EFFECT OF ASSET ALLOCATION ON THE FINANCIAL PERFORMANCE OF INDIVIDUAL BENEFIT PENSION SCHEMES IN KENYA

By

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DECLARATION

I declare that this dissertations my original work and has not been submitted for an award of a degree in any other university for examination or academic purposes.

Signature: …… **Date: ……**

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This research dissertations been submitted with my approval as University Supervisor

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DEDICATION

I dedicate this research dissertation to my family for their understanding and support during the time of undertaking the work.

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LIST OF ACRONYMS AND ABBREVIATIONS

ASX	Australian security exchange.
BVCA	British venture capital association.
CAPM	Capital Asset Pricing Model
EVCA	European Private Equality and Venture Capital Association
IMF	International monitory fund.
IRA	Individual Retirement Account
IRBS	Individual Retirement Benefits Schemes
MEFMI	Macroeconomic and financial management institute of Eastern and Southern Africa
MPT	Modern Portfolio Theory
NSSF	National Social Security Fund
OECD	Organization for Economic Co-operation and Development
PSPS	Public Service Pension Scheme
RBA	Retirement Benefits Authority

DEFINATION OF TERMS

Adequacy. The ability of pension systems to offer benefits to the population, sufficient to prevent poverty in old age (Raichuria, 2008).

Affordability. Financial capacity of individuals to be pension scheme members (Raichuria, 2008).

Asset allocation. The allocation of an investor's portfolio among a number of major assets.Sharpe (2012)

Informal sector workers. These are low income or self-employed workers working in very small unregistered companies (De sato, et al, 1989)

International bond. Debt securities issued by non US governments and corporations. (Philip et al, 2012).

Pension schemes.Are plans to help save money for later life in retirement (Pension advisory Service, 2017).

Pension systems. The whole spectrum of retirement benefit schemes policy issues regarding strengthening pension plans (OECD ,2016).

Performance. The use of different adopted metrics to give investors the greatest possible understanding of the returns on their investment and bench mark against other class of assets

(BVCA perspectives series, 2015).

Robustness Capacity of pension schemes to withstand major shocks within the economy and continue offering benefits to their members (Raichuria, 2008).

Sustainability. Financial soundness of the pension schemes to continue servicing their members (Raichuria, 2008).

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ABSTRACT

Asset allocation is an investor's portfolio spread among various class of assets aimed at reducing risk and enhancing portfolio performance. This study looked into the performance of individual retirement benefit pension schemes in Kenya, to establish the effects of investment in fixed interest assets on the financial performance of individual retirement benefit schemes, investigate the effects of holding government securities on financial performance of individual retirement benefit schemes, explore the effects of investing on quoted securities on the financial performance of individual retirement benefit pension scheme, and to establish the effects of holding unquoted securities on the financial performance of individual retirement benefit pension schemes, using financial performance as the dependent variable. Descriptive research design was used on a target population of 1400 registered schemes, with 32 schemes categorized as individual retirement benefit schemes (IRBS) identified for the study. From which a sample of 30 schemes was derived applying relevant formula. Using a data collection sheet, secondary data was collected from the RBA. The data was analyzed using STATA from which various tests were conducted.Which revealed investment in fixed interest securities, government securities and investment in unquoted securities increased financial performance in individual benefit pension schemes, while investment in quoted securities decreased financial performance in individual benefit retirement schemes. This led to the conclusion that it's prudent to invest in fixed interest securities, government securities, and unquoted securities while it's impudent to invest in quoted securities. Trustees of individual retirement benefit schemes were advised to invest in assets that generate positive returns to the schemes.Key words; financial performance, portfolio spread, asset mix.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

1.1.1 Asset Allocation

At present, pension funds' exposure to private equity is relatively low. As at December, 2016 private equity accounted for less than 1%, or KSh170m ($1.7m), of the pension industry's KSh814bn ($8bn) portfolio. In contrast, government securities accounted for 30% of pension fund holdings, or KSh242.4bn ($2.4bn) – the largest of any investment category – followed by quoted equities at 23%, immovable property at 19% and guaranteed funds at 12% (RBA, 2016). According to financial year 2015/16 budget speech, pension funds can now be able to invest up to 10% of their portfolio in private equity and venture capital funds licensed by the Capital Markets Authority (CMA)

Asset allocation is generally defined as the allocation of an investor's portfolio among a number of major assets classes (Sharpe, 2012).Once a set of asset classes has been defined, it is important to determine the exposures of each component of an investors overall portfolio movement in their returns.

Any security-specific selection decision is preceded, either implicitly or explicitly, by an asset allocation decision. Asset allocation is therefore the most fundamental investment decisions (Lummer&Riepe, 1994).

A volatile and uncertain environment, and recognition that asset allocation is the main driver of portfolio returns, has resulted in Dynamic Asset Allocation (DAA) being generally adopted across the globe. The global asset allocation trends over the last couple of years appear to be as follows; less listed equities despite increases in emerging market equities, fixed income stable with increases to credit at the expense of government bonds, significantly more alternatives, including core allocations to hedge funds as a diversifier, with infrastructure & core property currently on the rise, a search for uncorrelated, lower volatility returns and

inflation sensitive assets (Ashley, 2014).

Pension funds diversify internationally to a much greater degree in equities than in bonds; a positive relationship exists between a country's relative level of international trade and its level of international diversification within equities. The most dramatic finding is that subtle accounting and regulatory differences between countries have a strong impact on the allocation between equities and bonds (Griffins, 1998).

Regulation has long been seen as the main stumbling block to investment in private equity by African pension funds. However, reforms in some of the continent's key markets are making it possible for local institutional investors to participate in private equity.

Asset-under management in Kenya grew by 13.1%to USD 7.7 billion, between December 2013 and December 2014. Investment in private equity increased by 15.48%. Private equity investment was allowed under the general "other assets" category with a limit of up to 10% until 2015, subject to conformity with the pension fund investment policy and a "no-objection" from the Retirement Benefits Authority (RBA).
There is now a specific private equity allocation of up to 10%, and the requirement to seek RBA approval has also been removed. However the private equity fund manager must be approved by the Capital Markets Authority(CMA), a procedure for which there are no guidelines (Ashiagbor, 2016)

Recent studies have found that asset allocation decisions accounts for 91.5% of the variation between returns on different portfolios. (Ibbotson, 2010) in "the importance of Asset allocation" found that policy mix explained 93.6 percent of the average funds return variation over time. He further found that the passive asset allocation policy determines 100 percent of the return before cost, pertaining to all inclusive market portfolios. Asset allocation relies on the premises that different asset classes offer returns that are not perfectly correlated and diversifying portfolios across asset classes will help optimize risk adjusted returns (Larabee, 2012). Brinson, Hood &Beebower, 1986, in determinants of portfolio performance

asserted that asset allocation is the primary determinant of a portfolio's return variability, with security selection and market timing playing minor roles.

In "Does asset allocation policy explain 40, 90, or 100 percent of performance", Ibbotson and Kaplan (2000) after looking at 10 years of monthly returns of 94 balanced mutual funds and 10 years of quarterly returns of 58 pension funds, found that asset allocation did indeed explain 90% of the period to period variability of a portfolio.

In "importance of Asset allocation and active management" (Ibbotson et al,2010)after studying 10 years of returns for more than 5000 mutual funds in order to measure the relative importance of asset allocation policy versus active portfolio management, through the use of cross sectional regressions decomposing portfolio returns with three components, the market return and the asset allocation policy return in excess of the market return and the return from active management, found that about three quarters of a typical funds variation in time series returns comes from general market movement, with remaining portion split roughly evenly between the specific asset allocation and active management.

The impact of portfolio allocation on the financial performance of pension funds is critical in determining whether asset allocation as selected by fund managers who are mandated by trustee of pension funds to invest the funds, has an impact of either reducing or increasing the overall performance of the fund assets (Kiplagat, 2013).Given that the primary reason for establishing of pension schemes is to alleviate old age poverty for their members, it is paramount that the pension funds be invested in a manner that is consistent with increased performance of the fund (Mwachanya, 2014).

The increased linkage between levels of future pensions and the performance of invested assets leads the participants to situations where their retirement income will be subject to market uncertainties (Miriti, 2014).The typical approaches used to measure the pension fund performance have been so far identical to the one's applied to other investment opportunities (Havac, 2011).They mostly have focused on the aspect of whether the scheme delivered a

reasonable rate of return over an observed period.

Defined Contribution schemes involve no promises about the size of the benefits and no risk to the employer (Tari, 2015). The risk of ending up with low or no benefits falls entirely on the scheme members. It is therefore necessary that determinants of scheme design are carefully considered in establishing and reviewing of defined contribution schemes to deliver adequate benefits to members.

The Mbao pension plan is a voluntary individual account saving plan to which all workers in Kenya may contribute without regard to income or age (Kwena& Turner, 2013). It is designed to provide a program me that is suitable for the unique nature of the informal sector and encourage a savings culture for these workers.

The following are the criteria for access to current pensions system in Kenya, "adequacy", benefits are for all in the population, sufficient to prevent old age poverty and provide reliable means to smooth life without poverty for the vast majority of the population, "affordability", both within the financing capacity of individuals and of society and without undue displacement of the social or economic imperatives or untenable fiscal consequences, "sustainability", which is referred to as financial soundness over an appropriate time horizon under a broad set of reasonable assumptions and "robustness" which is the capacity to withstand major shocks such as significant shifts in economic prospects or demographic trends (Raichura, 2008).

Fixed interest security as an asset class offers the investor guaranteed return because there are few risks and uncertainties. Investment in fixed interest securities gave pension schemes an average return of 14.3 percent in 2016 compared with 11.75 percent market return (Alexander Forbes Financial Services). Holding fixed interest securities have the disadvantage of low returns compared with other investments, and if inflation is high, returns from fixed interest may be insufficient to cover the high expenses due to inflation.

1.1.2. Legal Perspective on Individual Retirement Benefit Schemes in Kenya

According to RBA 2007 Individual Retirement Benefit Schemes (IRBS) are independent legal entities established for the purpose of operating a retirement savings fund. They are open to the general public regardless of employment or income affiliation and have a wide geographic branch network for easy accessibility. With only 32 registered individual retirement benefit schemes as at 2014 IRBS in Kenya can be said to be in their infancy.

Every scheme should have a registered office within the Republic of Kenya and shall establish schemes rules which will comprise the trust deed and rules of the scheme. These provide for the appointment, terms of removal from office, powers and remuneration of the trustees and the powers vested on them of investing the scheme funds (RBA IRBS Regulations, 2016).

The object and functions of the Authority shall be toregulate and supervise the establishment and management of retirement benefit schemes, protect the interest of the members and sponsors of retirement benefits scheme sector. Promote the development of the retirement benefit scheme sector, advice the minister on the national policy to be followed with regard to retirement benefit schemes and implement all government policies relating thereto (Retirement Benefit Act Cap 197, 2014).

