EVALUATION OF ASSET ALLOCATION STRATEGIES USED BY TANZANIA'S PENSION FUNDS AND DETERMINANTS OF THEIR CHOICES

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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF BUSINESS ADMINISTRATION OF THE OPEN UNIVERSITY OF TANZANIA

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CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the Open University of Tanzania a dissertation entitled "*Evaluation of Asset Allocation Strategies used by Tanzanians ' Pension Funds and determinants of their choices"* in partial fulfilment of Masters of Business Administration of the University of Tanzania.

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DECLARATION

I, **Beatrice Felician**, do hereby declares that this dissertation is my own original work and that it has not been submitted and will not be presented to any other university for similar or any degree award.

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Beatrice Felician,

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Date

DEDICATION

To my beloved husband, Vianey John Mushi

Loving children, Rosefuraha, Cherry and Vincey

Sweet parents, Felician Kimaro and Adelaida Mushi

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ABSTRACT

This study evaluated asset allocations strategies of the Tanzania's pension funds in order to identify the allocation strategies and find out whether or not they conform to the modern portfolio theory (MPT). The study was exploratory in nature. A total of 12 respondents from four Tanzanian pension funds were responded to a questionnaire. Findings revealed that Tanzania's pension funds relied heavily on the SSRA guidelines as well as the funds' internal investment policies and guidelines when allocating funds to investment assets. The allocation strategies varied from Fund to Fund and had some aspects of the strategic, dynamic, and tactical asset allocation strategies. Most of the pension funds preferred the buy-and-hold strategy and little attempt was made towards application of optimization techniques as suggested by the modern portfolio theory. The study calls for periodic reviews of such policies and guidelines to make them relevant to the fast changing investment and market conditions, as well as having training programmes in place for building the capacity of fund managers towards optimizations techniques.

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LIST OF ACRONYMS AND ABBREVIATIONS

CHF	Community Health Fund
GDP	Gross Domestic Product
GEPF	Government Employees' Provident Fund
ICF	Investment Climate Facility
ILO	International Labour Organization
IPSs	Investment Policy Statements
LAPF	Local Authorities Pensions Fund
MPTs	Modern Portfolio Theory
MS-Excel	Microsoft Excel
MVO	Mean Variance Optimization
NHIF	National Health Insurance Fund
NSSF	National Social Security Fund
OECD	Organization for Economic Co- operation and Development
OUT	The Open University of Tanzania
PPF	Parastatals Pension Fund
PSPF	Public Service Pension Fund
REITs	Real-Estate Investment Trusts
SAA	Strategic Asset Allocation
SPSS	Statistical Package for Social Sciences
SSRA	Social Security Regulatory Authority
TIKA	Tiba Kwa Kadi
UN	United Nations

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Research Problem

In recent years, Tanzania's financial markets have witnessed the rise of a variety of investment products and financial strategies. This provides potential for greater returns and greater scope for risk reduction through portfolio formation and diversification. As a result, institutional investors in Tanzania, primarily pension funds, are faced with wider exposure to choice of assets to which they can invest directly. These choices of asset in turn need them to employ robust financial and investment strategies in order to boost their expected returns.

Based on an individual situation and portfolio objectives, pension funds are expected to adopt asset allocation strategies that seek to strike a balance between risk and return and to provide a decent standard of living to people who are unable to earn an income due to invalidity, unemployment or old age (URT, 2010). Asset allocation decisions are shaped to allow investors to tailor portfolios to meet their risk tolerance by investing specific percentages of a portfolio across different assets classes (OECD, 2011).

Pension funds do collect contributions from members and are obliged to repay them in future on retirement. Members' contributions are invested in order to achieve income and capital growth. Asset allocation decisions offer pension funds a chance to control their investment results. The correct selection of weight can significantly

determine the outcome of returns, and accordingly, it makes the asset allocation decision an important part of an overall investment strategy (Blake *et al*., 1999).

