THE RELATIONSHIP BETWEEN ASSET ALLOCATION AND FINANCIAL PERFORMANCE OF PENSION FUNDS IN KENYA

BY

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DECLARATION

I declare that this research project is my original work and it has never been submitted anywhere as a fulfillment of any examination.

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

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DEDICATION

This research project is dedicated to my loving husband Michael Shikwe for his love and commitment through life and to my daughters Andria Shikwe and Alexia Shikwe. In addition, to my parents Mr. Joshua Omondi and Mrs. Petronilla Omondi for all the support they have accorded me in my academic endeavors.

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LIST OF ABBREVIATIONS/ACCRONYMS

ANOVA	Analysis of Variation
CBK	Central Bank of Kenya
CMA	Capital Markets Authority
EMH	Efficient Market Hypothesis
IP	Investment Plan
MPT	Modern Portfolio Theory
NSE	Nairobi Securities Exchange
PMPT	Post Modern Portfolio Theory
RBA	Retirement Benefits Authority
UK	United Kingdom

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ABSTRACT

The relationship between asset allocation and financial performance of pension funds is critical in determining whether asset allocations as selected by Trustees of pension schemes is critical in increasing pensioners' wealth in Kenya. Given that the primary reason for the establishment of pension schemes is to alleviate old age poverty for their members, it is paramount that the pension funds be invested in manner that is consistent with the spirit of increased performance of the fund. Where is this not done proactively then, as might be expected, value of the pension funds will decrease, leaving its members worse off than if they had benefited from their contributions now rather than in the future. However, as the regulator, RBA is concerned with whether trustees have developed an Investment Policy (IP) and adhere to it. There is therefore a gap when it comes to evaluating the effectiveness of those IPs in increasing wealth.

The study adopted a descriptive survey and utilized a sample of 245 schemes that drawn from a population of 1214 schemes in Kenya. The sample included only those schemes that invested in segregated funds, were in existence for at least 7 years, have consistently used fund manager over the period of the study and had a fund value of at least Ksh. 100 Million as at the end of 2011 was used and the data analyzed. The secondary data on pension schemes asset allocation and returns was obtained from Retirement Benefits Authority was analyzed using descriptive statistics. The quantitative obtained data was analyzed in two stages. First, the R-Square (Coefficient of Determination) was calculated in order to explain how much of the variability of fund returns can be caused or explained by asset allocation. The purpose of this stage was to corroborate the findings by Nguthu (2009), who in his study showed that asset allocations only explained 37% of pension fund performance in Kenya. The second stage of the analysis was to determine the relative importance of each asset class to the overall financial performance of the fund. A paired sample T-Test was used for this analysis.

The findings of the study were that asset allocation explains 28% of the variability of fund returns. The remaining 72% is explained by other factors such as asset class timing, security selections and manager selection. Further the study established that of all the

asset classes permitted by the Retirement Benefits Authority (RBA), investments in equities was relatively more important than investments in fixed deposits in determining the overall performance of the pension funds.

The study recommends that the retirement benefits schemes should be less regulated by relaxing the rule for strict adherence to the investment policies. In addition, RBA should revise the policy and allow fund managers should to fully exercise active management of the funds without strictly adhering to the investment guidelines provided by RBA, but only use them as a guide. This is because the asset allocation in Kenya account for only 28% of the fund performance. If this is achieved, fund managers should focus more attention on investments in equities as opposed to fixed deposits. This is supported by the second stage of the analysis which found that investment in cash was relatively more important than investment in fixed deposits in the determination of the overall performance of the pension funds.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The growing importance of pension funds has boosted the need for methodologically sound principles for asset allocation (Swietanowski 1999). This is because pension funds are a major source of retirement income for many people worldwide. Additionally, with the move from funded Defined Benefit schemes to asset backed Defined Contribution schemes, there is an increased need to measure performance of the assets held by the schemes. Trustees (the legal owners of the scheme) are required to develop Investment Plans (IPs), which are basically a strategy on the strategic asset allocation for their schemes. Trustees do this in consultation with investment advisors. The investment advisors provide the technical input and the trustees ratify the IPs. The IPs are given to fund managers for implementation. The fund managers submit quarterly returns to trustees on the performance of the portfolio.

The asset allocation strategies adopted by trustees in Kenya should, in general, comply with the guide provided by the Retirement Benefits Authority (RBA) and entrenched in the Retirement Benefits Act. In addition, the specific IPs need to be proactively managed in order to maximize members' wealth by taking advantage of favourable market conditions while minimizing on wealth erosion arising from adverse economic conditions. Trustees should devote adequate time and resources in ensuring that the asset allocation strategy adopted by pension funds increase performance. This is because of the very fact that pension funds are recorded at their market or fair values. This therefore means that an asset allocation strategy that does not lead to improved performance will be evident from the drop in fund values and as such reflect poorly on the performance of the trustees.

This study looks- closely at the pension industry in Kenya and the relationship between asset allocation and the financial performance of the pension schemes.

1.1.1 Asset Allocation

Reilly and Brown (1997), define asset allocation as the process of deciding how to distribute an investor's wealth among different countries and asset classes for purposes of investment. An asset class is comprised of securities that have similar characteristics, attributes, and risk/return relationships. A broad asset class, such as "bonds," can be divided into smaller asset classes, such as Treasury bonds, corporate bonds, and high-yield bonds. This asset allocation is based on investor's policy statement and it contributes to the performance of an investment. Asset allocation is based on the following decisions: what asset classes to consider for investment, what normal or policy weights to assign to each eligible class, determining the allowable allocation ranges based on policy weights and what specific securities to purchase for the portfolio. However 85% - 95% of the overall investment return is due to the first two decisions, not the selection of individual investments.

There are two types of asset allocation strategies namely: strategic and tactical asset allocation. Strategic asset allocation refers to how portfolio funds will be divided given the portfolio manager's long term forecasts of expected returns, variance and covariance, (Sharpe 1996). It involves the asset managers deciding on the asset classes as well as the specific securities with superior performance in invest in. Tactical asset allocation on the other hand refers to how the funds are to be divided at any particular moment given the investors short-term forecasts. The decision determines what deviations based on current market valuations should be made from the strategic asset allocation projections (Lofthouse 2001). Reilly et al. (2007) further explain that in this strategy, a fund manager attempts to produce active value-added returns solely through allocation decisions. Specifically, instead of trying to pick superior individual securities, tactical asset allocation managers adjust their asset class exposures based on perceived changes in the relative valuations of those classes.

VanHorne (1997) observes that the process of asset allocation allows for the formation of an efficient set and this allows the investment manager to invest in those securities that form the optimal portfolio. Reilly and Brown (1997) also observe that the asset allocation decisions determine to a great extent both the returns and the volatility of the portfolio. Diversifying by combining different asset classes in a portfolio reduces overall portfolio volatility.