All local private pension plans are registered under the RBA which is responsible for monitoring schemes and service providers. (Lukhoba, 2012).Individual pension plan in particular is open to everyone and is operated by independent financial institutions.
According to RBA research report 2007 individual retirement benefit schemes in Kenya are at the development stages. They were initially operated by insurance companies, as many Kenyans perceived life insurance cover to be sufficient provision for old age and they did not see the need for saving separately for retirement. However with advent of reforms and through pension education campaigns, individuals desiring to save for retirement have increased. By 2007, twelve individual retirement benefit schemes had been registered with RBA rising to 32 by the year 2016 (Raichuria, 2008). Once a scheme is registered with RBA, it must constitute a trust and Deed as the legal structures upon which the scheme is governed. The provisions of the trust deed and rules must comply with the Retirement Benefits Act

provisions. The scheme must appoint trustees who are fully liable and accountable to all on matters regarding the scheme.To maintain prosperity in an aging society is to diversify the sources of retirement income (Antolin, 2008).

To encourage the growth of these schemes, the government has to put in place incentive measures that would attract more Kenyans to participate in the individual retirement benefit schemes. Prior to 2003, members of individual retirement benefit schemes were inequitably treated relative to their counter-part in occupational schemes who enjoyed better terms. This discouraged membership to individual schemes. Members of individual schemes did not enjoy the tax deductable contributions, tax exempted investment returns and members did not enjoy tax exempted lumpsum on exit (Raichuria, 2008).

In 2003, the government harmonized the IRBS terms with those of occupational schemes. Upon registration with the Kenya Revenue Authority (KRA) members enjoy a tax exempted lumpsum benefits payout on exit of Kshs.48,000 per year of savings for a maximum of 10 years, tax deductible contributions upto the limit of KShs.20,000 per month and investment return tax exempted (Amondi&Ayugi, 2017).

In 2005 the government established an insurance policy compensation fund for the purposes of insuring policy holders including members of individual retirement benefit scheme in the event of insolvency of insurance schemes. A levy charge of 0.25 per cent of policy premium on both the insurance company and the policy holders is paid to the compensation fund. The compensation payable is up to a maximum of Kshs.100,000 whose object is to instill confidence among Kenyans to save for retirement through insurance based IRBS (RBA, 2004).

1.2 Statement of the Problem

Railways scheme sits on Sh30b as thousands of retirees live in misery, in 2014, about 2,726 Kenya Railways pensioners from different parts of the country had died of various illnesses, chief among which was a fatal disease called 'frustration'. Many others are feared dead, though not documented. Meanwhile, billions of shillings that would have been used to pay

these pensioners, and in effect extend their leases on this earth, have been carted away and hidden into individual accounts, denying the scheme vital cash-flow (Dominic, 2016)

Individual Retirement Benefit Schemes cover the informal sector comprising small scale businesses operating in uncertain environment with irregular income and low revenue streams (Raichura, 2008). The financial performance of pension funds schemes both public and private have in the past come under increased criticism (Gakure&Gakera, 2015).The core purpose of enacting the RBA Act and the Retirement Benefits regulations was to deal with the problems the industry was facing. The pension industry was unprofessionally run. Though members made their contributions as required, schemes remained underfunded and unable to fulfill their promises to retirees. The very guardians of the funds, the trustees openly and consciously misappropriated and embezzled retirement funds under cover of members who lacked knowledge and awareness and if they did, there was no recourse system (RBA, 2004).Low coverage is a common problem for self-employed in OECD Countries, as they belong to the informal sector and their incomes are hard to identify (Choi, 2009).Contribution evasion or under reporting of income by the self-employed is prevalent. This has implications on the self-employed workers as they will have lower levels of pension incomes at retirement (Choi, 2009).

Prior to the introduction of the RBA Act, pension funds were not prudently invested, and where funds were invested the portfolio mix of assets in most cases were disproportionately selected. There was little diversification leading to exposure of the schemes. The trustees did not have the necessary know how of selecting assets. This meant that members were denied the growth of their funds as the schemes did not attain optimal returns on their investments leading to a confidence crisis (RBA, 2007).

Policy makers and regulators can help encourage pension funds adopt investment strategies that take long term perspectives taking into account the individual preferences and work history of participants as well as regulatory elements that can help people to obtain an adequate retirement income (Heinz &Hinz, 2010). Market volatility has the greatest influence on financial performance of assets (Gakure&Gekera, 2015).

Recent studies have estimated that asset allocation decisions accounts for 91.5% of the variation between returns on different portfolios. The importance of asset allocation found that asset allocation explained 93.6 percent of the average funds return variation over time. Applying asset classes, fixed interest security, government security, quoted securities and unquoted securities. This study aims at determining an optimal asset mix, which can derive regular income, enhance revenue streams within the RBA investment guidelines with minimum market volatility. In particular to establish each class of assets contribution to the overall return on the portfolio (Ibbotson, 2010).

1.3 Objective of the Study

1.3.1. General Objectives

The overall objective of the study was to determine the effect of asset allocation on the financial performance of individual retirement benefit schemes.

1.3.2. Specific Objectives

1. To establish the effect of investment in fixed securities on the financial performance of individual retirement benefit schemes in Kenya.

2. To investigate the effect of holding government securities on financial performance of individual retirement benefit schemes in Kenya

3. To explore the effect of investing on quoted securities on the financial performance of individual retirement benefit pension schemes in Kenya

4. To establish the effect of holding unquoted securities on the financial performance of individual retirement benefit pension schemes in Kenya.

1.3.2 Research Hypothesis

1. Ho: Investing in fixed securities affects financial performance of individual retirement benefit schemes in Kenya.
2. H_0: Investing in government securities affects the financial performance of individual retirement benefits pension schemes in Kenya.

3. H_0: Investing in quoted securities affects the financial performance of individual retirement benefit pension scheme in Kenya.

4. H_0: Investing in unquoted securities affects the financial performance of individual retirement benefit pension schemesin Kenya.

1.4 Significance of the study

1.4.1 Trustees of IRBS.

The study would help board of trustees of individual retirement schemes to know the optimal asset mix that they can apply so that they can generate maximum returns for their members.

1.4.2. Institutional investors and Retail brokerage houses

The study would help Institutional investors and Retail brokerage houses who have traditionally provided stock selection advice to clients.

1.4.3. RBA as the regulator.

The study findings would be helpful to the RBA as a regulator as it will contribute towards better policy formulation.

1.4.4. Researchers.

The study findings would contribute to the existing body of knowledge and hence be useful to researchers in the field of pension industry.

1.5Justification of the study

The enactment of the RBA Act, 1997 the comprehensive framework regulations, (2000) and the establishment of the RBA as a regulator was meant to address a myriad of problems facing retirement benefit schemes as heighted by (Raichura, 2008) in "Analytical review of the pension systems in Kenya".

The study was justified to assess the adequacy of these reforms to the enhancement of the performance of the pension schemes. The study was also necessary in checking the adherence of asset allocation strategies applied by the pension schemes to the guideline limits set by the RBA as the regulator.

1.5.2 The scope of the study

This study looked into 32 out of 1400 registered schemes that are categorized as individual retirement benefit schemes (IRBS) and registered by RBA as at 30th June 2016. Out of which 30 were selected using a selected formulae. The pension industry in Kenya has different categories of schemes that deal with retirement benefits which include registered schemes, individual Retirement benefit Schemes, Umbrella Retirement Schemes, Registered administrators, registered fund managers, and registered custodians. The focus of the study was on category of Individual Retirement benefit Schemes.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction.

This chapter reviews literature on past studies undertaken by researchers in the field of pension schemes. It looks at theories of pension schemes, pension investments and the empirical findings of previous researchers.

2.2 Theoretical Review

Pension funds risk management is grounded in the context of modern risk management in the financial industry which takes into account how pension funds operate (Franzen, 2010). Understanding the investment risk management of Defined Benefit (DB) pension funds contributes to the theory of financial decision making in which risk taking is a central element. Ingersoll (1996) uses the utility theory, arbitrage, portfolio formation and efficient markets, some background in micro economics, consumer choices, expected utility maximization, risk aversion and its measurement as a foundation for the theory of financial decision making.

2.2.1 Utility theory

Utility theory was propounded by Jeremy Benthans 1824, who in the principles of morals and legislation outlined the principles of utility as all men being pleasure seekers and pain avoiding. Classical utilitarianism has five characteristics: it is comprehensive and deterministic, it is a naturalist doctrine, it is egoistic but not subjectivist, it is highly consequentialist, and it is based on the idea that utility is quantifiable and that one can make interpersonal comparisons of utility. As for the role of government, Benthans believes that it is to "maximize the greatest happiness of the greatest number (Shapiro, 2003).

Utility functions, give us a way to measure investors preference for wealth and the amount of risk they are willing to undertake in the hope of attaining greater wealth (Norstand, 2011). This

makes it possible to develop a theory of portfolio optimization, making utility theory lie at the heart of modern portfolio theory.

Utility theory focuses on people's preferences or values, and with assumptions about a person's preferences that enable them to be represented in numerically useful ways. Utility theory is concerned with people's choices and decisions. It is concerned with people's preferences and judgments of preferability, worth, value, goodness or any of a number of similar concepts (Fishburn, 1968).

Expected utility theory is a theory of how people should make decisions. It is often used as a descriptive theory that is a theory of how people make decisions or as predictive theory that is a theory that correctly predicts people's choices (Rachael, 2014).

The expected utility theory of an act is the weighted average of the utilities of each of its possible outcomes, where the utility of an outcome measures the extent to which that outcome is preferred or preferable to the alternatives. The utility of each outcome is weighted according to the probability that the act will lead to that outcome (Rachael, 2014).

Utility function measures an investor's relative preference for different levels of total wealth. Utility function has two properties, the non-satiation property and the risk aversion property. The non-satiation property states that utility increases with wealth; more wealth is preferred to less wealth and that the investor is satiated, he never has so much that getting more would not be at least a little bit desirable.

Utility theory is relevant to the study of asset allocation and financial performance because it enables an investor to make decisions on the asset allocation criteria which gives higher returns within minimum risk.

2.2.2 Modern portfolio theory (MPT)

This hypothesis was put forward by Harry Markowitz in 1952 and is key to squeezing the best return with the least amount of risk out of portfolios of different asset classes. It analyses the effects of asset risk, correlation and diversification on expected returns. But much depends upon how you split up your investment pie. For over six decades (MPT) has provided money

managers and sophisticated investors with a tried and true way to select portfolio (Lavine, 2011).

Modern portfolio theory reduces portfolio risk by selecting and balancing assets based on statistical techniques that quantify the amount of diversification by calculating expected returns, standard deviations of individual securities to assess their risks and by calculating the actual coefficients of correlation between assets, such as the single index model, allowing a better choice of assets that have negative or no correlation with other assets in the portfolio.

The main objective of modern portfolio theory is to have an efficient portfolio, which is a portfolio that yields the highest return for a specific risk, or, stated in another way, the lowest risk for a given return. Profits can be maximized by selecting an efficient portfolio that is also an optimal portfolio, which is one that provides the most satisfaction the greatest return for an investor based on his tolerance for risk (Spauldling, 1982)

Daniel 2012 found that investing boils down to one thing, managing risk and reward. The construction of an ideal portfolio depends on the willingness of the investor to assume risk. The inherent uncertainty of the market is one salient feature that allows investors to make money. According to MPT securities should not only be assessed on their own merit, but should be analyzed in terms of how they interact with other elements of a portfolio, or in other words, one should keep in mind how different assets are correlated. Taking these correlations into account allows the investor to construct a portfolio with the same expected return but a lower risk rather a portfolio in which these considerations were ignored.