According to Brinson, *et al.* (1986), the asset allocation decision can determine up to 93.6% of the return to a portfolio. If the vast majority of investment returns can be attributed to an asset allocation decision, then, the question is whether investors should concentrate their efforts where they will have the most impact. Whilst the 93.6% seems to be a big figure, needs to be seen in context. It is clear that, the greatest share of the investment process and attention should also be devoted to the asset allocation decision. One part of the required process is to decide what proportion of the assets to put in each selected market in order to meet goals within the possible risk tolerance. This is also the case in financial markets and assets choices in Tanzania. However little is known about how investors, particularly, the Pension Funds take asset allocation decisions. In particular, this study seeks to determine and analyze fundamental factors that influence pension funds' asset allocation decisions in Tanzania.

Pension Funds are social security institutions initially designed to ensure that members of the society meet their basic needs and are protected from contingency to enable them to maintain a relatively decent standard of living consistent with social norms (Dau, 2003). Pension fund managers control retirement savings worth billions. On the other hand, they are considered as one of the leading institutional investors due to the amounts of wealth they are managing. According Dau (2003), the pension funds play a prominent role in national economies as well. In Tanzania for example,

the value of assets held by pension funds are very substantial and this gives an illustration of their financial power. As a result, Faccio and Lasfer (2000) pointed out that, the investment strategies of pension funds are relevant not only from their perspective of retirement income but also because of their impact on the development of capital markets and the surplus of capital for innovation enterprises. This implies that, statutory contributions must be prudently invested to conserve money value so that members are availed with benefits when they fall due in the future.

Pension funds therefore require a set of internal statutes and external regulations to ensure that they are managed in the best interest of beneficiaries. The balance between internal and external regulations is a delicate one and depends largely on a country's social and legal structure. Pension funds are typically involved in selecting the asset allocation strategy that has a significant impact on the final wealth outcome and add value to members. The asset structure of any long term fund like a pension fund needs to be decided using long term time horizon (strategic Asset allocation structure). However, given the fact that, pension funds prepare the retirement pension of the participants, the asset-class decision is more complex than just a decision of selecting separate and distinct asset classes such as stocks, bonds, or cash (Scott, 1991).

According to Alestalo and Puttonen (2005), Pension funds are generally subjected to heavy regulations. These regulations (e.g. Social security Regulation Act, 2008 in Tanzania) sometimes limit investment manager's power in respect of asset allocation

and asset selection; or can render diversification compulsory, by defining quantitative limits for different asset class which in turn may affect funding of future liabilities.

Pension funds also are subject to potential conflicts of interest arising between the fund administrators and the ultimate beneficiaries of the fund by adopting optimal allocation strategy. Adopting sub-optimal allocation strategy not only results into low returns realized from investment avenues but also runs enormous risk, that is not likely to be corrected at a later date, a risk compounding effect of which, over the long run, can lead to very adverse outcomes such as inadequate resources to plough back to members benefit accounts or leaving social security beneficiaries destitute for ages (Hassan, 2007).

The modern portfolio theory (MPT) offers investors the chance to obtain efficient portfolios that maximize their returns for each level of risk they might be able to bear, and theoretical solution, the mean-variance efficient portfolio-a mix of asset that gets the best return given the investor's preference on risk. Thus the advantages of diversification among different assets have been known to prudent investors for a long time as this old adage says: ("don't put all your eggs in one basket") (Scott, 1991).

The asset allocation strategy of pension funds directly affects millions of workers who contribute to these schemes. If the contributions are properly and effectively managed, good projects can be easily financed and this leads to higher economic

growth. On the other hand poor management of the resources not only reduces future pensions but it also misallocates capital. Massinda (1997) examines the issue of unconventional investment portfolio performance evaluation. Kessy (2001) examines investment performance and risk assessment. Mwamoto (2003) analyses investment performance of pension funds in Tanzania and Hassan (2007), examined the factors leading to increasing trend of the nonperforming asset in Pension funds. Most of these studies indicate that pension funds in Tanzania do invest in a number of investment products such as real estate/ property, company shares and/or government stocks. None of them determined the strategies that are adopted by Tanzania's pension funds when allocating funds in different investment vehicles. Furthermore, Dau (2003) states that a close examination of pension fund management practice in Tanzania's pension funds reveals absence of a comprehensive and coherent asset allocation strategies.

According to various pension funds investment policies, e.g. URT (2003), investment of funds are determined by Boards which include representatives from government, workers union, employers and/or politicians. The result of this practice could be a pattern of investments that reflects the priorities of the government under the general headings of "development policies" but the same may not be in line with the objectives of the pension funds.

