that mandate greater transparency and detailed reporting for unit trusts. This can encompass comprehensive

disclosures about asset allocations, especially in sectors like real estate and government securities which showed a significant relationship with ROI. Enhanced reporting ensures investors have access to the necessary data to scrutinize and evaluate the potential risks and rewards of different investment portfolios, leading to a more resilient and informed investment community.

Given the dynamic nature of financial markets and the multiple factors influencing portfolio performance, it is recommended that there be a continuous review of asset allocation strategies in practice. Financial institutions should be encouraged to regularly assess their investment portfolios and strategies in light of emerging market trends, research findings, and global economic shifts. This proactive approach will ensure that investment strategies remain relevant, optimized, and aligned with the goal of maximizing returns for investors in unit trusts.

5.5 Limitations of the Study

One of the main limitations of this study was its scope, which focused solely on unit trusts in Kenya. While this provides detailed insights for this specific financial context, the findings may not necessarily be generalizable to other financial instruments or markets outside of Kenya. Different regions or financial instruments might have unique dynamics and factors influencing their performance, which were not captured in this research.

The regression model presented an R-squared value of just over 22%, implying that the model explains only about 22% of the variability in the risk-adjusted ROI. This indicates that a significant proportion of factors influencing portfolio performance was not captured in the study. The unaccounted variability suggests the existence of other

potentially influential variables that were not considered, which could provide further insights into the determinants of portfolio performance.

The study's reliance on secondary data means that it was constrained by the accuracy, comprehensiveness, and currency of the data available from the unit trusts for the specified period. Secondary data can sometimes be limited in its depth and may not capture all relevant details. Additionally, any inherent biases or errors in the original data collection process would have been carried into this study, potentially influencing the findings.

The research was conducted over a fixed period of five years, from 2018 to 2022. While this offers a snapshot of the relationships during this timeframe, it may not necessarily represent the long-term trends or capture the cyclical nature of financial markets. Economic and market conditions can evolve, and what holds true in one five-year period may shift in subsequent years. This temporal constraint limits the study's ability to project long-term implications or discern cyclical patterns in portfolio performance.

5.6 Suggestions for Further Research

Given that this study was narrowly focused on unit trusts in Kenya, future research could benefit from expanding its scope to include other financial markets or regions. By comparing and contrasting findings across different markets, researchers can gain a more holistic understanding of asset allocation dynamics. Such comparative studies would enhance the generalizability of the findings and offer insights into how different economic and cultural contexts influence portfolio performance.

Considering the R-squared value indicated a substantial portion of unexplained variability in ROI, it would be valuable for future research to explore other potential determinants of portfolio performance. These could include macroeconomic indicators,

global financial trends, or internal fund management strategies. By incorporating a broader set of variables, research can provide a more comprehensive understanding of the multifaceted influences on unit trust performance.

While the current research offers a snapshot over a five-year period, there's a need for longitudinal studies that track portfolio performance and asset allocation decisions over extended periods. This would help in capturing long-term trends, cyclical patterns, and the impact of varying economic phases on unit trust performance. Such extended timelines would provide richer data and more robust insights into the evolving nature of financial markets.

Future research could benefit from incorporating qualitative methods, such as interviews with fund managers or expert opinions. This would provide a deeper understanding of the decision-making processes behind asset allocations, the challenges faced, and the strategies employed to optimize returns. By combining quantitative data with qualitative insights, research can offer a more nuanced and holistic view of the dynamics influencing unit trust performance.

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APPENDICES

Appendix I: Unit Trusts in Kenya

1. African Alliance Kenya Asset Management Limited
2. Alpha Africa Asset Managers Limited
3. Amana Capital Limited
4. Apollo Asset Management
5. Britam Asset Managers
6. CIC Unit Trust
7. Co-op Trust Investment Services Limited
8. Diaspora Unit Trust Scheme
9. Equity Investment Bank Unit Trust
10. Faida Investment Bank
11. GenAfrica Asset Managers Limited
12. ICEA Lion Asset Management
13. Madison Asset Management Services Limited
14. Momentum Asset Managers Limited
15. NCBA Investment Management Limited
16. Old Mutual Unit Trusts
17. Pacis Asset Managers Limited
18. Sanlam Unit Trusts
19. Standard Chartered Asset Management Limited
20. Stanlib Kenya Limited
21. UAP Old Mutual Investment Services Limited
22. Zimele Asset Management Limited