The importance of MPT in this study is that it implies a rational investor will not invest in a portfolio if a second portfolio exists with a more favorable risk-expected return profile. The Pension Scheme fund managers will, therefore, assemble assets in their portfolio that are likely to record high portfolio return within any given level of risk.

For a well-diversified portfolio, the risk or average deviation from the mean of each stock contributes little to the portfolio risk; instead it is the difference or invariance between

individual stock levels of risks that determines overall portfolio risk. As a result, investors benefit from holding diversified portfolio instead of individual stocks.

Modern portfolio theory is relevant to the study of asset allocation and financial performance because it enables investors to select investment portfolios based on statistical techniques which enhance predictability.

2.2.3 Efficient Market Hypothesis.

The Efficient Market Hypothesis was developed by Eugene Fama in 1960. The basic notion of the theory is that no agent can consistently achieve higher returns than the market return (Stassen, 2009). Most financial models have been built around the efficient market theory, including the Black and Scholes Model and the multiple valuation models; the theory is used in many other fields of economics, including macroeconomic growth models.

A market is said to be "efficient" if prices adjust quickly and, on average, without bias, to new information. As a result, the current prices of securities reflect all available information at any given point in time. Consequently, there is no reason to believe that prices are too high or too low. Security prices adjust before an investor has time to trade on and profit from a new piece of information.

The key reason for the existence of an efficient market is the intense competition among investors to profit from any new information. The ability to identify over- and underpriced stocks is very valuable (it would allow investors to buy some stocks for less than their "true" value and sell others for more than they were worth). Consequently, many people spend a significant amount of time and resources in an effort to detect "mis-priced" stocks. Naturally, as more and more analysts compete against each other in their effort to take advantage of over- and under-valued securities, the likelihood of being able to find and exploit such mis-priced securities becomes smaller and smaller. In equilibrium, only a relatively small number of analysts will be able to profit from the detection of mis-priced securities, mostly by chance.

For the vast majority of investors, the information analysis payoff would likely not outweigh the transaction costs (Clarke,2015)

Stock market efficiency is an essential property of the market (Yavrumyan, 2015). It implies that rational profit-maximizing investors are not able to consistently outperform the market since prices of stocks in the market are fair, that is there are no undervalued stocks in the market. Market efficiency is divided into three forms, weak, semi-strong and strong. Weak form of market efficiency implies that technical analysis using historical data cannot be used to predict future price movements, since all historical information is compounded into stock prices and price changes are random. Semi-strong form of market efficiency states that the fundamental analysis does not create an opportunity to earn abnormal profits, since all publicly available information is reflected in the stock prices. Market efficiency in its strong form, the price of stock reflects all relevant information and knowledge of insider information will not create opportunity to earn abnormal returns.

The intellectual dominance of the efficient market hypothesis has been challenged by economists who stress psychological and behavioral elements of stock price determination and econometrics who argues that stock return are to a considerable extent, predictable but finds that stock markets are more efficient and less predictable, and that however anomalous behavior of stock prices may exist, it does not create a portfolio trading opportunity that enables investors to earn extraordinary risk adjusted returns (Malkiel, 2003).

Efficient markets theory implies that the macro econometric models currently used for policy analysis and forecasting are deficient in a fundamental way (Mishkin, 1978).The essence of the efficient capital market theory is that security prices reflect all available information and investors always pay correct price for securities of the respective risk class (Fama, 1976). Their role is just to decide what risk they are willing to bear in order to achieve the expected yield.

According to Fama 1976, the investor must decide on what is acceptable and preferable. This

concerns the selection of the share of bonds and stock in a portfolio, the decision as to whether they want to aim at growth stocks, which for a certain time bear no dividend payout positively influences the market value of the shares.

The reason why this theory is relevant to this study is because an efficient market provides information needed by investors in decision making; hence investors rely on it in selecting portfolios to invest.

2.3 Empirical Review

2.3.1 Fixed Interest Assets and financial performance

Investment in fixed income gave pension schemes an average return of 14.3 percent in 2016, compared to 7.8 percent in 2015 Alexander Forbes financial services 2009. This was higher than the average interest rate which stood at 11.75 per cent. This indicates that asset allocation within the pension industry enhanced the financial performance of the industry to generate the growth.

Fixed interest securities are an important source of capital stability issued by investment grade entities such as sovereign governments, corporations and financial institutions. The coupon interest payments that accrue to many classes of fixed interest securities constitute an important source of income to investors, coupon income drives, the majority of returns on fixed interest assets and also provide an additional buffer to decline in capital values, should interest rates rise (McIntosh &Marik, 2012). The buffer to the decline in capital value ensures that a portfolio in the fixed interest securities does not decline. Financial performance is enhanced due to a stable capital value.

Fixed interest securities provide the ability for investors to readily liquidate or rebalance their portfolios should need arise. They bear relatively low correlations to returns from typically riskier asset classes therefore there are significant portfolio diversification benefits from the reduction of portfolio return variability by including income in a portfolio alongside other asset classes (McIntosh& Mark, 2012).The flexibility and simplicity in the deeds signed enables many investors to participate leading to increased financial performance.

Fixed interest security is a financial obligation of an entity (the issuer) who promises to pay a specified sum of money at a specified date. Fixed income securities fall into two general categories, debt obligations and preferred stock. The promise of the issuer and the rights of the bond holders are set forth in the indentures (Fabozi, 2011).

Interest rates will likely evolve quite differently from what is expected to day, as the forecasting track record of the futures market is notoriously poor Davis et al (2010).This underscores the benefits of a broadly diversified fixed income portfolio regardless of the future direction of the interest rates. The high uncertainties surrounding the future direction of economic growth, the deficit, inflation and interest rates support greater fixed income diversification (Davis et al, 2010). IRBS should equally diversify in their asset allocation to maintain a stable financial performance.

Fixed interest securities might be suitable as part of a mix with other types of investment in order to adjust the overall amount of risk you are taking. Fixed interest securities are debt that will be paid back to the investor on the set maturity date along with periodic interest payments, usually twice a year (Mccathy, 2017).

International bonds have also represented a significant part of fixed interest investment in the global investable market, with real practical challenges, which entail illiquidity, high operational costs and general navigational difficulties. Philip et al (2012) However with acceleration of globalization, increased access to information, a general liberalization of world credit market, and wide spread growth of debt issuance abroad primarily by governments the net result has been a near doubling of relative weight of non US bond market from approximately 19% in 2000 to approximately 37% in 2011(Philip et al, 2012). IRBS in the US should diversify to these international bonds to gain from increased financial performance

There are many company fixed deposit schemes which have an option to pay interest at monthly or quarterly intervals, and investors find it quite attractive to supplement their regular income from pension etc. The target segment for the company fixed deposit schemes are

senior citizens, house wives, individual in zero or low tax bracket, charitable organizations, religions trusts among others (Saniha, 2015). There are a host of factors that need to be considered before you invest in a company fixed deposit (Dleora's, 2015). These are the company's credit rating, company quality, company's liquidity position, and interest payments. IRBS should desist from investing in companies whose credit rating and liquidity position is declining as it may lead to lose of investment and a decline in financial performance.

Investing in Fixed deposits offers guaranteed return because here are very few risks and uncertainties. Fixed deposits are very flexible and convenient in nature because one can have fixed deposit with maturity of one month or one year with any amount. (Okechukwa, 2017). In addition investing in fixed deposit account earns you a higher interest rate than leaving your money in a savings account as fixed rates are highly negotiable. You can also raise a loan against your fixed deposit one can borrow up to ninety percent of the fixed deposit amount. Investing in Fixed deposits, have the disadvantage of low returns compared to other investments and if inflation is high, returns from fixed deposits may not be sufficient to cover high expenses due to inflation. Fixed deposits are taxed at normal rates of taxation and hence one cannot take tax benefit from the investment unlike infrastructure bonds (Okechukwa, 2017).Infrastracture bonds leads to tax saving an advantage that IRBS should take to increase their returns leading to higher financial performance.

2.3.2 Government Securities and financial performance

According to Charles Schwab investment advisory diversifier of stock market risk. Government securities refer to a set of instruments that are used by the government to borrow money from the public, government borrow money when their income falls short of public spending needs Kenya wall street (2017).

In Kenya government securities include treasury bills and bonds. Currently the government borrows money through treasury bills from three specific periods, 91, 182 and 364 days. On the other hand Treasury bonds are used when the government needs to borrow money for longer periods that exceed one year using treasury bonds, the government borrows for

periods of 2, 5, 10, or 15 years Kenya wall street (2017). The returns from treasury bills can further be invested to increase financial position of pension schemes.

Treasury bonds are a secure, medium to long term investment that typically offer you interest payments after every six months throughout the bonds maturity. The Central Bank of Kenya auctions treasury bonds throughout the year so prospective investors should regularly check for upcoming auction (CBK, 2017). Most Treasury bonds in Kenya offer a fixed rate meaning that the interest rate determined at auction is locked in for the entire life of the bond. This makes treasury bonds a predictable, long term source of income. The National Treasury also occasionally issues tax exempt infrastructure bonds. (CBK, 2017) Individual and corporate bodies are investors in Treasury bonds as nominees of commercial banks or investment banks in Kenya, but if you hold a bank account with a local commercial bank, you can also invest directly through the Central Bank and avoid additional fees. Benefits of investing in bonds and Treasury Bills include, safety of your savings, returns are predicable over time, high interest income and diversifying your investment (Ayugi, 2016). Government securities are a major means of financing government deficits. These securities provide additional investment avenues for investors as they are most secure, highly marketable and liquid, as they can be easily be bought and sold in the secondary market (Chiimi, 1991).

By investing in government securities, one lends certain amount to the government in order to support development investment activity, new job creation etc., while the government will pay at maturity the amount invested and an interest (Galsworthy, 2005). Investing in treasury bills, one will get the interest at maturity, while investing in government bonds one will be paid the interest periodically (quarterly or semi- annually) in the form of coupons (Galsworthy, 2005). These insures the pension scheme that invest in government bonds make stable payment to their members and for reinvestment enhancing their financial performance.

The government securities market is of much interest to central banks because this is where central banks conduct open market operations and extract information on market participant's expectation regarding the future course of the economy, especially future

inflation rates (Hirotaki, 1995). In addition a cheap and liquid government securities market is also important for central banks from the view point of macro-prudential policy.

According to MEFMI 2013 the development of a government securities market has been crucial in aiding the creation of a liquid and efficient domestic debt market that facilitates parastatal, corporate and other issuers. It also signals that a country has matured financially and is less dependent on donor funds. IRBS taking advantage of the liquid and efficient domestic debt market should diversify to government securities market to improve on their financial performance.