1.1.2 Pension Fund Performance

Hinz, et al. (2010) in their book observed that since 1980s, the structure of arrangements to produce retirement income has gradually moved from defined benefit (DB) systems to various types of arrangements in which the provision of pensions is backed by assets, either in individual accounts or in collective schemes. This change has been motivated principally by governments seeking to lessen the fiscal impact of aging populations and to diversify the sources of retirement income. They further suggest that one of the key results is that many pension systems are now in the process of becoming asset backed. This has increasingly linked retirement incomes to the performance of these assets, resulting in participants being exposed to the uncertainties of investment markets to determine the level of benefits that they will ultimately receive.

In general**,** the purpose of measuring portfolio performance is to determine whether portfolio managers add value with respect to passive or naïve investment strategies, typically represented by feasible and well-diversified benchmarks. Under the assumptions of Efficient Market Hypothesis (EMH), it is difficult for managers to add value, so it should not be surprising to find that the different pension schemes have had performance similar to their benchmarks (Walker and Iglesias 2010).

Walker et al. (2010) further explain that in situations where financial markets do not exhibit strong form EMH characteristics, fund managers can add value. The performance

can be measured by assessing the degree to which fund managers have been able to deliver investment returns that are commensurate with the risk level assumed.

1.1.3 Relationship Between Asset Allocation and Pension Fund Performance

Blake, Lehmann and Timmermann (1998) in their research on the importance of the strategic asset allocation decision on pension fund performance in the United Kingdom (UK) demonstrated that 96 percent of the total variation in monthly portfolio returns could be explained by the normal asset class holdings across funds on average. In fact, normal asset class holdings explained more than half of the variability in portfolio returns for the fund with the smallest contribution to return variability from this component.

Brinson, Hood, and Beebower (1986) put the aggregate fraction of total of pension fund performance variation attributable to the strategic asset allocation at 93.6 percent and concluded that "investment policy (that is, the strategic asset allocation) dominates investment strategy (market timing and security selection)", a finding that has lead others, such as Bogle (1994), to conclude that the "94% figure suggests that long-term fund investors might profit by concentrating more on the allocation of their investments between stock and bond funds and less on the question of which particular stock and bond fund to hold." In other words, the practitioner literature has come to view the comparative statistical importance of strategic asset allocation performance as direct evidence of the central economic role of this decision.

1.1.4 Pension Industry in Kenya

Pension (Retirement Benefit) schemes the world over and especially in Kenya have been necessitated by the need to reduce old age poverty. In Kenya, the setting up of pension schemes by employers (Occupational Pension Schemes) is voluntary but once established, all pension schemes are regulated by RBA as stipulated by the Retirement Benefits Act. In such schemes, contributions are made by both the employer (who is the sponsor of the scheme) and the employees (who are the members of the scheme) in

proportions determined by the employer and vary from one employer to another. The contributions are set aside and invested and it is expected, logically, that the level of investment returns generated should outweigh the costs of inflation over the years in order to maintain or improve the employees' standard of living upon retirement. It is statutory for all schemes to be established under an irrevocable trust and managed by appointed trustees. As per the Retirement Benefits Act, trustees are required develop an IP that defines the asset allocation that the trustees plan to implement. RBA has also developed an investment guide that acts to give direction to the trustees while developing the IPs for their schemes. The guide provides a ceiling in each asset class. This has been attached in **Appendix I**.

Market volatility in itself is volatile; markets can be relatively stable at some points in time and explosively volatile at others (Collie, Sylvanus, and Thomas 2011). This implies that traditional (fixed-weight) strategic asset allocation policy can be variable over time. This variability if not proactively managed may lead to erosion of wealth. It is against this background that trustees of pension funds are required by the Retirement Benefit Act to revise their IPs at least every three years but within the limits of the prescribed guide. The purpose of this revision is to ensure that the IP remains dynamic in the face of changing economic and fiscal conditions, to take advantage of favourable conditions and be shielded from adverse conditions so that the returns on their investment is maximized.

Mutuku (2011) reiterated that pension schemes are considered long term investors who may conceptually not be unduly affected by short term market volatility so long as in the long term investment performance is sufficient to enable them meet their liabilities to members. Additionally, whereas standard economic models would suggest that pension schemes would have stable well defined risk tolerance levels some research in behavioural economics suggest that long term risk tolerance may be altered by short term events such as volatility (Sahm 2007). Kenyan capital markets have experienced significant volatility in recent years. For example, during the global financial crisis of 2008/2009 when local markets which were previously viewed as uncorrelated to global markets exhibited high correlation (Mutuku 2010) and during the second half of 2011

when Kenyan markets were impacted by an outstanding sudden depreciation of the exchange rate (World Bank 2011).

1.2 Research Problem

Strategic asset allocation can be seen as a major component of risk management and good governance in pension schemes. Given that the primary reason for the establishment of pension schemes is to alleviate old age poverty for their members, it is paramount that the pension funds be invested in manner that is consistent with the spirit of increased performance of the fund. Where is this not done proactively then, as might be expected, value of the pension funds will decrease, leaving its members worse off than if they had benefited from their contributions now rather than in the future. In fact, volatility may reduce returns over the long run. Simply put, if you lose 50%, you have to gain 100% to break even (Arnott, Bernstein and Hall 1991). Trustees of pension funds should therefore be keen in ensuring that value of pension funds does not reduce unnecessarily.

Given that pension funds are valued at the market or fair values, members who exit the schemes at the time of market lows are placed at a disadvantage. The value of their contributions is far less as it will have been eroded by market volatility. An important means that enables trustees to ensure performance of their funds is maximized is through strategic asset allocation in the form of IPs. One of the key mandates of RBA as spelt out in the Retirement Benefits Act is to regulate the industry and protect the interests of the members and sponsors. To carry this out effectively, IPs have been made mandatory for all schemes by RBA. This means that by law, all pension schemes must first develop the IPs and submit them to RBA. This should be done prior to actual investments of the funds. It is also a statutory requirement for the trustees to review the IPs at least every 3 years and submit the updated IP to RBA. This implies that in as far as the regulations are concerned RBA is only mandated to verify that pension schemes have a documented IP; that the IP has been developed within the guidelines of the investment policy prescribed in the Retirement Benefits Act; and that the actual investments that the schemes carry out are in line with the documented and approved scheme IPs.