1.2 Statement of the Research Problem

The confluence of the two factors, that is, first, the absence of a comprehensive and coherent asset allocation strategy; and second the ongoing concern about

marginalized literature have resulted into the importance of undertaking a comprehensive research on major issues investors consider while choosing asset allocation strategy. According to Ferri (2010) firms should use strategic asset allocation, tactical asset allocation or dynamic asset allocation. Theoretically, firms apply strategic asset allocation, tactical asset allocation and dynamic asset allocation, but it is not known whether most firms including pension funds do always apply them.

Given the big value of employees contributions vested with pension funds in Tanzania and the need to safeguard the expected benefits, it is important to understand how these pension funds allocate funds onto various investment avenues. This study in particular seeks to answer a number of questions namely: What are the current asset allocation strategies adopted by pension funds in Tanzania? Do Tanzania's Pension funds asset allocation strategies conform to the modern portfolio theory? What factors are likely to influence pension funds' decision to allocate fund to different asset classes? The aim of this dissertation was therefore to establish the current asset allocation strategies adopted by Tanzania's Pension fund and compare them to those suggested by the modern portfolio theories and also to determine the factors that influence Pension Funds' choice of allocation strategies.

1.3 Research Objectives

1.3.1 Main Objective

The main objective of this study was to evaluate the asset allocation strategies of Tanzania's Pension funds and the factors that determine their choice.

1.3.2 Specific Objectives

In particular, this study aimed at addressing the following specific objectives

(i)   To identify the asset allocation strategies used by Tanzania's pension funds.

(ii)   To determine the extent to which the asset allocation strategies used by Tanzania's pension funds conform to what is suggested by the modern portfolio theory.

(iii) To identify the factors that influence Tanzania pension funds' choice of asset allocations strategies.

1.3.3 Research Questions

To achieve the objectives of the research, the study addressed the following research questions:

(i)   What asset allocation strategies are adopted by Tanzania's pension funds?

(ii)   Do the asset allocation strategies adopted by Tanzania's pension funds conform to those suggested by the Modern Portfolio Theory?

(iii) What factors influence pension funds choice of asset allocation strategies?

1.4 Significance of the Study

This study sought to identify the current asset allocation strategies adopted by the pension funds in Tanzania and compare them to those that are suggested by MPT. It further sought to identify the factors that influence pension funds choice of allocation strategies.

Results of this study inform researchers' and students on asset allocation strategies practiced in Tanzania s pension funds, and the factors that influence fund managers'

choice of allocation strategy when they allocate funds to different investment vehicles. The findings of this study may also be used as a useful tool for future study for researchers, which will cover probable gaps arising from this study due to the scope and study limitations. The study findings will also shed some light on the extent to which modern portfolio theory meets practice .Our knowledge on the factors that influence pension funds managers' choice of allocation strategy will also be enhanced.

The study also provides means by with which pension funds would know the extent to which their practice matches theory. Therefore, Tanzanian institutional investors, managers and especially pension fund managers will be familiar with the types of asset allocation strategies that are available in theory and find out if that is what is in practice. Members of the funds will also be aware of the strategies in place which pension funds use to invest their contributions. This knowledge will help them, as key stakeholders, to shape up their post-retirement expectations.

1.5 Organization of the Dissertation

The rest of the dissertation is organised as follows: Chapter two presents a review of literature related to the problem of the study. Chapter three presents the research methodology used. Chapter four presents findings and their discussion. Finally chapter five presents conclusion, recommendations and areas for possible future studies.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter reviews relevant literature pertaining to asset allocation decisions. In particular, it examines what asset allocation is, its importance and how pension funds combine their assets. Further, it investigates and identifies from literature, various factors that influence the decision of fund managers when they choose asset allocation strategies. The rest of this chapter is organized as follows. Section 2.2 presents conceptual definitions; section 2.3 discusses on asset allocation strategies. Asset allocation models are presented on section 2.4. Section 2.5 presents empirical evidence on the asset allocation decisions in Tanzania. Section 2.6 presents knowledge gap and section 2.7 provides conceptual framework.

2.2 Conceptual Definitions

2.2.1 Asset Allocation

Asset allocation means different things to different type of investors. For a professional investors, the phrase means the practice (process) of allocating investments among a broad spectrum of investable asset classes namely; shares, bonds, real estate and/or cash in order to maximize the mean- variance efficiency returns-risk trade-off) conditional to individual's or institution's attitude towards risk – that is, specific situation and investment objectives.