The USA has witnessed sharp increase in government securities holding due to weakened demand for business loans as a result of the slow pace of the economy which led to a recession (Rodrigues, 1993) the securities to loan ratio has increased. The sustained rise in the term structure may have made long term treasury securities relatively more attractive than bank lending. While bank risk based capital standards may have raised pressure on banks to increase their capital and shifted assets to lower risk categories (Rodrigues, 1993). The government securities market in India was developed in order to consolidate the large borrowings by the government to fund its expenditures on a regular basis The expenses collectively labeled under the fiscal policy differ every year depending upon the government economic as well as the political agenda, with infrastructure and social development of the country being of major priority (Debjyoti, 2014)

In the G-20 countries recent crisis has led to change in investors demand for government bonds amid increased issuance volumes (Andritzky, 2012). Prior to the crisis a narrowing supply of new government securities was increasingly taken up by non-resident investors usually undercutting bids from domestic accounts,

The widely observed shift in the investor base has promoted policy makers and investors to inquire about the implications of changes in bond ownership, policy makers have recognized the importance of knowing their investors and the role of financial interlinkages between sectors of the economy (Andritzky, 2012).

2.3.3 Quoted Securities and financial performance

Investment in quoted equities offers the following benefits according to Valibhoy 2015 stocks outperform every other investment including property, bonds, cash and others in the long term, many stocks pay income by the way of dividends, dividend are the shareholder portion of the company's unretained earnings, stocks have high liquidity, this refers to ease by which the share can be sold hence converted to cash, lastly shares allow for greater diversification, stock markets, provides investors the opportunity to gain exposure to several sectors and markets. The risks of investing in quoted shares include, shares are described as high risk asset class when compared to other investments. They can result in loss of capital due unexpected events outside of your control or negative developments within the company can significantly affect share prices and the value of your portfolio (Valibhoy, 2015). Risks can however be reduced by diversifying your portfolio.

According to the independent guide to quoted investment companies (2016) quoted investment companies traded on the stock exchange are set up to make investments on behalf of their shareholders. Investment companies let you invest in a spread of different types of investments in an easier and more efficient way than buying a collection of individual investments saving you money in dealing charges and letting you invest in relatively small amounts of money. Buying a spread of different types of investments to diversify is important, all things being equal, it reduces your risk as it lessens the change that one specific problem will have a major impact on your entire wealth. A guide to quoted investment companies, (2016).

CMA has introduced caps to shareholding in the listed Nairobi securities exchange. According to business daily, May 2016 The CMA limited individual shareholding in the listed Nairobi securities exchange (NSE) to five percent in a move that may force selloffs by some investors. Investors whose shareholding is currently above the set limits have a six months period to comply with the regulation. The investor capping was as follows. Individuals five percent, Private companies five percent, Public companies ten percent and stock brokers forty percent.

According to Australia Stock Exchange (ASX), (2010) Shares present risks and benefits, the

chief risks being capital loss, price volatility and no guarantee of dividends. Benefits of shares include the opportunity for capital growth, dividend income, flexibility and control. People invest in the shares market to achieve certain financial goals, most commonly capital growth and dividend income, share prices are determined by the forces of demand and supply. The price you see in the market is the last traded price and it is where the buyer and seller of a share have come together and agreed on a price (ASX, 2010).

There are a wide range of factors that drive investors demand for a share. These include the company's profitability, how its competitors are performing, any legislation that the government may introduce and how overseas demand for its products may evolve (ASX, 2010).

Listed shares are listed or (registered) on a stock exchange, which can be a recognized stock exchange or any other form of organized secondary market. Listed shares are also referred to as quoted shares. The existence of quoted prices for shares listed on an exchange means that current market prices are already available (IMF, 2015).

A share may be listed, but traded only very infrequently or not at all (e g a case of closely held corporation). Stock exchanges are often divided into market segments (e g an official market, a second regulated market and a third market) with shares in some segments (usually third markets) traded less frequently. Consequently prices may not be available on daily basis but only at certain points in time (IMF, 2015).

2.3.4 Unquoted Securities and financial performance

Unquoted equities are shares which are not traded on the stock exchange or other organized financial markets (OECD, 2001). Private equity investing may be defined as investing in securities through a negotiated process. The majority of private equity investments are in unquoted companies. The fundamental reason for investing in private equity is to improve on the risk and reward. Characteristics of an investment portfolio - Investing in private equity offers the investor the opportunity to generate higher absolute returns while improving portfolio diversification (EVCA, 2012). For IBPS to enhance their financial performance they

should diversify portfolios to the unquoted stock for due to the negotiated processes loses may be minimal.

In valuing the shares of unquoted company, the shareholders interest in the company is the ownership of a bundle of rights, including the rights to receive dividends, to vote and to receive surplus assets on winding up (Alice,2004). The common methods for valuation are dividend yield to price earnings ratio, and net asset basis. The choice of the appropriate method will depend on the type and size of the shareholding and nature of business.

Unquoted shares are often subject to restrictions on transfer. In some cases, the board of directors or the directors are empowered to refuse to register transfers as they deem fit. Alice (2004) asserts that there is no open market price for unquoted shares. The value of an unquoted shareholding is affected by many factors including, the nature and size of the shareholding passing the manner in which the remaining shareholdings are held, the profitability and future prospects of the business, the dividend policy and cover, the strength of asset backing of the company and prospect of capital gains. Due to restricted transfer IRBS they find it unsuitable to invest in unquoted securities as it may be difficult to convert their security into cash (liquid).

Investing in unquoted securities consists of investors and funds that invest directly into unquoted firms and is seen as being for wealthier, more sophisticated investors because of its risky nature and the difficulty of getting money out. But the right investment can yield spectacular returns (Glasgow, 2012).

To put money into a particular unquoted company one can use a share matching facility or the regular share auctions, but you can only trade the relatively few member companies on offer, which tend to be larger private companies. You may also be able to buy shares on an initial public offering (IPO). Or new issue (Glasgow, 2012).

For startups and very young companies, you could become a business angel. These are private investors or syndicates of investors who plough not only funds but also in many cases

their own expertise, contacts and management support into the chosen enterprise.

There are risks of investing in unquoted securities which according to Growth funders include the following, loss of capital, illiquidity, uncertainty of receiving dividends, dilution of capital as new members buy shares in unquoted company and hence it is the best interest of the investor to diversify their investment portfolio by investing in smaller amounts in different companies in a range of sectors.

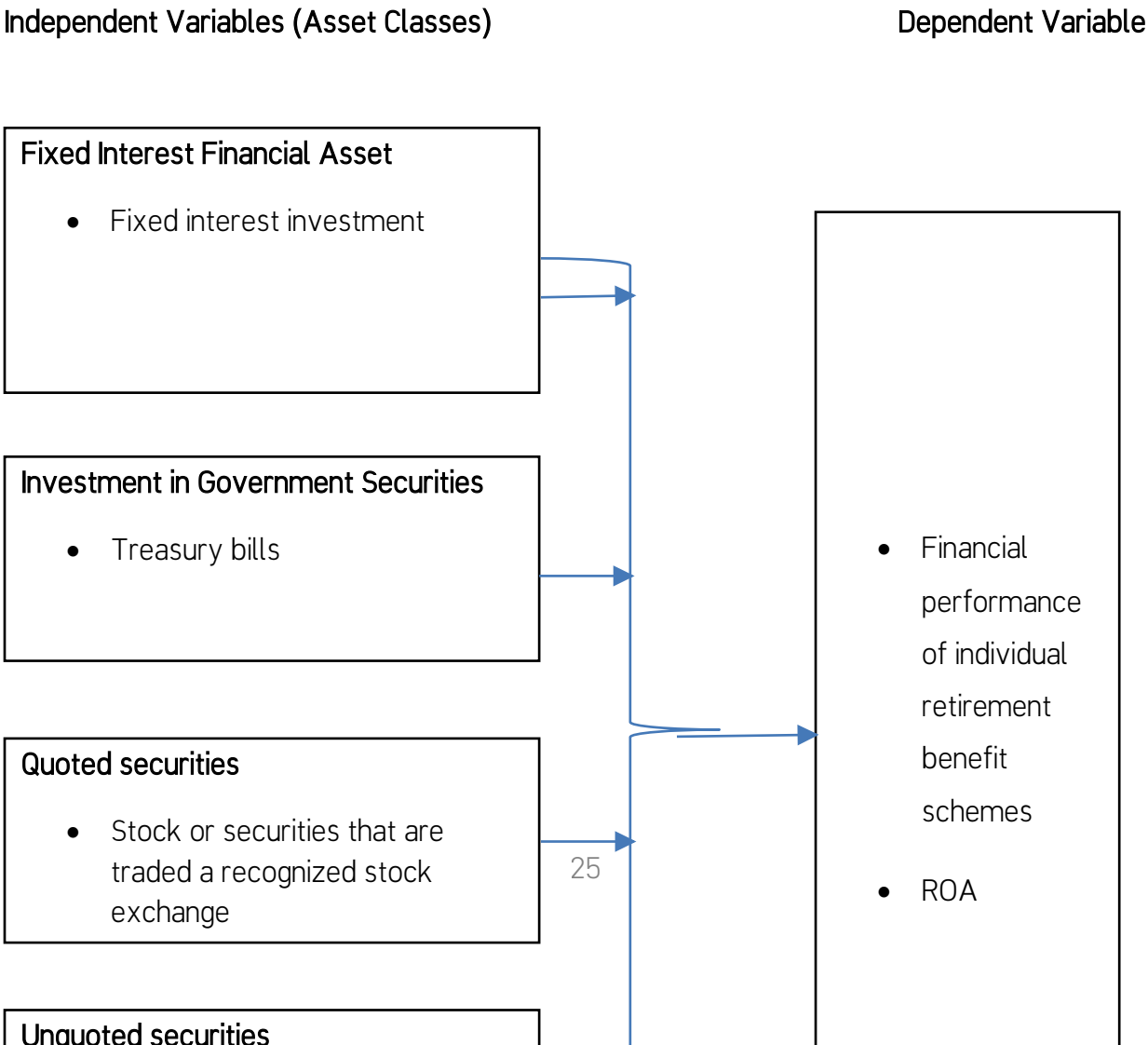
2.4. Research Gaps

The analytical review of pension systems in Kenya by Raichura 2008, brought forward a myriad of problems facing the pension industry in Kenya, leading to enactment of many reforms. No known study has been carried out to establish the effectiveness of these reforms on the performance of the pension schemes in as far as enhancement of returns to the members is concerned. Financial performance of pension schemes relative to asset allocation classes has also not been done.

Most studies have concentrated on market volatility, risk management and good governance, Gakure&Gekera (2015). Increased linkage between levels of pension and performance of investments leads the participants to situations where their retirement income will be subject to the market uncertainties (Miriti, 2014).

A study on asset allocation strategies will reveal how individual retirement benefit schemes are exposed to the market uncertainties and how adherence to the set guidelines affects the returns to their members. And guide the scheme manager on which strategy of asset allocation to apply so that they can earn more returns.