A study that was carried out in Kenya by Nguthu (2009) showed that the variation in returns over time for pension schemes explained up to 62.4% by investment policy adopted by the trustees of the scheme. Another study carried out by Kagunda (2011) showed that asset allocation can explain a significant amount of the difference in returns across time and hence a primary determinant of return performance of unit trusts in Kenya. However, there have not been any studies done locally that explain the nature of the relationship between asset allocation and financial performance of pension schemes clearly showing the important asset classes. This study intends to address the research question: Is there a relationship between asset allocation and financial performance of pension funds in Kenya?

1.3 Research Objective

To establish the relationship between asset allocation and financial performance of pension funds in Kenya.

1.4 Value of the Study

The study will help the trustees of pension schemes to know the asset classes that have the greatest influence on the performance of their funds.

The study will inform policy makers (Retirement Benefits Authority) to better manage and regulate the industry in as far as investment in pension funds are concerned.

It will form a basis for further research to the academicians and other interested bodies. The scholars and researchers who would like to debate or carry out more studies in pension funds will find this study useful as a basis of carrying out more studies in Kenya.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The review of literature involves the systematic identification, location and analysis of documents containing information related to the research problem being investigated (Mugenda 1999). A literature review is a "critical analysis of a segment of a published body of knowledge through summary, classification, and comparison of prior research studies, reviews of literature, and theoretical articles" (University of Wisconsin Writing Center). The section of this paper documents relevant literature, theories and studies that have been carried out with the aim of providing useful information in the area of Asset Allocation and Pension Fund Management.

2.2 Theoretical Review

2.2.1 Modern Portfolio Theory

Modern Portfolio Theory (MPT) emphasizes how risk-averse investors can construct portfolios to optimize or maximize expected return based on a given level of risk, emphasizing that risk is an inherent part of a higher reward. According to the theory, it is possible to construct an "efficient frontier" of optimal portfolios offering the maximum possible expected return for a given level of risk. This theory was pioneered by Harry Markowitz in his paper "Portfolio Selection," published in 1952 by the *Journal of finance*. There are four basic steps involved in portfolio construction: Security valuation, asset allocation portfolio optimization and the performance measurement. Harry Markowitz laid the foundations of MPT, the greatest contribution of which is the establishment of a formal risk/return framework for investment decision making. By defining investment risk in quantitative terms, Markowitz gave investors a mathematical approach to asset allocation and portfolio management. MPT is limited by measures of

risk and return that do not always represent the realities of the investment markets. The assumption of an elliptical distribution is a major practical limitation because it is symmetrical. Using the variance (or its square root, the standard deviation) implies that uncertainty about better-than-expected returns is just as disliked as the uncertainty about returns that are worse than expected. Furthermore, using the more upside that downside returns appear more risky than arguably they really are, and the opposite for returns with a predominance of downside returns. The result is that is that using traditional MPT techniques for measuring investment portfolio construction and evaluation frequently distorts investment reality, Sortino and Satchell (2001). Prior to Markowitz's work, investors focused on assessing the risks and rewards of individual securities in constructing their portfolios. Standard investment advice was to identify those securities that offered the best opportunities for gain with the least risk and then construct a portfolio from these.

2.2.2 The Black-Litterman Model

This is a mathematical model for portfolio allocation developed in 1990 at Goldman Sachs by Fischer Black and Robert Litterman, and published in 1992. It seeks to overcome problems that institutional investors have encountered in applying modern portfolio theory in practice. The model starts with the equilibrium assumption that the asset allocation of a representative agent should be proportional to the market values of the available assets, and then modifies that to take into account the 'views' (i.e. the specific opinions about asset returns) of the investor in question to arrive at a bespoke asset allocation (Black and Litterman 1992). It starts with a benchmark portfolio which come from the equilibrium expected returns that would clear the market, assuming a given risk model. The equilibrium expected returns (market-implied views) are the set of expected returns that would produce the market portfolio if led into an optimser with the specified risk model. In other words, these are the returns from reverse optimization assuming the market portfolio is efficient (Drobetz 2001) and (Jones, Lim and Zangari 2007). These “market-implied” views are combined with the investor’s private views using the Bayesian mixed-estimation techniques. The Black Litterman allows the

incorporation of both absolute views (e.g. affixed expected return) and relative views (e.g. one stock or sector will out-perform another). The relative weights placed on an investor's view will reflect the confidence that he has in that view. The posterior distribution of expected asset returns given the recommendation changes are used as the input for portfolio optimization. The blended views will produce balanced portfolios that are tilted towards the investor's private views, with the degree of tilt (for a given level of risk) depending on the investor's relative confidence in his or her expectations. Practical guides to the implementation of the model in general contexts are presented by Drobetz (2001) and Idzorek (2004).

2.2.3 Post-Modern Portfolio Theory

It has long been recognized that investors typically do not view as risky those returns above the minimum they must earn in order to achieve their investment objectives. They believe that risk has to do with the bad outcomes (i.e. returns below a required target), not the good outcomes been noted by the researchers in finance, economics and psychology, including Sharpe (1964). Markowitz suggests that a model based on the semi-variance would be preferable. Recent advances in portfolio and financial theory, coupled with today's increased electronic computing power, have overcome these limitations. The resulting expanded risk/return paradigm is known as Post-Modern Portfolio Theory (PMPT). Thus, MPT becomes nothing more than a special (symmetrical) case of PMPT, (Sortino and Satchell 2001).

2.2.4 Barbell Theory

This is a very simple investment allocation theory where your assets are focused on the extreme ends on the risk spectrum, just like with a barbell, the weight in on two ends. This would be much different from a standard (MPT) which has become the standard method of asset allocation in the past 20 years. In other words, if the two ends of the barbell represent opposite ends of the risk spectrum, then you will allocate all of your money between the very safe end and the very aggressive end. For example, you might

allocate 70% of your money to inflation protected treasury securities and 30% of your money to very aggressive small growth company stocks. The “Floor and Upside” strategy means that, before investing in any kind of risk portfolio, it makes sense to build a “floor” of safe streams for the retirement years. First, define your baseline consumption, and then project what will be needed during your retirement years. This gives us a baseline income needed for retirement. Factor in any other guaranteed income sources you expect, such as social security and/or a pension. Determine how much additional money you will need above those guaranteed sources and use financial assets, to secure a level of income and meets those basic needs, (Walnut Hill Advisors LLC).

2.3 Determinants of Financial Performance

2.3.1 Volatility

Maya Fisher-French (2012) stated that volatility (risk) of an asset class affects the returns of an investment. Low volatility is associated with potential low returns while the vice versa is also true. The researcher advocates the asset allocation for retirement savings should consists of a wide range of assets including cash, bonds, property and equities (shares), whose overall impact will be to have a medium risk portfolio.