Markowitz (1952) shows that asset allocation (portfolio selection) is not just about picking asset class but rather, it is about choosing the right combination of asset

among which to distribute 'one's nest eggs'. That is, it entails calculating the rate of return, standard deviation, and correlations coefficient between various asset classes or running these variables through means-variance optimization programme to select asset mixes with different risk-reward profile, analyzing and implementing desired asset allocation in light of institution's goal and preferences while considering other constraints factors. See also Darts (2008) and Brinson (1986), who suggests that investment decision is about how to divide the investor's wealth among securities. Asset allocation can be implemented in three distinct ways. These include; allocation across asset classes, allocation across market and regions and/or allocation across investment management styles.

Asset allocation across asset classes involves dividing the total portfolio (i.e. diversifying) among different asset classes, such as equities, fixed income securities, money market, real estate, and/or international securities as well as emerging markets, with the primary objective of balancing the total portfolio risk versus return depending upon the investor's return requirement and risk tolerance. Equities are shares issued by companies. These range from large cap shares normally issued by large companies with a market capitalization generally greater than $10 billion, to Mid-cap shares- issued by mid-sized companies with a market cap generally between $2 billion and $10 billion and, to small-cap shares issued by smaller-sized companies with a market cap of less than $2 billion. These types of equities tend to have the highest risk due to lower liquidity.

The fixed-income asset class comprises debt securities that pay the holder a set amount of interest, periodically (or at maturity for a zero coupon bond), as well as

the return of principal when the security matures. These securities tend to have lower volatility than equities, and have lower risk because of the steady income they provide. Note that though payment of income is promised by the issuer, there is a risk of default. Fixed-income securities include corporate and government bonds. Real-estate investment trusts (REITs trade similarly to equities, except the underlying asset is a share of a pool of mortgages or properties, rather than ownership of a company. Money market securities are debt securities that are extremely liquid investments with maturities of less than one year. Treasury bills (T-bills) make up the majority of these types of securities. The emerging markets category represents securities from the financial markets of a developing country. Although investments in emerging markets offer a higher potential return, there is also higher risk, often due to political instability, country risk and lower liquidity. International securities are types of assets issued by foreign companies and listed on a foreign exchange. International securities allow an investor to diversify outside of his or her country, but also have exposure to country risk - the risk that a country will not be able to honour its financial commitments. Generally, these asset classes behave differently under various market environments and no single asset does better than others every time. Thus, by creating mixed assets portfolio presents a perfect opportunity to trim down portfolio's return volatility.

Asset allocation across markets or regions reduces portfolio risk by investing in different geographical markets or production sectors/industries with the primary objective of mitigating regional or industrial (risk) downturn. On the other hand, asset allocating across different investment management styles aims at defusing the

bias to any one style in each asset class, as different styles perform quite differently under different regimes.

2.2.1.1 Strategic Asset Allocation

This is the process of creating a long term strategic portfolio based on the expected risk and returns for each asset class conditional to investors' objectives and constraints. It is also defined as asset allocated to each asset class to achieve long term financial goals of organization or institution. (Sharpe, 1987).

2.2.1.2 Tactical Asset Allocation

It is a short to medium term investment strategy involving market and volatility timing under assumptions that expected returns, volatility as well as covariance are unquestionably predictable. (Arnott and Fabozzi, 1988). According to Clark, (1997), this is implemented by first, forecasting asset returns for each investment class; second, building portfolios based on forecasts (i.e. turn signals into bets) and; finally, conducting out of sample performance tests.

2.2.1.3 Dynamic Asset Allocation

Infanger (1999), indicate that dynamic asset allocation (DAA) is an active asset allocation strategy with which you constantly adjust the mix of assets as markets rise and fall and the economy strengthens and weakens. Assets that are declining are sold and the proceeds are used to purchase assets that are increasing in value.