2.5. Conceptual Framework



Source-The Author 2017

2.6 Operationalization

The variables will be operationalized as follows:

	VARIABLE	MEASURE	TOOL
Dependent variable	Financial Performance	ROA	Net income / total Assets
Independent variables	Fixed interest Financial Asset	Fixed interest Financial Asset / Total Assets	$r = \frac{V_f - V_i}{V_i}$
	Government Securities	Government Securities / Total Assets	$r = \frac{V_f - V_i}{V_i}$
	Quoted Securities	Quoted Securities	$r = \frac{V_f - V_i}{V_i}$

		Total Assets	V_i
	Unquoted securities	Unquoted securities Total Asset	$r = \frac{V_f - V_i}{V_i}$

where:

V_f= final value, including dividends and interest

V_i= initial value

2.7 Summary of Literature Review

The literature review brought to light the theoretical review where various theories, including utility theory, modern portfolio theory and efficient market hypothesis were discussed. An empirical review was also undertaken where each of the variable objectives were discussed.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the process and the methodology that was applied in undertaking the study. It describes the research design, population, and sample, sampling technique and the data collection procedure and tools of analysis.

3.2 Research design

A research design is a plan that describes how, when, and where data is collected and analysed(Parohoo, 1997).Polit et al, (2001) define research design as the researchers overall for answering the research question or testing the research hypothesis.

Descriptive research was used to show causal relationship between variables through multivariate analysis using tests such as Anova analysis, regression coefficients analysis, correlation analysis, hypothesis tests, multicollinearity analysis, normality test and heteroskedasticity test.

3.3 Target Population

The target population is the entire population, or group that a researcher is interested in researching and analyzing(Cox,2010). Target population consists of the entire totality of the items under study (Kothari, 2004). The population of the study shall comprise the 1400 schemes registered by the RBA asat June, 2016.Data for a five year period from 2012-2016 was collected and analyzed.This period is chosen as it is the period during which majority of these schemes were registered.

3.4 Sample Size

Kombo and Tromp (2006) defined a sample, as a part of the large population that has been procedurally selected to represent it. This study looked into 32 out of1400 registered schemes that are categorized as individual retirement benefit schemes and registered by RBA as at 30th June 2016. The sample size has been derived from the following formula as per Mugenda and Mugenda (2003)

$n= Z^2 PQ/e^2$

Where n is the sample size

Z= The table value of the normal curve at the desired level of confidence of 95%

P= is the estimated proportion of an attribute that is present in the population.

Q= 1-P

P=32/1400 x 100=0.02

Q= 1- P= 1 – 0.02= 0.98.

$n = 1.96^2 \times 0.02 \times 0.98/0.05^2 = 30.118 = 30$

3.5 Data Collection Procedure

Secondary data was collected on the 30 individual retirement benefit schemes on the performance of the variables of fixed interest, government securities, quoted securities and unquoted securities relative to the pension industry, whose information was obtained from the RBA.

3.6.1 Data Analysis

The characteristics of the data was explained using descriptive statistics. The data was checked for validity and consistence. Multicolinearitywas conducted to determine the level of perfect linear combination of variable using variance inflation factor (VIF). Regression analysis

and correlation coefficient tests was conducted. Linear multiple regression model was used on the panel data to determine the effects of asset allocation on the overall return on assets. Where the relationships was explained by the parameter coefficients between the dependent variables and the independent variables.

3.6.2 Tests of Significance

Tests of significance including bivariate correlation between asset classes returns and portfolio returns, Anova and coefficient of determination was conducted in the study.T-test was conducted from sample data which was compared with what is expected under the null hypothesis. F-Test was conducted to establish the variance between the means of the various asset classes.

3.6.3 Diagnostic tests

A Hausman test was conducted to decide which to apply between fixed and random effects. The null hypothesis was that the random effects was preferred. Where the prob>chi2 was greater than 0.05, while the fixed effect was preferred when the prob<chi2. The decision rule was that the random effect was preferred because the prpb>chi2 value of 3.178 was greater than 0.05.

A Breusch and pagan lagrange multiplier test was conducted decide whether to apply randon effect or the OLS regression, with the null hypothesis that variances across the variables were zero. That is if the prob>chi2 value was less 0.05 the null hypothesis is rejected, and if the prob<chi2 is greater than 0.05 the null hypothesis was not to be rejected. The decision rule was since the prob>chi2 value of 0.0102 was less than 0.05 the null hypothesis was rejected and we concluded that the random effect was preferred.

A test for multicollinearity was conducted see whether there was a linear relationship among the predictor variables using the variable inflation factor (VIF) which quantifies how much the variance is inflated. The decision rule is where the observed value is less than 10, we conclude that there is no multicollinearity problem, where the value is more than 10 we

conclude there is a multicollinearity problem. Since the calculated value is 1.72 which is less than 10 we conclude there is no multicollinearity problem.

A Breusch-pagan/Cook weisbeg test for heteroscedaticity was conducted to check whether variances from the fitted line were constant that is there is homoscedaticity. The decision rule was where the p-value was more than 0.05 at 95% level of significance we conclude that there is no problem of heteroscedaticity, where the p-value is less than 0.05 at 95% level of significance we conclude that there is a heteroscedaticity problem. Since the p-value of 0.8755 was more than 0.05 we conclude that there wasn't a heteroscedaticity problem.

3.7 Model Specifications

The model specifications was as follows:-

$yit = x'it\beta + [\beta 1xi + \beta 2\ x_2 + \beta 3x3 + \beta 4x4 + ci] + \varepsilon it.$

Where; yit is the financial performance as measured by ROA (Return on Asset)

ci- is the constant term

β - is the regression co-efficient

β_1 - change in financial performance arising from one unit change in fixed interest securities holding other independent variables constant.

β_2 - change in financial performance arising from one unit change in government securities holding other independent variables constant.

β_3 - change in financial performance arising from one unit change in quoted securities holding other independent variables constant.

β_4 - change in financial performance arising from one unit change in unquoted securities holding other independent variables constant.

X_1 - fixed interest securities.

X_2 - government securities.

X_3 - quoted securities.

X_4 - unquoted securities.

εit. - is the error term.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND FINDINGS

4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research objective and research methodology. The general objective of the study was to establish the effect of asset allocation on the financial performance of individual benefit pension schemes a case of registered schemes in Kenya. Secondary data was collected from 30 individual retirement benefit schemes over a 5-year period from year 2012 to 2016 and analyzed using STATA and presented in the table below. Descriptive and inferential statistics have been used to discuss the findings of the study.

4.2 Descriptive Statistics

In section 4.2 the study presents the research findings on the descriptive statistic in the data collected.

Table 4.1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Fixed Interest Securities	150	0	1,402,474,062	96,056,679	253,023,726
Government Securities	150	0	6,967,407,546	158,512,407	852,770,981
Quoted Securities	150	0	971,475,805	29,604,252	146,455,228
Unquoted Securities	150	0	2,909,924	145,188	518,183
Other Investments	150	0	570,862,396	30,121,167	78,769,115
Total Assets	150	0	9,399,148,580	314,342,688	1,225,670,987
Net Income	150	-119,472	914,943,614	29,215,192	130,320,322
Return on Assets	150	-0.090	0.229	0.055	0.043

From the descriptive statistics, the study found that there was mean of Ksh 96,056,679 on fixed interest securities,implying that fixed interest securities comprised 31% of total assets, contributing 31% to income generation and hence to financial performance of IRBSKsh

158,512,407 on government securities, implying that government securities comprised of 50% of total assets,thus contributing to half of the income generated and the same to the financial performance of IRBS.The quoted securities had a mean of Ksh 29,604,252,implying that quoted securities comprised 9% of total assets, contributing the same to income formation and hence to financial performance of IRBS.Unquoted securities had a mean of Ksh.145,188, meaning that unquoted securities comprised of 0.05% of total assets hence contributing an insignificant 0 05% to the financial performance of IRBS, while other investments had a mean of Ksh 30,121,167. Finally, total assets had a mean of Ksh 314,342,688, net income had a mean of Ksh 29,215,192 and return on assets had 0.055.

4.3 Inferential Statistics

4.3.1 Model summary and Anova

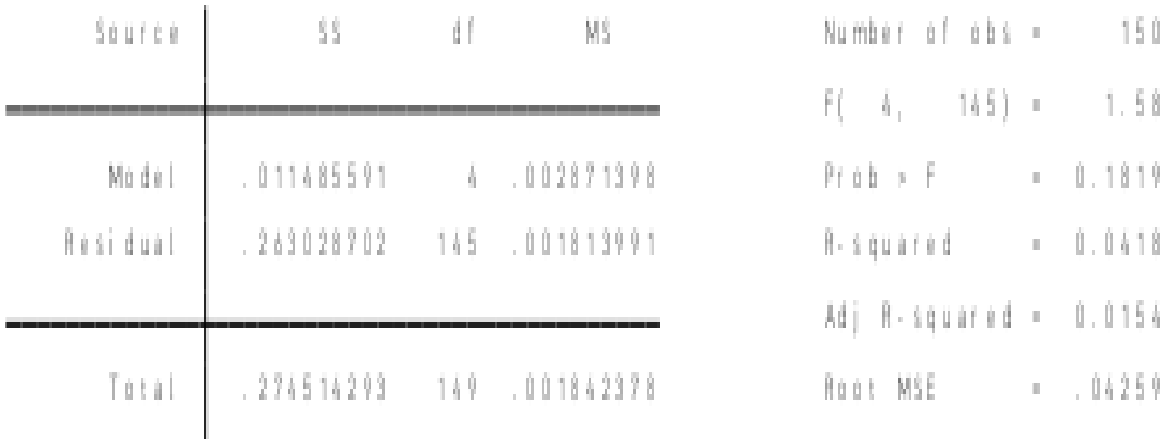


Figure 4.1 Model summary and Anova

From the ANOVA statistics, the study established that the regression model had a significance level of 0.1819 which is an indication that there was no significant relationship between the variables. The calculated F value was less than the critical value (1.58<2.434) an indication that there was no significant relationship between fixed interest securities, government securities, quoted securities, unquoted securities and the dependent variables which was performance as measured by the return on assets. The p value which was greater than 0.05 indicated that the combined relationship between the selected factors on the performance of

individual benefit pension schemes was not significant (Critical value = 2.46).

From the findings, the value of adjusted R squared was 0.0154 an indication that there was variation of 0.0154 on performance of individual benefit pension schemes due to changes in fixed interest securities, government securities, quoted securities and unquoted securities at 95% confidence interval. This shows that only 1.54% of the changes on the performance of individual benefit pension schemes could be accounted for by changes in fixed interest securities, government securities, quoted securities and unquoted securities. This shows that 98.46% of the change in performance of individual benefit pension schemes were accounted for by other factors other than fixed interest securities, government securities, quoted securities and unquoted securities.

4.3.2 Regression coefficients

Y	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
X1	.0020945	.0011357	1.84	0.067	-.0001501	.0043391
X2	.0010808	.0007441	1.45	0.148	-.0003898	.0025515
X3	-.0004665	.0008453	-0.55	0.582	-.0021371	.0012041
X4	.0004657	.000761	0.61	0.542	-.0010384	.0019699
_cons	.0150007	.0187919	0.80	0.426	-.0221407	.0521421

Figure 4.2: Regression coefficients and P values

Assuming a linear relationship between the independent and the dependent variable and guided by OLS estimation methods, the relationship between the independent and dependent variables as presented by the regression model was tested. The multiple regression equation was;

$Y = \beta_0 + \beta 1X_1 + \beta 2X_2 + \beta 3X_3 + \beta 4X_4 + \varepsilon$

Where Y is performance of individual benefit pension schemes, X_1= fixed interest securities, X_2= government securities, X_3= quoted securities and X_4= unquoted securities. From the data in the above table the established regression equation was;

$Y = .015 + 0.0021X_1 + 0.0011X_2 - 0.0005X_3 + 0.0005X_4$

From the above regression equation, it was revealed that holding fixed interest securities, government securities, quoted securities and unquoted securities to a constant zero, financial sustainability would be at 0.015. A unit increase in fixed interest securities would lead to increase in performance of individual benefit pension schemes by 0.0021.The fixed interest securities constitute an important source of income to investors, coupon income drives, the majority of returns on fixed interest assets and also provide an additional buffer to decline in capital values, should interest rates rise (McIntosh &Marik, 2012).