2.3.2 Portfolio Weightings

In their study, Block and French (2002), showed that the weighting of individual securities within the portfolio. The weight that a portfolio manager assigns to a given security in a portfolio can make a contribution to return that is just as important as the security selection and investment timing decisions. The researcher found that fund managers tended to hold consistent in constructing and maintaining equal weights in management on retirement benefits funds.

2.3.3 Interest Rates

Flannery and James (1984) in their study on the effect of interest rate changes on the common stock returns of financial institutions found that returns on equities are found to be positively correlated with interest rate changes. This implies that where retirement funds are invested in equities and the money market, both asset classes will lose if interest rates decrease and the vice versa would hold true if there was an increase in interest rates.

2.3.4 Liquidity

This is the ease (and speed) with which an asset can be sold and still fetch a fair price. It is a relationship between the time dimension (how long it will take to dispose) and the price dimension (any discount from fair market price) of an investment asset. Cash and money market instruments such as T-bills and commercial paper are most liquid assets, and real estate is among the most illiquid. Liquid assets tend to have lower rates of returns than the less illiquid assets. Therefore fund managers should strike a balance between liquidity and desired returns by establishing the minimum level of liquid assets they wish to hold in the investment portfolio.

2.3.5 Investment Horizon

This is the planned liquidation date of the investment or substantial part of it. This concept is best supported by the yield curve. A normal yield curve (that is upward sloping) suggests that long term bonds are sold at higher yields than short term bonds. Horizon needs to be considered when investors choose between assets of various maturities, such as bonds, which pay off at specified future dates, considering that this has an impact on the financial performance of specified portfolios.

2.3.6 Regulations

Only professional and institutional investors are constrained by regulations. First and foremost is the prudent investor rule. That is, professional investors who manage other people's money have a fiduciary responsibility to restrict investment to assets that would have been approved by a prudent investor. However, there are specific regulations that apply to various institutional investors. For instance, there are investment guidelines issued by RBA to regulate the way in which trustee of retirement benefit schemes invest retirement funds. This affects financial performance of the funds as an investment manager is restricted from investing, say, 100% in the assets that have the highest returns like equities.

2.3.7 Tax Considerations

Tax consequences are critical to investment decisions. The performance of any investment strategy is measured by how much it yields after taxes. For household and institutional investors who face significant tax rates, tax sheltering and deferral of tax obligations may be pivotal in their investment strategy. However, in the context in retirement benefit industry in Kenya, returns of the funds are not taxed at the corporate level but at an individual level at the time of withdrawal.

2.3.8 Unique Needs

Every investor faces special circumstances. Pension funds will differ in their investment policy, depending on the average age of plan participants. A pension fund with most participants nearing retirement age will have investment policies that are prudent i.e. those that are riskless and have stable but low returns. On the other hand, plans with younger participants will tend to be more aggressive i.e. significant proportions invested in the quoted equities.

2.4 Empirical Review

Brinson, Singer and Beebower (1991) showed that 91.5% of the portfolio returns were attributable exclusively to strategic asset allocation. Elkin (1999) also stated that asset allocation, rather than stock picking or market timing, is by far the most important factor that determines the returns that a portfolio would generate over time. Surz, Stevens and Wimer (1999) devised a simple model to estimate what percentage of investment policy is explained by performance pertaining to the magnitude of the return, not the variability of the return. In this model, the fraction of return explained by policy was devised. They found that asset allocation on average explains about 95% of investment returns.

Dorbetz and Kohler (2002) used the same approach as with Brinson et al. (1991), with German and Swiss balanced mutual fund data to show the correct answer depends on the specific question being asked. They found that more than 80% of the variability in returns of a typical fund over time is explained by asset allocation policy, roughly 60% of the variation among funds is explained by the policy and more than 130% of the return is explained, on average, by the policy return level.

Ibbotson and Kaplan (2000) in their study of US retirement benefit funds concluded that the main determinant of investment performance of a retirement benefits fund is the asset allocation, rather than the stock selection. In their study, they considered 94 balanced mutual funds and the quarterly returns for 10 years and also 58 returns for both the pension fund for 5 years. Policy weights were used to calculate the policy returns for both the pension and the mutual funds. Data was analyzed to determine the returns behavior over time, across funds and what level of returns was explained by the asset allocation. Over time, specific policies explain less than half of the remaining time series variation of funds returns. Asset allocation explained about 40% of the variation of returns among the funds. The method of data analysis used was of regression analysis and ratio analysis.

Brinson, Hood and Beebower (1986) and Brinson et al (1991) in their study of US corporate pension plans concluded that the investment policy explained 93.6% of the

total variation of the actual returns of the funds. In their study, 91 retirement benefit funds were studied over a 10 year period. The funds must have had a discretionary mandate with the investment manager. The asset classes considered were the equities and bond portfolios and cash equivalent portfolios. The fund returns were decomposed to the selection and timing reasons. Regression of the policy returns against the actual returns wad done and the level of correlation determined.

In their studies, Dimson, Marsh and Staunton (2002) and Cornell (1999) found that there is a considerable amount of evidence that in competitive capital markets' additional risk is compensated by additional expected returns (e.g. the equity risk premium); therefore, in both the long and the short run, there is a linear trade-off between risk and return, as in the Capital Asset Pricing Model (Sharpe, 1964), and equities are not relatively more attractive for long term investors. There is empirical evidence that equities are not a good hedge for pension scheme liabilities, and so there is no particular hedging advantage in equities over other forms of investment (Sutcliffe, 2004). In this paper, the UK private pension funds had a deficit of £160 Billion in July 2003, the FTSE All Share index fell to less than half of its initial value. The UK cult of the equity meant that pension scheme losses from this stock market fall were much larger than would otherwise have been the case. These equity losses were an important factor in the pension schemes reporting large deficits, closing to new members and increasing their contribution rates. In this case the asset allocation decision depends of the risk-return preferences of the trustees, in consultation with the employer. A high equity proportion leads to a high risk, high expected return outcome; while a low equity proportion gives a low risk, low expected return outcome. In the absence of taxation, risk sharing and default insurance, the asset allocation is based on the risk-return preferences of the employer and the employees; and so varies between schemes, probably in an unpredictable manner. This conclusion means that, where they apply, the asset allocation should be determined primarily by taxation, risk sharing and default insurance.