Source: CMA (2022)

Appendix II: Research Data

Firm ID	Year	ROI	Real estate	Government securities	Fixed deposit	shares	Fund size
1	2018	0.08	6.75	6.30	8.17	7.74	8.22
1	2019	0.11	6.92	6.15	7.93	8.07	8.22
1	2020	0.15	6.81	6.02	7.22	8.35	8.25
1	2021	0.19	6.64	5.84	8.50	8.65	8.27
1	2022	0.17	6.36	5.75	7.71	8.55	8.32
2	2018	0.24	6.33	5.63	6.73	8.92	8.34
2	2019	0.16	6.70	5.37	6.84	8.57	8.42
2	2020	0.06	6.45	5.42	8.19	7.67	8.41
2	2021	0.06	6.42	5.42	8.29	7.77	8.46
2	2022	0.03	6.59	5.38	8.06	7.11	8.49
3	2018	0.03	7.04	5.41	6.39	7.16	8.21
3	2019	0.02	7.08	5.60	7.48	6.90	8.29
3	2020	-0.01	6.84	5.77	7.12	7.73	8.38
3	2021	0.00	6.63	5.89	8.51	7.76	8.43
3	2022	-0.11	6.50	5.91	8.17	7.73	8.45
4	2018	0.08	6.44	6.00	8.18	7.78	7.56
4	2019	0.13	6.73	6.12	7.14	7.84	7.62
4	2020	0.17	6.50	5.94	6.37	7.85	7.59
4	2021	0.06	6.50	6.05	8.19	7.90	7.57
4	2022	0.12	6.48	5.95	7.09	7.91	7.54
5	2018	0.09	6.52	6.32	8.45	7.71	8.06

Firm ID	Year	ROI	Real estate	Government securities	Fixed deposit	shares	Fund size
5	2019	0.09	6.51	6.32	8.07	7.71	8.12
5	2020	0.10	6.52	6.33	6.73	7.71	8.17
5	2021	0.10	6.36	6.50	8.31	7.40	8.23
5	2022	0.15	6.66	5.74	7.10	7.82	8.33
6	2018	0.06	6.96	6.04	5.91	7.87	8.58
6	2019	0.30	6.61	5.88	8.41	7.93	8.63
6	2020	0.23	6.55	5.62	8.38	7.94	8.65
6	2021	0.23	6.74	5.53	6.82	7.98	8.70
6	2022	0.17	6.61	5.41	8.33	8.00	8.73
7	2018	0.01	6.54	6.19	5.95	8.13	8.00
7	2019	0.06	6.46	6.11	8.22	8.12	8.05
7	2020	0.01	6.71	6.15	8.11	8.13	8.05
7	2021	0.09	6.63	5.34	7.89	8.04	8.14
7	2022	-0.02	7.00	5.43	6.95	8.04	8.16
8	2018	0.19	6.34	5.72	8.38	8.14	7.98
8	2019	0.10	6.14	5.68	7.51	8.17	8.03
8	2020	0.15	6.43	5.65	7.29	8.19	8.08
8	2021	0.11	6.36	5.65	8.44	8.20	8.19
8	2022	-0.01	6.33	5.63	7.96	8.19	8.28
9	2018	0.02	6.45	5.69	8.28	6.45	8.02
9	2019	0.00	6.02	5.24	8.41	5.09	8.04
9	2020	0.14	6.77	5.09	7.84	7.85	7.97
9	2021	0.15	6.65	5.38	8.28	7.89	7.97
9	2022	0.17	4.32	5.60	6.41	8.04	8.00