A unit increase in government securities would lead to increase in performance of individual benefit pension schemes by 0.0011. These securities provide additional investment avenues for investors as they are most secure, highly marketable and liquid, as they can be easily be bought and sold in the secondary market (Chiimi, 2011). Finally, a unit increase in quoted securities would lead to decrease in performance of individual benefit pension schemes by 0.0005. Quoted securities can significantly affect share prices and the value of your portfolio (Valibhoy, 2015). A unit increase in unquoted securities would lead to increase in performance of individual benefit pension schemes by 0.0005.Investing in private equity offers the investor the opportunity to generate higher absolute returns while improving portfolio diversification (EVCA, 2012). All the factors were not statistically significant as their p values were < 0.05.

4.3.3 Correlation Analysis

	Y	X1	X2	X3	X4
Y	1.0000				
X1	0.0144	1.0000			
X2	0.1585	0.1150	1.0000		
X3	0.1098	0.1377	0.7045	1.0000	
X4	0.1046	-0.3027	0.2236	0.1595	1.0000

Figure 4.3: Correlation Analysis

On the correlation of the study variables, the researcher conducted a Spearman correlation analysis. From the findings on the correlation analysis between performance of individual benefit pension schemes and various variables, the study found that there was a weak correlation coefficient between fixed interest securities as shown by correlation factor of 0.0144. The study also found a positive weak correlation between performance of individual benefit pension schemes and government securities as shown by correlation coefficient of 0.1585. The study found a positive weak correlation between performance of individual benefit pension schemes and quoted securities as shown by correlation coefficient of 0.1098. Finally, it was established that there was a weak positive correlation between performance of individual benefit pension schemes and unquoted securities as shown by correlation coefficient of 0.1046.

4.4 Diagnostic tests for regression

4.4.1 Hausman Test

```
. hausman fixed random

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |    fixed        random       Difference          S.E.
-------------+------------------------------------------------------------
          X1 |   .0014981    .0020005      -.0005024        .0011812
          X2 |  -.0009897    .0009219      -.0019117        .0017254
          X3 |  -.0012513   -.0006014      -.0006499        .0012197
          X4 |   .0039354    .0008063       .0031291        .0022211
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =          4.71
                Prob>chi2 =         0.3178
```

Figure 4.4: Testing for Fixed or Random Effects

To decide between fixed or random effects a Hausman test was conducted where the null

hypothesis was that the preferred model is random effects, that is if the Prob>chi2 value was greater than 0.05. The alternative is the fixed effects, if the Prob>chi2 value is less than 0.05. It basically tested whether the unique errors (ui) are correlated with the regressors. Since the Prob>chi2 value (0.3178) was greater than 0.05 a random effect was preferred and conducted. The findings were in agreement with Green (2008) that the null hypothesis for the test is that the random effect model is preferred to fixed effect model and is to be rejected if the p value is less than 5% to imply that fixed model is preferred.

4.4.2 Breusch and Pagan Lagrangian Multiplier Test

```
Breusch and Pagan Lagrangian multiplier test for random effects

        Y[number,t] = Xb + u[number] + e[number,t]

        Estimated results:
                         |       Var       sd = sqrt(Var)
                ---------+-----------------------------
                       Y |   .0018424        .0429229
                       e |   .0015262        .0390669
                       u |   .0003148        .0177382

        Test:    Var(u) = 0
                                 chibar2(01) =      5.38
                              Prob > chibar2 =    0.0102
```

Figure 4.5: Testing for Random Effect

The Breusch-Pagan Lagrange multiplier (LM) was conducted to help decide between a random effects regression and a simple OLS regression. The null hypothesis in the LM test was that variances across entities were zero. This is, no significant difference across units (i.e. no panel effect) since the Prob>chi2 value (0.0102) was less than 0.05 we rejected the null and concluded that random effect was appropriate. The rationale behind random effects model is that, unlike the fixed effects model, the variation across entities is assumed to be random and uncorrelated with the predictor or independent variables included in the model. Random effects assume that the entity's error term is not correlated with the predictors which allows for time-invariant variables to play a role as explanatory variables. This is an assurance that the regression coefficients were stable hence valid significance tests as put by Cooper and Schindler (2006).

4.4.3Testing for Normality

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
Y	150	0.94754	6.104	4.101	0.00002
X1	150	0.90342	11.238	5.485	0.00000
X2	150	0.82540	20.315	6.827	0.00000
X3	150	0.86719	15.453	6.207	0.00000
X4	150	0.84424	18.124	6.568	0.00000

Figure 4.6: Testing for Normality

One of the assumptions of the classical linear regression model is that the error term must normally be distributed with zero mean and a constant variance denoted as μ (0, σ 2). The error term is used to capture all other factors which affect dependent variable but are not considered in the model. However, it is thought that the omitted factors have a small impact and at best random. For OLS to be applied, the error term must be normal (Gujarati, 2004). Non-normally distributed variables can distort relationships and significance tests. In this study normal distribution of data was tested by use of Shapiro Wilk Test. The Shapiro–Wilk test is a test of normality in frequentist statistics.

The null-hypothesis of this test was that the population is normally distributed. Thus, if the p-value is less than the chosen alpha level, then the null hypothesis is rejected meaning there is evidence that the data tested is not from a normally distributed population. On the contrary, if the p-value is greater than the chosen alpha level, then the null hypothesis that the data came from a normally distributed population cannot be rejected. The findings show that performance of individual benefit pension schemes had a (p-value=0.00002), fixed interest securities had (p-value=0), government securities (p-value=0), quoted securities (p-value=0) while unquoted securities had (p-value=0). This is an indication that all the variables had a p value of < 0.05 and hence we reject the null hypothesis and conclude that the data tested was not from a normally distributed population.

4.4.4 Test for Multicollinearity

. vif

Variable	VIF	1/VIF
X2	2.38	0.420329
X3	2.32	0.431817
X4	1.13	0.884733
X1	1.06	0.939568
Mean VIF	1.72	

Figure 4.7: Test for Multicollinearity

When there is a perfect linear relationship among the predictors, the estimates for a regression model cannot be uniquely computed. The term collinearity implies that two variables are near perfect linear combinations of one another. When more than two variables are involved it is often called multicollinearity, although the two terms are often used interchangeably. Multicollinearity was tested for the data used in the research. This was done using the variance inflation factor (VIF) which quantifies how much the variance is inflated. The findings indicate that the VIF values were close to 2 (1.72) indicating that the variance of the variables was inflated at a very low level. The analysis exhibits signs of multicollinearity though low levels. The results indicate that the overall VIF is 1.72 which is less than 10 implying that the study data did not exhibit multicollinearity problem as recommended by Field (2009). Thus, all the variables based on the VIF indicators have no severe multicollinearity problem.