2.2.2 Pension Fund

A pension fund is an entity normally set up by a company, union, government or any other organization to collect and manage financial contributions of members and

employees, and pay out a retirement income (pension) to its members when they
retire from active service (Hassan, 2007). A pension fund as a social security can
also be defined as a public body that a society may take to protect its members
against economic and social distress which may otherwise be caused by substantial
loss of income as a result of old age, invalidity, sickness, unemployment,
employment injury, death of a breadwinner, maternity, health and to help ease the
financial burden on a family in maintenance of children (ILO, 1952).

2.3 Pension Funds in Tanzania: Establishment, Nature and Status of the Funds

Currently, there are six major (mandatory) government schemes that provide social
security in Tanzania Mainland these include: (i) The Parastatal Pension Fund (PPF)
for private and parastatal organizations employees; (ii) The National Social Security
Fund (NSSF) mainly for private sector and non-pensionable parastatal and
government employees; (iii) The public Service Pension Fund (PSPF) largely for
permanent and pensionable central Government employees only; (iv) The Local
Authorities Pensions Fund (LAPF) for local government employees; (v) The
Government Employees' Provident Fund (GEPF) for non-pensionable Government
employees, who are not eligible members of the PSPF majority of whom are non-
pensionable police and prison officers; and (vi) NHIF which is dedicated to
providing support to beneficiaries to access health services through a wide network
of accredited quality health facilities throughout Tanzania.

The National Social Security Fund (NSSF) is one of the oldest pension funds in
Tanzania which was established by the Act of parliament no.28 of 1997 to replace

the defunct National Provident Fund (NPF). It covers companies, non government organizations, international organizations, organized group in the informal sector, government ministries and department employees, non pensionable employees, parastatal organization and self employed people. As mentioned above, the fund's major domains of social security are poverty prevention, alleviation and social compensation and income distribution. Benefit offered to members are retirement pension, invalidity pension, survivor benefits, funeral benefits, maternity benefits, employment injury benefit and health insurance benefit. By 2010/11 NSSF had a total of 521,629 members, and the contribution in total was 356,512.06 million shillings. Members' contribution rate is 20% where employees contribute 10% of the salary and employer contribute 10% of the employee's salary.

GEPF was established under cap 51 of 1942 (RE 2002) to provide for the benefits of government employees who are not eligible for pension, that is employees working under contract or under operational service for the central government, independent Government departments, executive, and agencies. It provides partial withdrawal benefits, terminal benefits, survivor benefit, loans from financial institutions using member's savings as collateral, and death gratuity benefits.

LAPF was established by the LAPF Act no. 9 of 2006 which repealed the Local Authorities Provident Fund Act no.6 of 2000.Members comes from the Local Authorities. Contribution rate is 20% of which employer's share is 15% and 5% is contributed by the employee. LAPF provides retirement benefits, survivor benefits, invalidity benefits, withdrawal benefits, maternity benefits, funeral benefits and pensioners.

PPF was established by the PPF Pension Fund Act (cap 372 R.E 2002) its objective being providing pension and other related benefits to all employees in the parastatal and private sectors of the economy. By 2011 active contributing members were 211,385.Members contribute to the fund at the rate of 20% out of which 10% (or 5%) is from employees' basic salary and 10% (or 15%) comes from the employer. Benefits offered to the members are, old age, survivor benefits, withdrawal benefits, education benefits, gratuity benefits, death benefits and disability benefits.

The PSPF is established by the Public Service Retirement Benefits Act No. 2 of 1999. It saves permanent and pensionable employees of the central government and its agencies, teachers, police officers and holders of constitutional posts. In total were 311,945 contributing members by 2010. Members contribute to the fund at the rate of 20% made up as follows: employees contribute 5% of the basic salaries while employers contribute 15% of the employee's basic salary. At the end of 2010, members' contribution reached TZS 239 billion. Benefits offered to members include: old age benefits, death gratuity, Invalidity benefits, funeral grant and withdrawal benefit as a result of giving up employment permanently due to marriage or maternity.

Administratively, the National Social Security Fund is under the Ministry of Labour and Youth Development; the Public Service Pension Fund and the Parastatal Pension Fund are accountable to the Ministry of Finance and Economic Affairs, and The Local Authorities Pensions Fund is answerable to the Ministry of Regional Administration and Local Government agencies. The National Social Security Policy

was enacted in 2003 with the primary objective of expanding the coverage of social security to the informal sector and harmonizing the existing funds' contribution and benefits structures so as to reduce fragmentation across funds. The Policy was translated into the Social Security Bill in 2005 (ILO, 2008), and it envisages three major areas in the development of the social security system in Tanzania: mandatory schemes; social assistance to vulnerable individuals and groups which is non-contributory and means-tested; and voluntary market-based schemes to provide coverage over and above the mandatory schemes.