Loeper (1999), in his article on Asset Allocation Myth, demonstrated that there is little cross-sectional variation in average ex post returns to strategic asset allocation, market

timing, and security selection. Long-run asset allocations, however modelled, account for the bulk of the time-series variation on returns. His study was based on 306 retirement benefit funds over a period of 8 years. Retirement benefit funds sampled in the study had a single investment manager over the period and monthly pension returns were available for 8 asset classes. Value weighted benchmark returns were computed for each fund. The recorded returns had to be decomposed to both the active and passive returns. From the data analysis which involved regression of the benchmark returns against the actual total returns, it revealed that UK retirement benefit funds earned negative returns from active portfolio management. Also from the analysis, 96% of the variation returns is explained by strategic asset allocations. Cross sectional variation of returns of about 0.32% is explained by the security selections. Beside the asset allocation factor, chief among other qualitative factors influencing the UK pension performance is the legal and economic environments. The pension industry is dominated by five large pension managers who use their reputation to acquire more clients and retain old ones other than changing their fees.

Nguthu (2009) in his research to establish how much asset allocation policy contributed to the returns level retirement benefit fund in Kenya found that the variation in returns over time for pension schemes is explained up to 62.4% by investment policy adopted by the trustees of the scheme. Other factors such as securities selection, timing of investments and managers' selection explained the remainder. The study was done on 40 segregated occupational schemes in Kenya and returns analyzed using regression analysis and descriptive statistics.

Kagunda (2011) in her study to evaluate asset allocation by fund managers and the financial performance of unit trusts established that for unit trusts available to Kenyan investors, asset allocation can explain a significant amount of the difference in returns across time and hence a primary determinant of return performance of these trusts. This was a survey study carried on equity-based funds and schemes that deal with stocks traded in Kenya.

2.5 Summary of Literature Review

Most studies tend to conclude that on average asset allocation strategies explain to a significant extent the performance of funds. Most of these studies have been carried on done on developed markets, for example the study by Ibbotson and Kaplan (2000) and that by Brinson, Hood and Beebower (1986). A local study by Nguthu (2009) explained that asset allocation explained about 62% of the returns of pension funds in Kenya. However, the scope of the study did not include the extent to which the individual asset classes contributed to the overall performance of the fund. This is important as policy makers and trustees in Kenya will be guided on which asset classes contribute the most to fund performance so as perform the selection in the most informed manner.

There has therefore not been any study carried out on pension funds in Kenya to determine the extent to which individual asset classes explain the financial performance of pension funds in Kenya. This justifies the need for the current study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology that was used to carry out the study. Research methodology is the operational framework within which the facts are placed so that their meaning is seen more clearly. The methodology used encompasses the research design selected, the population, sampling, data collection and analysis.

3.2 Research Design

The research design selected was a descriptive survey. Robson (2002) explains that a research design portrays as accurate profile of persons, events or situations, while Trevor (1969) states that surveys are conducted to establish the nature of the existing condition or situation. This research design was chosen as it provides a means to gather, analyze and interpret the relationship between asset allocation and fund performance of pension schemes in Kenya.

3.3 Target Population

The target population was for all the registered pension schemes in Kenya. According to RBA, there were 1,244 registered segregated schemes in Kenya as at 31 December 2011. This constituted the population of the study.

3.4 Sample

The sample size of 245 schemes based on the criteria described below was drawn from the target population for the purposes of the study.

All schemes that have invested solely in guaranteed funds were eliminated from the sample for the purposes of this study. These are retirement benefit schemes that are run by insurance companies and whose minimum rates of returns are pre-determined. They are an ideal investment for funds where trustees or members require capital guarantees and low volatility, whilst still achieving superior competitive returns. These were excluded from the sample as data on asset allocation in investments under guaranteed funds were difficult to obtain due to the fact that it is not a statutory disclosure under the Insurance Act.

For sampling purposes, schemes that were in existence for at least 7 years were used. This period was chosen for the purposes of accessing the data from the RBA database. Prior to 2005, it was not statutory for pension funds to submit information on fund returns to RBA and as such that data cannot be obtained. As a result the scheme data that was used in the study were fund returns from 2005 to date and were obtained from RBA.

Another sampling criterion was to select schemes selected that used one fund manager over the period of the study. Different fund managers adopt different portfolio valuation methods and may have varied methods of determining asset allocation. Using one fund manager ensures consistency in asset allocation, asset valuation methods adopted over the period and more importantly the performance calculation methodology.

The final sampling criterion used was to select a sample of schemes that had fund values of at least Ksh 100 Million as at the end of 2011. Large pension funds were used because they had sufficient returns and investment weights information that were sufficient for the computational needs of the study.

Stratified random sampling was adopted in the study. The schemes selected in the sample were stratified based on their fund as at the end of 2011. The schemes were sorted based on their fund values, from smallest to the largest, and then stratified in ranges of Kshs. 100M. This was done in order to ensure that each scheme had an equal chance of selection.

3.5 Data Collection

Secondary data on quarterly returns and asset allocation were obtained from RBA. The returns obtained were gross of expenses. This was a cheaper and reliable source of data because all fund managers are required to submit this data to RBA for compliance purposes. The data collected was categorized into the individual asset class weighting, the individual asset class returns together with the portfolio return for the period 2005-2011. The portfolio currency was in Kenya shillings for the purposes of calculating returns and the asset class weights. Data on the standard market benchmarks included NSE 20 Share Index and Treasury Bill Rate rates. These benchmarks were obtained from the Nairobi Securities Exchange and Central Bank of Kenya for the purposes of computing the value-weighted asset class benchmarks.

3.6 Data Analysis

Data collected for each of the pension schemes was quantitative in nature. The quantitative data was analyzed in two stages. First, the R-Square (Coefficient of Determination) was calculated in order to explain how much of the variability of fund returns can be caused or explained by asset allocation. The purpose of this stage was to corroborate the findings by Nguthu (2009).

The second stage was to determine the extent to which each asset class contributes to the overall financial performance of the fund by estimating the relative importance of the regressors in the linear regression. For this purpose a linear regression T-Test was applied. In addition to the fund totals returns we needed the policy weights of each fund and the total returns on asset class benchmarks. Given the total returns to the fund and the estimated policy returns we solved for the active returns.