4.4.5 Test for Heteroscedasticity

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of Y

         chi2(1)      =     0.02
         Prob > chi2  =   0.8755
```

Figure 4.8:Heteroscedasticity

The presence of heteroscedasticity doesn't have an impact on the biasedness and linearity of the regression coefficient. Heteroscedasticity (the violation of homoscedasticity) is present when the size of the error term differs across values of an independent variable. Heteroscedasticity only affects the best property of OLS, which renders the conclusion made when testing hypothesis invalid. Breusch-Pagan test was conducted to check the presence of heteroscedasticity as per (Gujarati, 2004).

The impact of violating the assumption of homoscedasticity is a matter of degree, increasing as heteroscedasticity increases. From the findings, the chi-square value was low, indicating there was no heteroscedasticity.The p value of 0.8755 was more than 0.05 at 95% significant level implying that there was no heteroscedasticity.

CHAPTER FIVE

SUMMARY OF RESEARCH FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents and discusses the key data findings from the study, draws conclusion from the findings, and makes appropriate recommendations. The conclusions and recommendations drawn focused on addressing the major objective of the study. The researcher intended to determine the effect of asset allocation on the financial performance of individual benefit pension schemes a case of registered schemes in Kenya.

5.2 Summary of Research Findings

5.2.1Fixed Interest Securities

On the regression analysis it was noted that a unit increase in fixed interest securities would lead to increase in performance of individual benefit pension schemes by 0.0021. On Spearman correlation analysis it was deduced that there was a weak or insignificant relationship between performance of individual benefit pension schemes and fixed interest securities as represented by correlation factor of 0.0144 and the p value (0.067 > 0.05). The coefficients for the fixed and random effect were insignificant and their values were 0.0015 and 0.002 respectively and hence the null hypothesis was preferred. The variable was not suffering from multicollinearity as the VIF value was 1.06 <10 and 1/VIF was 0.94 <2.

The above findings are an indication that although the fixed interest securities constituted an important source of income to investors, they didn't comprise a significant portion of capital so as to affect the performance of individual benefit pension schemes. The positive relationship is an indication that increasing fixed interest securities would enhance performance of individual benefit pension schemes.

5.2.2 Government Securities

On the regression analysis it was noted that a unit increase in government securities would lead to increase in performance of individual benefit pension schemes by 0.0011. On Spearman correlation analysis it was deduced that there was a weak or insignificant relationship between performance of individual benefit pension schemes and government securities as represented by correlation factor of 0.1585 and the p value (0.148 > 0.05). The coefficients for the fixed and random effect were insignificant and their values were -0.01 and 0.0009 respectively and hence the null hypothesis was preferred. The variable was not

suffering from multicollinearity as the VIF value was 2.38 <10 and 1/VIF was 0.42 <2.

The above findings are an indication that although the government securities constituted an important source of income to investors, they didn't comprise a significant portion of capital so as to affect the performance of individual benefit pension schemes. The positive relationship is an indication that increasing government securities would enhance performance of individual benefit pension schemes.

5.2.3 Quoted Securities

On the regression analysis it was noted that a unit increase in quoted securities would lead to decrease in performance of individual benefit pension schemes by 0.0005. On Spearman correlation analysis it was deduced that there was a weak or insignificant relationship between performance of individual benefit pension schemes and quoted securities as represented by correlation factor of 0.1098 and the p value (0.582 > 0.05). The coefficients for the fixed and random effect were insignificant and their values were -0.01 and 0.0006 respectively and hence the null hypothesis was preferred. The variable was not suffering from multicollinearity as the VIF value was 2.32 <10 and 1/VIF was 0.43 <2.

The above findings are an indication that although the quoted securities constituted an important source of income to investors, they didn't comprise a significant portion of capital so as to affect the performance of individual benefit pension schemes. The negative relationship from the regression model is an indication that increasing quoted securities would lead to decrease in performance of individual benefit pension schemes, although the effect is insignificant.

5.2.4 Unquoted Securities

On the regression analysis it was noted that a unit increase in unquoted securities would lead to decrease in performance of individual benefit pension schemes by 0.0005. On Spearman correlation analysis it was deduced that there was a weak or insignificant relationship between performance of individual benefit pension schemes and quoted securities as represented by correlation factor of 0.1046 and the p value (0.54> 0.05). The coefficients for the fixed and random effect were insignificant and their values were 0.004 and 0.0008

respectively and hence the null hypothesis was preferred. The variable was not suffering from multicollinearity as the VIF value was 1.13 <10 and 1/VIF was 0.885 <2.

The above findings are an indication that although the unquoted securities constituted an important source of income to investors, they didn't comprise a significant portion of capital so as to affect the performance of individual benefit pension schemes. The positive relationship from the regression model is an indication that increasing unquoted securities would lead to increase in performance of individual benefit pension schemes, although the effect is insignificant.

5.3 Conclusions

From the findings of this research, the following conclusions are made. Although fixed interest securities are an important source of capital stability issued by investment grade entities such as sovereign governments, corporations and financial institutions, there was a positive but weak or insignificant relationship between performance of individual benefit pension schemes and fixed interest securities. The fixed interest securities bear relatively low correlations to returns from typically riskier asset classes therefore there are significant portfolio diversification although they don't affect performance of individual benefit pension schemes significantly.

It was concluded that government securities have been crucial in aiding the creation of a liquid and efficient domestic debt market that facilitates parastatal, corporate and other issuers. It also signals that a country has matured financially and is less dependent on donor funds. However, there was a positive butweak or insignificant relationship between performance of individual benefit pension schemes and government securities but this should not deter investment in the securities as they provide additional investment avenues for investors.

It can be concluded that quoted securities let you invest in a spread of different types of investments in an easier and more efficient way than buying a collection of individual investments saving you money in dealing charges and letting you invest in relatively small amounts of money. However, there was a negative relationship between investment in quoted securities and performance of individual benefit pension schemes although the relationship

was insignificant. The reason could be that investing in quoted shares includes, shares that are described as high-risk asset class when compared to other investments.

Finally, it can be concluded that investing in unquoted securities is seen as being for wealthier, more sophisticated investors because of its risky nature and the difficult of getting money out hence there was a weak or insignificant relationship between performance of individual benefit pension schemes and quoted securities. However, increased investment in unquoted securities would lead to increase in performance of individual benefit pension schemes.

5.4 Recommendations

Based on the findings of this study, the following recommendations are made;

5.4.1 Policy Recommendations

Investment entities should increase investment in fixed interest securities as they provide the ability for investors to readily liquidate or rebalance their portfolios should need arise. This will in turn increase the investment portfolio and thus the need for more issuance which inturn enhance the performance of individual benefit pension schemes.

The government should encourage the investors to invest in treasury bills and bonds as they offer a more secure form of financing which will in turn enhance the performance of individual benefit pension schemes. These insures of the pension scheme that invest in government bonds will in turn make stable payment to their members and for reinvestment thus enhancing their financial performance.

Pension firms should encourage the quoted companies to increase their diversification in terms of investment so as to enhance the demand of the shares which in turn increases the investment in the quoted firms and hence enhance performance of individual benefit pension schemes. The firms should also try to reduce the risks that may deter the investors.

The management of the firms should enhance investment in unquoted securities and this can be done through reduction of risks such loss of capital, illiquidity and uncertainty of receiving dividends. The investor should also be encouraged to diversify their investment portfolio by investing in smaller amounts in different companies in a range of sectors.

5.4.2 Suggestions for Further Research

The study focused on the effect of asset allocation on the financial performance of individual benefit pension schemes a case of registered schemes in Kenya. A study can be done on the other factors affecting financial performance of individual benefit pension schemes in Kenya apart from asset allocation.

5.5 Limitation of the Study

The study was limited to 5 years period starting from year 2012 to year 2016. A longer duration of the study would have captured periods of diverse economic significances. This may have probably given a longer time focus hence given a broader dimension to the problem.

The study was limited to secondary data collected from the Retirement Benefit Authority Annual Reports. While the data was verifiable and authentic since it came from the Retirement Benefit Authority, nonetheless it could be prone to shortcomings such as having many outliers. The study was limited to the effect of asset allocation on the financial performance of individual benefit pension schemes a case of registered schemes in Kenya.

APPENDIX 1: REFERENCES

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Dessertation Data

Individual Pension Plan Scheme								
						Note: Ksh '000		
Jubilee Insurance Company Personal Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	6,972,114.00	13,108,583.00	5,301,877.00	1,615,346.00	20,419,642.00	47,417,562.00	2,284,501.00	0.048
2013	7,590,691.00	19,067,633.00	7,373,435.00	2,161,843.00	24,965,583.00	61,159,185.00	2,502,817.00	0.041
2014	13,124,907.00	21,923,229.00	9,724,066.00	2,441,856.00	27,291,307.00	74,505,365.00	3,103,653.00	0.042
2015	12,450,956.00	29,604,698.00	7,823,826.00	2,779,592.00	29,718,938.00	82,378,010.00	3,121,093.00	0.038
2016	9,467,537.00	39,666,112.00	5,627,929.00	2,909,924.00	32,896,241.00	90,567,743.00	3,675,947.00	0.041
Co-op Trust Individual Retirement Benefits Scheme								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	119,239,938.00	27,694,119.00	30,009.00		53,922,516.00	200,886,582.00	7,723,858.00	0.038
2013	137,087,784.00	33,544,033.00	30,009.00		60,553,534.00	231,215,360.00	9,108,185.00	0.039
2014	179,486,914.00	40,603,609.00	138,034.00		65,167,549.00	285,396,106.00	8,014,997.00	0.028
2015	208,572,126.00	60,109,632.00			73,836,431.00	342,518,189.00	11,705,558.00	0.034
2016	236,935,711.00	57,834,302.00			570,862,396.00	865,632,409.00	12,676,210.00	0.015
CIC (Jipange personal pension plan)								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	2,004,789.00	1,037,482.00	88,239.00		930,052.00	4,060,562.00	297,697.00	0.073
2013	1,939,617.00	1,129,081.00	55,962.00		2,202,232.00	5,326,892.00	437,815.00	0.082