2.4 Objectives and Obligations of Pension Funds in Tanzania

Pension funds control retirement savings (reserves) to ensure that members meet their basic needs and are protected from contingency. Thus, funds are obliged to manage and invest members' contributions in viable projects (assets) in order not only to create returns but also to ensure and maintain liquidity, safety and solvency in the long run. In other words, funds are obliged to match their long term obligations and expected income streams. This phenomenon, forces funds (investment) managers to embark on both long term strategic asset allocation decisions as well as respond to market signals/news such as; investment returns, volatility, economic growth differentials and/or interest rates behaviour over a short run – that is, engaged on active asset management strategies such as tactical or dynamic asset allocation decisions.

Currently, pension funds in Tanzania mainland saves approximately 760,000 long-term beneficiaries, representing only 2 percent of the total population or 4 percent of the total labour force. The benefits and services offered by pension funds fall below

the International Labour Organization (ILO) minimum standards and include: Old age, invalidity, death of the bread winner, maternity, sickness, unemployment, employment injury and occupational diseases, family care and health care (ILO, 1952). Table 2.1 presents a benefit cover offered by various Tanzanian pension funds as per   the ILO minimum standards (ILO Convention no. 102 of 1952).

It is importation to note from Table 2.1 that not a single fund provides all the minimum benefits prescribed by ILO. While NSSF so far provides all but one benefits, the rest of the funds are lagging behind by 3 to 5 benefits. Family benefits are offered by PPF only while unemployment, old age, invalidity and survivors benefits are provided by the six pension funds.

Table 2 1: Tanzania's Pension Funds' Responses to ILO's Minimum Standards

S/NO	ILO Minimum Requirements	NSSF	PPF	PSPF	NHIF	GEPF
1	Sickness Benefit	√	x	x	√	X
2	Unemployment Benefit (gratuity / lump sum)	√	√	√	X	√
3	Old-age Benefit	√	√	√	X	√
4	Employment Injury Benefit	√	x	x	√	x
5	Family Benefits	X	√	x	X	x
6	Maternity Benefit	√	x	√	√	x
7	Invalidity Benefit	√	√	√	√	x
8	Survivors Benefit; and	√	√	√	X	√
9	Medical care	√	x	x	√	x

Source: Compiled from ILO and Pension Funds menus (2010)

Sources of funds for pension funds in Tanzania are mainly the monthly contributions from members and returns/income from investments. In terms of monthly

contributions, employers and employees co-share in the monthly contribution rates as per established policy of a particular scheme. Contribution rates differ from one fund to the other. The highest rate is 25% of gross salary practiced by the GEPF with 15% coming from employers while employees contribute only 10%. On the other hand, other funds contribution rates is around 20% equally shared between employees and employers in the case of the NSSF, while employers and employees contribute 5 and 15% respectively for the case of the PSPF and PPF (ILO, 2008).

2.5 Asset Allocation Strategies and their Management Style

According to Sharpe (2008) asset allocation strategy is an investment strategy that aims at maximizing gains while minimizing risks in investment portfolio focusing on diversification of assets among broad categories of investment in order to reduce investment risks thus being in better position to meet organization's or institution's goals. There are three broad strategies for asset allocation; namely; strategic asset allocation, tactical asset allocation and dynamic asset allocation. Table 2.2 summarises their key features and each is discussed in the following sub sections.

2.5.1 The Strategic Asset Allocation Decision

Strategic asset allocation (SAA) decision refers to the process of creating a long term strategic portfolio based on the expected risk and returns for each asset class conditional to investors' objectives and constraints. Differently stated, the strategic asset allocation is a process of defining a proportion of asset allocated to each asset class to achieve long term financial goals of organization or institution, that is, a benchmark or reference portfolio. The process assumes that investors cannot predict

market turns over short term and therefore, create portfolio which reduces risk by using long term risk and returns expectations for a complete market cycle - the average over up and down markets.