3.6.1 Analytical Model

A multiple regression model was used to predict the extent to which fund returns are explained by asset allocation. A similar model was use by Nguthu (2009) in his study. The model is therefore necessary in order to corroborate the findings in the study by Nguthu. The following multiple regression model was used in the study:

$$Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + \varepsilon$$

Where:

Y is the Fund returns

α is the risk free rate of return

β is the regression coefficient

x_1, is the actual weight of cash in the fund

x_2, is the actual weight of fixed deposit in the fund

x_3, is the actual weight of fixed income in the fund

x_4, is the actual weight of Government security in the fund

x_5, is the actual weight of quoted equities in the fund

x_6, is the actual weight of unquoted equities in the fund

x_7, is the actual weight of offshore investment in the fund

$x_{8,}$ is the actual weight of immovable property in the fund

ε is the error term

Tests of significance were used in the study. These included Bivariate Correlation between the asset classes and portfolio returns, R- square, ANOVA, Coefficient of Determination and Paired Sample T-Test.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 Introduction

In this chapter the findings of the data analysis are presented. The data of the sampled schemes was collected and analyzed in response to the objective of the study. The objective of the study was to establish the relationship between asset allocation and financial performance of pension funds in Kenya. A sample of 245 pension schemes, that had invested in segregated funds, were in existence for at least 7 years, had consistently used one fund manager over the period of the study and had a fund value of at least Ksh. 100 Million as at the end of 2011 was used. The findings presented in this chapter demonstrate the relationship between asset allocation and financial performance of pension funds and illustrates further the extent to which each asset class contributes to the overall financial performance of the fund

4.2 Findings

The objective of the study was to establish the relationship between asset allocation and financial performance of pension funds in Kenya. To achieve this, quantitative data was collected for each of the pension schemes and analyzed in two stages. First, tests of significance and descriptive statistics, such as correlations, the R-Square (Coefficient of Determination), Analysis of Variation (ANOVA) and Coefficients. The purpose of this stage was to corroborate the findings by Nguthu (2009). The second stage was to determine the extent to which each asset class contributes to the overall financial performance of the fund by estimating the relative importance of the regressors in the linear regression by performing Paired Sample T-Tests.

The output and findings of the analysis have been presented in the tables below:

4.2.1 Statistical Significance and Descriptive Statistics

Correlations between the dependent variable (Portfolio Returns) and the independent variables (returns on the various asset classes) was determined. This analysis was to locate the critically important asset classes on which the fund returns depend.

Table 4.1: Bivariate Correlations Output Table

Correlations

		Portfolio Returns	Cash	Fixed Deposit	Fixed Income	GovtSecurity	QuotedEquities	UnquotedEquities	OffshoreInv	ImmovableProperty
PortfolioReturns	Pearson Correlation	1	.180**	-.354**	.104	-.362**	-.180**	-.074	-.244**	.038
	Sig. (2-tailed)		.005	.000	.104	.000	.005	.246	.000	.549
	N	245	245	245	245	245	245	245	245	245

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Research Findings

As shown in table 4.1 above, the correlation index for the relationship between *PortfolioReturns* and *Cash*, is 0.18, which is below 0.4. This result indicates that there is a weak and positive correlation between portfolio returns and the returns of cash.

On the other hand the correlation indices for the relationships between *PortfolioReturns* and *FixedDeposit* and *GovtSecurity* are -0.354 and -0.362 respectively, which are between -0.4 and -0.7. These results indicate that there is moderate and negative correlation between portfolio returns and the returns of fixed deposits and government securities.

The correlation indices for the relationships between *PortfolioReturns* and *QuotedEquities,* and *OffshoreInv* are -0.18 and -0.244 respectively, which are below -0.4. These results indicate that there is a weak and negative correlation between portfolio returns and the returns of quoted equities and offshore investments.

4.2.2 Regression Output: Model Summary

The impact of the variation over time was determined by the regression of the total fund returns against its policy returns and reporting on the R^2 value of each of the fund in the study. A lower R^2 means that the performance of the Fund Returns is not determined by the Investment Policy but by the active tactical fund management approach.

Table 4.2: R-Square

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.527[a]	.277	.253	1.74353

a. Predictors: (Constant), ImmovableProperty, FixedIncome, GovtSecurity, UnquotedEquities, Cash, OffshoreInv, FixedDeposit, QuotedEquities

Source: Research Findings

As shown in table 4.2 above, the value of R-square is 0.277. This statistic explains how much of the variation in the value of the dependent variable (Portfolio Returns) is explained by the regression model. Regressing portfolio returns on asset allocation produces an R-square of 0.277, which indicates that approximately 28% of the variation in portfolio returns can be explained by the allocation in the different asset classes.

4.2.3 Regression Output: Analysis of Variation (ANOVA)

Table 4.3: Analysis of Variation

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	275.461	8	34.433	11.327	.000[b]
	Residual	717.418	236	3.040		
	Total	992.879	244			

a. Dependent Variable: PortfolioReturns

b. Predictors: (Constant), ImmovableProperty, FixedIncome, GovtSecurity, UnquotedEquities, Cash, OffshoreInv, FixedDeposit, QuotedEquities

Source: Research Findings

As shown in table 4.3 above, the linear relationship among the variables in the regression was determined by examining the Analysis of Variance (ANOVA) results obtained from the analysis. The value of the F statistic and its significance level (denoted by the value of "Sig.") was noted. The value of F was found to be statistically significant at a level of less than 0.05, suggesting that there is a linear relationship among the variables. The regression effect is statistically significant indicating that prediction of the dependent variable (portfolio returns) is accomplished better than can be done by chance.

4.2.4 Regression Output: Correlation Coefficient

Table 4.4: Correlation Coefficient

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	10.372	.168		61.707	.000	10.041	10.703
	Cash	.341	.181	.127	1.881	.061	-.016	.699
	FixedDeposit	-.135	.025	-.345	-5.525	.000	-.184	-.087
	FixedIncome	.147	.050	.179	2.936	.004	.048	.246
	GovtSecurity	-.147	.032	-.274	-4.608	.000	-.209	-.084
	QuotedEquities	.101	.070	.103	1.448	.149	-.036	.238
	UnquotedEquities	-.040	.045	-.050	-.890	.374	-.129	.049
	OffshoreInv	-.267	.129	-.123	-2.064	.040	-.522	-.012
	ImmovableProperty	-.001	.044	-.001	-.016	.987	-.088	.086

a. Dependent Variable: PortfolioReturns

Source: Research Findings

As shown in table 4.4 above, the value of the constant can be determined by studying the results of the coefficients. With the exception of Cash, Quoted Equities, Unquoted Equities and Immovable Properties, all of the predictors are statistically significant at 5%. As can be seen by examining the beta weights in the regression results, Fixed Deposits, followed by Government Securities, Fixed Income and lastly Offshore Investments make the relatively larger contributions to the prediction model.

4.2.5 Paired Samples T-Test

To determine the extent to which each asset class contributes to the overall financial performance of the fund the relative importance of the regressors in the linear regression was estimated using a Paired Sample T-Test. Each of the regressors was paired with the fund returns, Y, for the entire period. The results from the analysis are shown on table 4.5 below.