2014	2,545,746.00	1,270,574.00	77,601.00		2,812,720.00	6,706,641.00	239,820.00	0.036
2015	2,206,901.00	1,812,577.00	378,933.00		3,059,986.00	7,458,397.00	184,139.00	0.025
2016	1,851,958.00	2,622,211.00	343,425.00		3,535,242.00	8,352,836.00	110,026.00	0.013

CFC(Stanbic) Life individual Pension plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	97,431,852.00		22,577,566.00		36,750,121.00	156,759,539.00	2,202,706.00	0.014
2013	79,052,031.00		27,150,358.00		44,790,785.00	150,993,174.00	2,627,380.00	0.017
2014	101,210,110.00		23,836,927.00		46,300,093.00	171,347,130.00	5,478,696.00	0.032
2015	128,163,157.00		45,262,609.00		35,026,149.00	208,451,915.00	4,905,734.00	0.024
2016	132,576,604.00		50,032,732.00		32,073,393.00	214,682,729.00	4,418,589.00	0.021
British American Personal Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	9,698,688.00	6,862,342.00	11,021,686.00	54,009.00	8,183,440.00	35,820,165.00	2,519,461.00	0.070
2013	11,810,182.00	8,596,610.00	8,016,412.00		10,147,476.00	38,570,680.00	1,812,903.00	0.047
2014	12,250,159.00	10,948,667.00	7,807,374.00		14,584,747.00	31,006,200.00	1,283,335.00	0.041
2015	10,520,870.00	11,898,255.00	5,936,746.00		17,272,490.00	45,628,361.00	(95,719.00)	(0.002)
2016	19,340,534.00	16,537,057.00	5,924,392.00		11,061,103.00	52,863,086.00	3,127,090.00	0.059
GA- Life Personal Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	1,349,448.00	738,304.00	216,659.00	221,158.00	3,017,024.00	5,542,593.00	337,316.00	0.061
2013	1,846,394.00	1,302,150.00	356,016.00	133,342.00	4,235,627.00	7,873,529.00	446,403.00	0.057
2014	2,583,684.00	1,548,430.00	429,721.00	139,582.00	5,883,867.00	10,585,284.00	442,177.00	0.042
2015	1,867,924.00	2,739,070.00	418,258.00	184,898.00	8,082,338.00	13,292,488.00	353,549.00	0.027
2016	1,789,619.00	4,741,811.00	397,826.00	206,870.00	7,713,997.00	14,850,123.00	546,699.00	0.037
The Heritage Personal Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	1,687,666.00	1,786,886.00	201,029.00	212,387.00	4,123,093.00	8,011,061.00	941,230.00	0.117

2013	1,792,885.00	1,614,816.00	354,045.00	156,697.00	5,969,031.00	9,887,474.00	733,289.00	0.074
2014	2,462,581.00	1,467,125.00	458,751.00	42,341.00	4,648,846.00	9,079,644.00	635,018.00	0.070
2015	2,210,435.00	1,590,981.00	471,924.00	42,660.00	5,449,184.00	9,765,184.00	418,511.00	0.043
2016	2,257,985.00	2,868,612.00	200,261.00	45,793.00	4,817,060.00	10,189,711.00	524,247.00	0.051
Kenindia Asssurance co. Personal Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	2,750,567.00	12,189,078.00	146,310.00		8,026,615.00	23,112,570.00	142,017.00	0.006
2013	2,281,050.00	14,804,529.00	176,465.00		13,505,614.00	30,767,658.00	493,735.00	0.016
2014	2,300,248.00	17,253,105.00	176,126.00		12,206,589.00	31,936,068.00	(119,472.00)	(0.004)
2015	3,871,183.00	20,726,332.00	175,861.00		13,260,122.00	38,033,498.00	823,691.00	0.022
2016	1,725,362.00	24,591,550.00	175,528.00		12,060,686.00	38,553,126.00	308,500.00	0.008
Pan African Life Personal Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	14,607,250.00		3,827.00		1,862,443.00	16,473,520.00	600,240.00	0.036
2013	19,332,266.00				1,825,241.00	21,157,507.00	1,250,432.00	0.059
2014	22,401,320.00				2,198,090.00	24,599,410.00	871,190.00	0.035
2015	22,989,879.00		80,364.00		4,039,035.00	27,109,278.00	27,350.00	0.001
2016	23,165,776.00		104,653.00		5,172,161.00	28,442,590.00	70,623.00	0.002
UAP Life Assuarance								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	3,485,389.00	3,208,574.00	3,506,431.00		14,457,579.00	24,657,973.00	1,381,031.00	0.056
2013	2,650,083.00	4,566,442.00	5,506,508.00		20,386,956.00	33,109,989.00	1,810,401.00	0.055
201					25,101,587.00			

4	5,017,757.00	5,875,753.00	6,088,628.00			42,083,725.00	1,667,187.00	0.040
2015	5,956,122.00	7,541,079.00	4,558,177.00		30,669,276.00	48,724,654.00	896,599.00	0.018
2016	7,252,611.00	11,920,024.00	3,333,456.00		34,520,711.00	57,026,802.00	825,775.00	0.014
Fidelity shield Personal Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	391,064.00	178,892.00	77,903.00		1,578,229.00	2,226,088.00	137,833.00	0.062
2013	266,759.00	176,433.00	100,068.00		1,772,011.00	2,315,271.00	114,587.00	0.049
2014	345,340.00	195,992.00	122,079.00		2,191,167.00	2,854,578.00	149,800.00	0.052
2015	207,335.00	233,628.00	110,110.00		2,896,029.00	3,447,102.00	58,503.00	0.017
2016	176,705.00	234,751.00	90,590.00		2,735,733.00	3,237,779.00	60,631.00	0.019
The Kenyan Alliance Insurance Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	1,071,048.00	306,990.00	55,168.00		1,736,383.00	3,169,589.00	149,281.00	0.047
2013	1,145,457.00	223,862.00	94,441.00		2,054,857.00	3,518,617.00	114,234.00	0.032
2014	1,544,134.00		23,040.00		2,369,950.00	3,937,124.00	903,036.00	0.229
2015	1,623,688.00		44,250.00		2,876,817.00	4,544,755.00	109,976.00	0.024
2016	2,022,477.00		25,583.00		3,056,581.00	5,104,641.00	194,509.00	0.038
Madison Insurance Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	161,405.00	895,815.00	52,975.00	1,344,125.00	3,490,837.00	5,945,157.00	719,502.00	0.121
2013	137,042.00	809,517.00	68,692.00	1,344,125.00	4,595,763.00	6,955,139.00	304,627.00	0.044
2014	137,042.00	809,517.00	68,692.00	1,344,125.00	4,597,957.00	6,957,333.00	219,614.00	0.032
2015	114,473.00	1,553,451.00	192,273.00	1,673,579.00	7,183,208.00	10,716,984.00	973,494.00	0.091

2016	150,058.00	2,536,826.00	156,138.00	2,286,331.00	7,906,550.00	13,035,903.00	135,365.00	0.010
Mayfair Insurance Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	502,467.00	200,369.00	226,069.00		1,243,667.00	2,172,572.00	29,271.00	0.013
2013	722,020.00	289,292.00	400,119.00		2,791,430.00	4,202,861.00	230,122.00	0.055
2014	788,724.00	334,893.00	644,269.00		1,987,929.00	3,755,815.00	257,701.00	0.069
2015	893,195.00	429,352.00	737,590.00		2,271,924.00	4,332,061.00	378,023.00	0.087
2016	1,150,796.00	430,268.00	714,140.00		2,610,222.00	4,905,426.00	285,124.00	0.058
Tausi Assuarance Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	571,202.00	583,555.00	41,650.00		667,000.00	1,863,407.00	149,798.00	0.080
2013	515,040.00	618,055.00	104,515.00		876,475.00	2,114,085.00	188,063.00	0.089
2014	468,788.00	583,345.00	164,600.00		762,136.00	1,978,869.00	134,120.00	0.068
2015	396,453.00	770,033.00	175,671.00		757,643.00	2,099,800.00	141,596.00	0.067
2016	334,523.00	1,009,123.00	190,638.00		672,430.00	2,206,714.00	171,609.00	0.078
First Assuarance Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	816,327.00	303,688.00	173,364.00		2,055,255.00	3,348,634.00	207,740.00	0.062
2013	1,138,264.00	541,384.00	127,309.00		2,203,188.00	4,010,145.00	256,922.00	0.064
2014	1,695,916.00	583,511.00	86,610.00		2,880,783.00	5,246,820.00	399,287.00	0.076
2015	2,131,222.00	605,850.00	73,524.00		3,483,553.00	6,294,149.00	408,696.00	0.065
2016	1,847,096.00	651,070.00	72,831.00		4,539,004.00	7,110,001.00	517,684.00	0.073
Occidental Insurance Pension Plan								

Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	39,718.00	596,601.00	14,261.00	825.00	1,306,070.00	1,957,475.00	76,419.00	0.039
2013	66,582.00	609,011.00	14,789.00	100,825.00	1,147,315.00	1,938,522.00	113,892.00	0.059
2014	169,956.00	642,257.00	27,006.00	100,825.00	1,304,719.00	2,244,763.00	199,951.00	0.089
2015	413,281.00	640,758.00	128,307.00	100,825.00	1,263,186.00	2,546,357.00	243,695.00	0.096
2016	510,341.00	650,593.00	111,324.00	100,825.00	1,300,653.00	2,673,736.00	207,564.00	0.078
Pacis Insurance Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	82,687.00	217,843.00	29,003.00	29,003.00	504,769.00	863,305.00	52,416.00	0.061
2013	82,045.00	191,548.00	42,687.00		682,179.00	998,459.00	44,569.00	0.045
2014	35,881.00	151,570.00	650.00		1,242,612.00	1,430,713.00	242,471.00	0.169
2015	68,215.00	151,570.00	3,979.00		1,436,049.00	1,659,813.00	120,083.00	0.072
2016	45,087.00	145,570.00	3,024.00		1,548,498.00	1,742,179.00	72,415.00	0.042
Liberty Life Insurance Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	14,083,814.00				13,288,286.00	27,372,100.00	857,849.00	0.031
2013	15,949,076.00				15,503,114.00	31,452,190.00	1,105,920.00	0.035
2014	19,098,156.00				14,095,897.00	33,194,053.00	1,148,985.00	0.035
2015	19,064,519.00				16,279,170.00	35,343,689.00	736,050.00	0.021
2016	21,896,541.00				12,801,290.00	34,697,831.00	627,834.00	0.018
Pioneer Life assurance Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	146,275.00	167,365.00	29,300.00		678,228.00	1,021,168.00	29,799.00	0.029

2013	138,463.00	173,539.00	34,663.00		650,843.00	997,508.00	31,592.00	0.032
2014	209,349.00	154,161.00	49,115.00		757,444.00	1,170,069.00	18,061.00	0.015
2015	281,870.00	161,258.00	11,240.00	4,441.00	1,627,525.00	2,086,334.00	263,376.00	0.126
2016	398,056.00	287,126.00	27,218.00		2,435,983.00	3,148,383.00	156,369.00	0.050
Dry Associates Personal Provident Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	11,101,753				2,500	11,989,716	271,004	2.3%
2013	23,242,596				329,577	23,347,790	2,396,705	10%
2014	18,438,545	5,164,400	6,348,219		286,616	30,237,780	2,947,222	10%
2015	18,615,252	24,625,568	4,829,904		7,479,472	55,550,196	3,024,230	5.4%
2016	51,370,567	28,955,799	7,434,585		2421696	90,182,647	7,675,685	8.5%
ICEA Lion Individual Retirement Benefits Scheme								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	319,180,728	2,585,988,848	432,173,847		239,851,245	3,577,194,668	528,981,846	14.8%
2013	292,745,163	4,069,173,085	682,506,098		148,728,615	5,193,152,961	746,882,705	14.4%
2014	1,332,532,384	4,087,746,986	953,606,657		92,455,093	6,466,341,120	773,877,552	12.0%
2015	1,402,474,062	4,853,614,585	971,475,805		557,191,680	7,784,756,132	591,054,208	7.6%
2016	1,160,798,546	6,967,407,546	899,046,045		371,896,443	9,399,148,580	914,943,614	9.7%
Enwealth Personal Pension Scheme								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	6,030,693	9,673,383	5,858,845		1,122,425	22,685,346	2,578,834	11.4%
2013	5,534,327	34,393,324	5,119,571		6,284,632	51,331,854	4,708,173	9.2%
2014	86,908,436	41,162,235	7,831,460		15,569,754	151,471,885	8,745,865	5.8%

2015	91,014,069	53,958,924	50,542,035		4,176,431	199,691,459	8,397,550	4.2%
2016	67,152,601	174,722,609	50,616,459		8,274,337	300,766,006	16,634,602	5.5%
Zimele Personal Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	3,884,915	43,273,304	3,860,330		2,142,385	53,160,934	(4,548,225)	-8.6%
2013	4,884,915	48,568,669	13,092,033		906,917	67,452,534	7,187,469	10.7%
2014	15,567,003	49,017,567	10,582,955		3,045,967	78,213,492	9,363,819	12.0%
2015	25,977,020	55,038,204	6,489,240		1,734,594	89,239,058	9,649,868	10.8%
2016	26,783,673	50,377,034	4,826,325		7,309,482	89,296,514	5,882,263	6.6%
2015								
Amana Personal Pesion Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	18,753,491	1,820,878			(284,083)	20,290,286	2,557,194	12.6%
2013	18,085,385	1,839,326	6,795,001		987,211	27,706,923	4,854,079	17.5%
2014	20,292,345	1,882,606	10,095,290		9,551,319	41,821,560	3,132,637	7.5%
2015	21,418,451	8,954,484	15,369,665		(342,946)	45,399,654	3,205,567	7.1%
2016	9,764,330	9,525,931	14,298,950		7,461,553	41,050,764	(1,017,078)	-2.5%
Blue MSMEs Jua Kali Individual Retirement Benefits Scheme (Mbao Pension Plan)								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	439,749				39,442,360	39,882,109	2,298,992	5.8%
2013	1,702,094				62,249,680	63,951,774	2,144,450	3.4%
2014	175,372				98,456,667	98,632,039	7,385,653	7.5%
2015	820,635				108,089,604	108,910,239	2,154,485	2.0%

2016	749,931				118,335,896	119,085,827	10,072,734	8.5%
Old Mutual Individual Retirement Benefits Scheme								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012								
2013	70,688,744				8,295,275	78,984,019	1,174,577	1.5%
2014	99,724,506				47,597,183	147,321,689	5,802,483	3.9%
2015	153,132,585				88,998,458	242,131,043	13,131,869	5.4%
2016	301,001,818				52,807,601	353,809,419	19,095,122	5.4%
Octagon Personal Pension Scheme								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	404,773,644				1,277,528	406,051,172	69,287,885	17%
2013	527,747,620				21,312,274	549,059,894	86,263,294	16%
2014	735,041,790				3,772,941	738,814,731	78,603,406	11%
2015	861,986,940				797,498	862,784,438	11,043,926	1%
2016	1,060,514,446				22,051,126	1,082,565,572	57,607,326	5%
2015								
Mwavuli Individual Pension Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012								
2013	1,123,527				62,323	1,185,850	36,882	3.1%
2014	3,326,946				173,172	3,500,118	167,353	4.8%
2015	6,702,976				344,602	7,047,578	343,493	4.9%
2016	7,776,470				717,966	8,494,436	(416,964)	-4.9%

UAP Life Assurance Individual Retirement Benefits Plan								
Year	Fixed Int. Assets	Govt Securities	Quoted Stock	Unquoted Stock	Other inv	Total Assets	Net Income	R.o.A
2012	404,398,015				62,726,532	467,124,547	42,310,802	9.1%
2013	470,893,752				149,043,631	619,937,383	54,206,953	8.7%
2014	624,769,715				187,490,183	812,259,898	61,975,288	7.6%
2015	815,437,942				170,089,301	985,527,243	29,533,629	3.0%
2016	983,608,118				132,537,858	1,116,145,976	44,341,226	4.0%