Table 2.2: Key features of Asset Allocation Strategies

Criteria	Asset allocation strategy		
	Strategic	**Tactical**	**Dynamic**
Time Horizon	Long term	Short to medium term	Short to medium term
Key drivers	Focus on long term risk and return expectations for various asset classes	Focus on Valuation; Cyclical analysis; Market timing; Market sentiment and or business cycles	Focus on Valuation; Cyclical analysis; Market timing; Market sentiment and or business cycles
Approach	Assets are allocated subject to investor' objective and risk tolerance level while assuming that present market conditions persist indefinitely	Based on temporary overweighting overvalued assets and/or underweighting assets that appear to be exposed to short term risks.	Selling and buying assets that are declining or appreciating in value
Outcome	Benchmark portfolio	Periodic rebalancing of the benchmark portfolio with the objective of enhancing performance over time and/or reducing risk.	Periodic rebalancing of the benchmark portfolio with the objective of realizing much higher returns and/or reducing risk.
Portfolio Evaluation/ modification	Less frequently. Only, performed if long run expectations on macro economic variables change.	Frequently in order to identify investments that are expected to outperform in the short run or under perform relative to their long run expectations	Frequently in order to identify investments that are expected to outperform in the short run or under perform relative to their long run expectations

Source: **Sharpe (2008), Arnott and Fabozzi (1988), Brennan,** *at el* **(1997), and Infanger (1999)**

The most salient feature of SAA is its long term investment decision while assuming that market fluctuations and cycle are insignificant in realizing overall investment objectives. Thus, to implement the strategic asset allocation, investors need to address/ predict two important scenarios. First, the long run market conditions (i.e.

over 50 years) and, second, proportions of assets to be selected in order to create a portfolio of assets that satisfied the predicted market conditions.

2.5.2 Tactical Asset Allocation

Tactical asset allocation (TAA) strategy is a short to medium term investment strategy involving market and volatility timing under assumptions that expected returns, volatility as well as covariance are unquestionably predictable (See, for example, Keim and stambaugh, 1986; Campbell, 1987; Campbell and Shiller, 1988; Fama and French, 1989) and thus could be used to improve returns and risk characteristics of the long term optimal strategic portfolio based on unconditional estimates. Market timing entails increasing one's exposure to risky asset in period of high expected returns while volatility timing refers to decreasing one's exposure to risky assets in period of high volatility. A number of studies present evidence on returns predictability. Arnott and Fabozzi (1988, p.4) defines tactical asset allocation strategy as an active investment allocation strategy which improves portfolio performance by opportunistically re-aligning returns and risks characteristics of a mixed assets portfolio as a result of a changing market conditions, that is, changing patterns of rewards available in the financial/capital markets. It entails creating asset mix which generates higher expected rates of returns given the prevailing market behaviour. Philips, *at el*. (1996) on the other hand, define tactical asset allocation as a strategy which enables investors/managers to outperform (i.e. realize much higher returns than) benchmark portfolio with lower than benchmark volatility by forecasting and rebalancing allocation (exposure) of two or more assets in a systematic way.

According to Bitters, (1997) distribution of funds among competing assets based on short term variables. In other words, tactical asset allocation strategy capitalize on the cyclical nature of financial markets, business cycles, as well as market sentiment, economic news and/or technical factors while assuming that an investor can recognize and take advantage of those cycles. It shares with strategic asset allocation in the assumption that fundamental valuation relationship between asset classes holds over time.

It is also considered as active strategy for managing portfolio as it rebalances the percentage of asset held in various categories in order to take advantage of market pricing anomalies or strong market sectors. Thus, a manager creates extra value by taking advantage of certain situation in the market place. It is an active strategy in the sense that, investor takes a more vigorous approach that tries to position a portfolio into those assets that shows the most potential for gains. They ride the tide and buy into asset classes that are on the move. It is described as a moderately active strategy, since the overall strategic asset mix is determined when desired short-term profits are achieved.

The strategy demands some discipline, as you must first be able to recognize when short-term opportunities have run their course, and then rebalance the portfolio to the long-term asset position. This strategy allows an investment manager to move funds between two or more instruments within a short term, thereby giving room for benefits to be made from the market timing of securities or any other asset. In this situation a manager return to the portfolio's original strategic asset mix when desired short term profits are achieved (Dau, 2003).