Table 4.5: Output of Paired Samples T-Test Analysis

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PortfolioReturns - Cash	10.03845	2.02116	.12913	9.78410	10.29280	77.741	244	.000
Pair 2	PortfolioReturns - FixedDeposit	7.08249	6.14725	.39273	6.30891	7.85607	18.034	244	.000
Pair 3	PortfolioReturns - FixedIncome	8.00306	3.00441	.19194	7.62498	8.38114	41.695	244	.000
Pair 4	PortfolioReturns - GovtSecurity	9.93600	4.87506	.31146	9.32251	10.54949	31.902	244	.000
Pair 5	PortfolioReturns - QuotedEquities	10.71200	3.12611	.19972	10.31861	11.10539	53.635	244	.000
Pair 6	PortfolioReturns - UnquotedEquities	9.86771	3.33378	.21299	9.44819	10.28724	46.330	244	.000
Pair 7	PortfolioReturns - OffshoreInv	9.99212	2.41656	.15439	9.68802	10.29623	64.721	244	.000
Pair 8	PortfolioReturns - ImmovableProperty	9.82331	3.20354	.20467	9.42017	10.22644	47.997	244	.000

Source: Research Findings

The results shown in the Table 4.5 above represent the second stage of the analysis. The purpose of this stage was to determine the extent to which each asset class contributes to

the overall financial performance of the fund by estimating the relative importance of the regressors in the linear regression. The Sig. (2-Tailed) value is 0.000 for all the pairs analyzed. This value is less than 0.05 i.e. 5% significance level.

4.3 Interpretation of Findings

From the analysis, the asset classes that had the most impact on the performance of the fund were Government Securities and Fixed Deposits. These had a moderate negative correlation with the overall performance of the funds. This finding was in consonance with the ANOVA analysis in Table 4.3 and coefficients analysis in Table 4.4. The Analysis found that there is a linear relationship between Fund Returns and Fixed Deposits, Government Securities, Fixed Income and Offshore Investments. Quoted Equities and Offshore Investments had a similar relationship but the strength of the correlation was found to be weak. Only cash was found to have a positive correlation with fund performance but the relationship was weak. These findings could be as a result of the borrowings made by the schemes, such that while interest rates increased, the benefits of higher returns obtained from investing in interest earning instruments was negated by even higher interest payable on the borrowings. This was found to be especially true for the sample used, where the schemes were had a large fund base and therefore had accessed huge borrowings from financial institutions.

R-Square (Co-efficient of Determination) was determined to establish how much of the variability of fund returns can be caused or explained by asset allocation over time. The R Square and the Adjusted R Square values which are 27.7% and 25.3% respectively show that the weighted combination of the predictor variables explained approximately 28% of the variance of the fund returns. There is a slight loss in the computation of the Adjusted R Square which is due to the relatively large number of the sample compared to the relatively small set of the predictors. The R Square value also shows that the fund managers for the schemes under analysis adopt an active approach to management of the funds. Active management of funds approach is adopted because of the quantitative assets restrictions placed by the Retirement Benefits Authority and also adopted by the

trustees in their investment policies. The pension fund results shows that, because policy explains only 28% of the variation of returns across funds, the remaining 72% is explained by other factors such as asset class timing, security selections and manager selection. The cross sectional R^2 depended on how much the asset allocation policies of funds differed from one another and how much the funds engaged in active management.

This finding is similar to findings by Nguthu (2009) which showed that 37% of the return difference was explained by the policy differences. The drop of about 9% could be attributed to increased awareness of the pensioners on the need for trustees to increase value of their investments. This has increased pressure on the trustees to actively manage pension funds to increase fund value. In addition, Retirement Benefits Authority introduced Trustee Training Programme which is aimed at building capacity of the trustees in order to increase pension fund values. RBA has made it mandatory for each scheme to train 2 trustees in order to achieve this objective.

Prior studies by Brinson (1986) and Ibbotson (2000) in developed markets had shown that the policy explained about 90% of the variation of return over time for pension funds. The difference is as a result of differences in regulation and investment practices. Developed markets are less regulated and there are less investment restrictions on investment asset classes. The converse is true for developing countries like Kenya where there is a heavy regulation and there are quantitative assets restrictions in place.

To determine the extent to which each asset class contributes to the overall financial performance of the fund the relative importance of the regressors in the linear regression was estimated using a Paired Sample T-Test. Each of the regressors was paired with the fund returns, Y, for the entire period. The results of the T-Test found that there is a statistically significant difference between the portfolio returns and all the asset classes considered for the analysis. Since the Paired Samples Statistics reveal that the T value for Pair 1 is highest with 77.7 and lowest in Pair 2 with 18.0, further indicating that returns in cash investments were positively correlated with the fund performance, hence, it can be concluded that investments in cash was relatively more important than investments in

fixed deposits in the determining the overall performance of the pension funds at 5% significant level. This is attributed to that fact that the period of the review.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary, conclusion and recommendations of the study. The study intended to address the research question: Is there a relationship between assert allocation and financial performance of pension funds in Kenya? Secondary quantitative data was collected and analyzed using SPSS in order to satisfy the objectives of the study. Specifically, the following tests were carried out on the data: Correlation, R Square, ANOVA, Coefficients and Paired Sample T-Tests. The findings of the analysis have been documented and have formed the basis for this chapter. This chapter presents a summary of the findings, the conclusion that addresses the research question and the recommendations of the study.

5.2 Summary

The objective of the study was to establish the relationship between asset allocation and financial performance of pension funds in Kenya. All usable data was analyzed and the respective information was discussed in narrative form and the output of the analysis presented in tables. From the findings of the analysis, there is a linear correlation between fund performance and the returns of the various asset classes. This was demonstrated by the results of Correlation, ANOVA and Coefficient analyses. Correlation was found to be strongest between fund performance and returns in fixed deposit and Government securities.

Further test was performed by analyzing the data using R-Square. The R-Square of the data was found to be 27.7% which indicate that differences in the fund returns were explained by approximately 28% of the investment policy. The remaining 72% was

explained by other factors such as assets selection, timing and manager selection. Previous study by Nguthu (2009) found that 37% of the return difference was explained by investment policy differences. The drop of about 9% could be attributed to increased awareness of the pensioners on the need for the trustees to increase value for their investments. This has increased pressure on the trustees to actively manage pension funds to increase the fund value for the benefit of retirees. In addition, Retirement Benefits Authority introduced Trustee Training Programme (Trustee Development Programme, Kenya) which is aimed at building capacity of the trustees in order to increase pension fund values. RBA has made it mandatory for each retirement benefit scheme to enroll at least two of its trustees in the programme in order to achieve this objective.

Finally the study, as indicated by the results of the Paired Samples T-Tests, found out that that investment in cash was relatively more important than investments in fixed deposits in determining the overall performance of the pension funds at 5% significant level. This is because cash was the only asset classes whose returns were positively correlated with returns of the funds in Kenya.