Firm ID	Year	ROI	Real estate	Government securities	Fixed deposit	shares	Fund size
10	2018	0.03	6.15	5.63	7.99	6.79	8.19
10	2019	0.04	6.19	5.60	7.28	7.04	8.24
10	2020	0.04	6.37	5.61	7.70	7.14	8.27
10	2021	-0.03	6.27	5.58	8.08	8.00	8.33
10	2022	0.06	6.38	5.67	8.32	8.03	8.35
11	2018	-0.04	6.08	5.69	4.09	8.02	8.39
11	2019	0.04	5.59	5.02	8.10	8.03	8.48
11	2020	0.23	6.57	5.85	8.40	8.10	8.53
11	2021	0.21	6.33	5.68	7.32	8.12	8.57
11	2022	0.16	6.39	5.76	7.70	8.15	8.63
12	2018	0.14	6.25	5.60	8.20	8.17	7.21
12	2019	0.12	6.27	5.44	7.41	8.18	7.20
12	2020	0.10	6.45	5.44	7.04	8.18	7.22
12	2021	0.28	6.52	5.65	8.23	8.18	7.32
12	2022	0.28	6.46	5.48	7.88	8.18	7.35
13	2018	0.11	8.03	5.91	8.30	7.57	7.72
13	2019	0.06	6.82	6.14	8.26	7.65	7.68
13	2020	0.24	6.94	6.16	8.17	7.77	7.54
13	2021	0.12	7.08	6.19	8.50	7.83	7.50
13	2022	0.13	7.08	6.34	8.25	7.91	7.48
14	2018	0.12	6.86	6.38	7.84	7.97	7.69
14	2019	0.09	6.78	6.38	8.45	8.00	7.72
14	2020	0.09	6.77	6.39	7.17	8.04	7.56
14	2021	0.08	6.69	6.48	8.51	8.11	7.63

Firm ID	Year	ROI	Real estate	Government securities	Fixed deposit	shares	Fund size
14	2022	0.06	6.64	6.44	8.38	8.11	7.62
15	2018	0.07	6.61	6.46	7.64	8.15	8.22
15	2019	0.05	6.78	6.48	8.35	8.17	8.22
15	2020	0.02	6.78	6.67	7.99	7.73	8.25
15	2021	0.02	6.91	6.62	7.48	7.73	8.27
15	2022	-0.28	6.84	6.58	7.91	7.79	8.32
16	2018	0.00	6.83	6.56	7.24	7.78	7.39
16	2019	0.03	6.81	6.45	8.44	7.79	7.39
16	2020	-0.14	6.93	6.69	8.35	7.78	7.43
16	2021	-0.08	6.81	6.50	8.41	7.83	7.50
16	2022	-0.31	7.03	6.78	7.93	7.77	7.61
17	2018	0.17	6.70	6.44	8.39	7.76	7.71
17	2019	-0.29	6.42	5.73	7.97	7.58	7.79
17	2020	-0.21	7.20	6.11	8.22	7.55	7.80
17	2021	0.00	7.12	6.29	8.26	7.59	7.81
17	2022	0.00	6.55	6.29	8.42	7.59	7.74
18	2018	-0.12	6.21	7.40	8.39	7.59	8.14
18	2019	-0.26	6.77	5.57	8.35	7.59	8.22
18	2020	0.10	7.36	5.44	6.50	7.95	8.25
18	2021	0.13	7.31	5.79	7.49	7.99	8.29
18	2022	0.09	7.71	5.91	5.63	8.00	8.29
19	2018	0.00	7.82	6.09	8.50	8.01	7.03
19	2019	0.05	7.28	5.94	7.99	7.36	7.00
19	2020	0.05	6.74	5.72	8.43	7.37	6.98

Firm ID	Year	ROI	Real estate	Government securities	Fixed deposit	shares	Fund size
19	2021	0.07	6.56	5.48	7.08	7.68	6.94
19	2022	0.02	6.90	5.70	5.77	6.39	6.93
20	2018	0.05	6.51	5.64	8.23	7.25	6.86
20	2019	0.09	6.48	5.75	7.21	7.88	6.86
20	2020	0.12	6.50	5.60	8.51	8.25	6.96
20	2021	0.02	6.65	5.84	7.67	6.32	7.04
20	2022	0.02	6.74	5.51	7.01	6.57	7.12
21	2018	0.16	6.74	5.56	7.60	8.76	8.34
21	2019	0.11	6.81	5.62	8.43	8.34	8.42
21	2020	0.00	6.43	6.02	8.52	8.03	8.41
21	2021	-0.02	6.61	6.27	6.49	8.06	8.46
21	2022	0.04	6.64	6.11	7.04	8.04	8.49
22	2018	0.04	6.56	5.96	7.36	8.02	8.34
22	2019	0.04	6.44	5.93	7.57	8.03	8.42
22	2020	0.12	6.32	5.93	8.04	8.08	6.76
22	2021	0.05	6.35	6.07	8.32	8.11	6.79
22	2022	0.07	6.25	5.82	8.42	8.09	8.29