5.3 Conclusion

The objective of the study was to establish the relationship between asset allocation and financial performance of pension funds in Kenya. From the study it was found out that there is a linear correlation between fund performance and the returns of the various asset classes with the strongest correlation being between fund performance and returns in fixed deposit and Government securities. Further, the study also showed that 28% of the variability among fund performance is due to policy differences of the various funds. The balance of about 72% is due to other factors such as the manager's selection, timing of investments and securities selection within as asset class and whether the manager adopts an active style of management of the fund. This shows that the fund managers for the schemes under analysis adopt an active approach to management of the funds.

It is therefore very important for the trustees to note that changing the policy of the fund will not change much the variability of returns but this can be reduced by adopting an active management of the fund. From the analysis it also found that investments in cash was relatively more important that investments in fixed deposits in the determining the overall performance of the pension funds.

5.4 Recommendations for Policy

The study finds that there is need for RBA to relax the quantitative asset restrictions which limits the fund managers' ability to make investment decisions based on the risk-return analysis. Fund managers should be allowed to fully exercise active management of the funds without strictly adhering to the investment guidelines provided by RBA, but only use them as a guide. This is mostly because 72% of fund performance is dependent the manager's selection, timing of investments and securities selection within as asset class and whether the manager adopts an active style of management of the fund and only 28% is dependent on the investment policies.

From the findings of the study that cash is relatively more important than investments that other asset classes in the determination the overall performance of the pension funds, this study therefore also recommends that fund managers should invest a large proportion the pension funds in cash as it has the most relevance in the determination of fund performance. Currently based on the restrictions imposed by RBA (see Appendix 1) fund managers can only invest up to 5% of pension funds on cash. Conversely, fund managers are allowed by RBA to invest up to 30% on fixed deposits yet as per the study fixed deposits are the least significant in the determination of pension fund performance. The investment guidelines provided by RBA were developed in the year 2000 and have not been revised since. Due to the time lapse of 13 years from the time the guidelines were developed and time this study was done, some variables that were used in the development of the guidelines may have changed and the restrictions of the guidelines may no longer represent the needs of the industry. The guidelines should therefore be revised to give more weight to the cash asset class.

Another recommendation of the study is to compel all trustees of retirement benefit schemes to comply with RBA requirement to attend the Trustee Development Programme, Kenya to ensure that they are able to make concrete investment decisions and actively manage the pension funds in order to create value for the pensioners.

5.5 Limitations of the Study

The study was restricted to data of pension funds managed by few managers. This was to ensure consistency in valuation of the investments and calculations of returns. Different managers adopt different valuation and performance calculation methods. Data collection and therefore analysis was restricted to schemes under managers who use similar valuation and performance calculation methods.

The study was restricted to analysis of returns of segregated retirement benefit schemes which account for only 37% of the retirement benefits schemes in Kenya. The balance of 63% invests in guaranteed funds issued by insurance companies whereby it is difficult to determine the asset allocation for each of the guaranteed funds since it is not a statutory disclosure requirement under the Insurance Act.

The study also excluded Individual Pension Plans (IPPs) which cater for persons who do not have access to occupational pension schemes and opt to make personal contributions to the Plans. This is because there is no statutory requirement for the IPPs to submit performance returns to RBA. The same also applies to Umbrella Funds due to the same reason thus the same were also excluded from the study.

5.6 Suggestions for Further Studies

With the standardization of valuation and performance calculation methods and enforcement of declaration and submission of fund returns for all vehicles of retirement

savings, similar studies should be extended to include returns for all the schemes in existence in Kenya.

The analytical model used in the data analysis of this study used actual weights of assets which vary significantly from scheme to scheme. A similar study should be carried out replacing actual weights of assets with a departure/deviation from the weights recommended by RBA to determine if the same conclusions of the study will still hold.

A similar study should be carried out on retirement benefits schemes that have invested in guaranteed funds issued and managed by insurance companies, Individual Pension Plans and Umbrella Funds, to determine if the same conditions hold if they are included in the sample to be studied.

A study should be carried out to assess the impact of the Trustee Development Programme, Kenya on the fund performance in Kenya. Specifically, it should seek to find out if the schemes that have trained their trustees in the programme have higher financial returns than those that are yet to train their trustees.

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APPENDICES

APPENDIX I

INVESTMENT GUIDELINES

INVESTMENT CLASS	MAXIMUM (%)
Cash	5
Fixed deposit	30
Fixed Income (Private)	30
Government Securities	70
Quoted Equity	70
Unquoted Equity	5
Offshore Investments	15
Immovable Property	30
Guaranteed Funds	100
Other Investments	5

Allowance for temporary violations of the maximum:

Max of 30 percent of fund in a particular equity

Limit of 3% investment in the sponsor (10% for quoted equity of sponsor)

Investment in "any other asset" requires prior approval of the Authority following application by the scheme.

Offshore investments limited to bank deposits, government securities, quoted equities, rated corporate bonds and offshore collective investment schemes reflecting these assets.

(Source: Retirement Benefits Act)

APPENDIX II

DATA CAPTURE SHEET

Actual Return				Actual Asset Allocation			Policy Asset Allocation			Policy Benchmarks		
Total Fund	Fixed Income	Quoted Equities	Off Shore	Fixed Income	Quoted Equities	Off Shore	Fixed Income	Quoted Equities	Off Shore	T-Bill	NSE	Off shore

APPENDIX III

STANDARD MARKET BENCHMARKS

	Quarter End	Treasury Bill	NSE 20 Index
1	31-Mar-05	2.14%	6%
2	30-Jun-05	2.17%	27%
3	30-Sep-05	2.17%	-4%
4	31-Dec-05	2.01%	4%
5	31-Mar-06	1.97%	3%
6	30-Jun-06	1.73%	4%
7	30-Sep-06	1.54%	15%
8	31-Dec-06	1.59%	16%
9	31-Mar-07	1.55%	-9%
10	30-Jun-07	1.67%	0%
11	30-Sep-07	1.77%	0%
12	31-Dec-07	1.84%	6%
13	31-Mar-08	6.90%	4%
14	30-Jun-08	7.73%	7%
15	30-Sep-08	7.69%	-19%
16	31-Dec-08	8.59%	-16%
17	31-Mar-09	7.31%	-20%
18	30-Jun-09	7.33%	17%
19	30-Sep-09	7.29%	-9%
20	31-Dec-09	6.82%	8%
21	31-Mar-10	5.98%	25%
22	30-Jun-10	2.98%	7%
23	30-Sep-10	2.04%	7%
24	31-Dec-10	2.28%	-4%
25	31-Mar-11	2.77%	-12%
26	30-Jun-11	8.95%	2%
27	30-Sep-11	11.93%	-17%
28	31-Dec-11	18.30%	-2%

Sources: CMA and CBK