Sharpe (1987) indicates that if investors' attitude towards risk, as well as expected returns, risk and assets correlations are variable (change with time) or if investors are engaged in forecasting expected returns and correlations, they will adopt TAA. Along the same line, Clarke (1997) observes that adopting tactical asset allocation strategy is equivalent to putting into practice a diversification strategy for the overall portfolio and consequently it improves portfolio performance and efficiency. Differently stated, employing TAA strategy improves the mean-variance efficiency and covariance matrix of the overall long term SAA portfolio. Brennan, *at el.* (1997) present interesting insight showing that tactical asset allocation strategy is a single period investment strategy working under assumption that fund managers have a mean-variance efficient frontier defined.

The most important features of tactical asset allocation strategy include; (i) over-estimating expected risk premium (i.e. a positive bias) making the exposure of shares in a mixed asset portfolio to be significantly higher than expected, while an unbiased strategy leads to normal mix, and a negative bias results to average underweight of shares; (ii) the variance of the tactical structured portfolio is linearly related to aggressiveness factors and (iii) returns distributions of an unbiased and positively biased TAA strategies are positively skewed, meaning that TAA structured portfolio outperforms benchmark portfolio.

TAA strategy is implemented by first, forecasting asset returns for each investment class; second, building portfolios based on forecasts (i.e. turn signals into bets) and; finally, conducting out of sample performance tests.

Tactical asset allocation policy can be implemented in four different ways depending on market conditions (market volatility) and investors' (risk tolerance) attitude towards risk. These include; (i) buy and hold, (ii) constant mix, and (iii) constant proportion portfolio insurance.

The constant mix rule refers to stable weightings of assets making up a portfolio. It involves buying when asset value plummets and selling when asset value increases with the objective of altering asset weights to the initial long term optimal exposure – SAA strategy. The objective of the constant proportion portfolio insurance is to set a limit below which the portfolio value is not allowed to fall and therefore rebalance by buying when asset value increases or sell an asset when its value decreases. Finally, the active tactical strategy works by overinvesting (under investing) in asset classes that are expected to deliver superior returns (inferior returns) relative to the benchmark portfolio. The active tactical strategy is flexible in the sense that it combines good attributes of the constant mix and constant proportion rules while geared to outperform the constant mix policy.

2.5.3 Dynamic Asset Allocation

Dynamic asset allocation is another active asset allocation strategy in with which you constantly adjust the mix of assets as markets rise and fall and the economy strengthens and weakens. With this strategy you sell assets that are declining and purchase assets that are increasing. For example, if the share market is showing weakness, you sell stocks in anticipation of further decreases, and if the market is strong, you purchase stocks in anticipation of continued market gains. Infanger

(1999) indicates that investors change their asset allocation as time goes and new information becomes available. This is achieved by looking for profitable instruments with regard to the market condition where they buy the instruments that are rising and sell those that are losing to attain maximum profit, and this reduces fluctuation risks and achieves high return. In practice, dynamic asset allocation is the most optimal investment strategy that reflects real life behaviour.

2.6 Asset Allocation Models

2.6.1 Mean – Variance Optimization

In practice, the mostly widely used quantitative technique used to create the optimal strategic portfolio (asset selection) is the mean-variance optimization (model) algorithm pioneered by Markowitz (1952). The technique creates a portfolio of mixed assets that have collectively lower risk than any individual asset. In other words, the framework calibrates the minimum –variance frontier that correspond to optimal portfolios for a given level of risk − optimal weight to assign to each asset class in order to realize the highest level of returns for a given level of risk.

The most efficiency frontier will represent well-diversified portfolio thus a powerful means of archiving risk reduction. This is possible, in theory, because the mean-variance optimization algorithm indicates that; (i) only the first two moments (i.e returns and risk) are sufficient to define and analyze distribution characteristics of assets subject to a number of restrictions such as holding a threshold value in a particular asset class; (ii) Investors inherently avoid risk - rational investors are not willing to accept additional risk unless the level of return compensates them for the

risk; (iii) the focus should be on a portfolio as a whole and not on individual securities. The risk and reward characteristics of all of the portfolio's holdings should be analyzed as one, not separately; (iv) different types of assets often change in value in opposite ways – that is, asset making up the portfolio should be weakly (negatively) related (Glezakos *et al.,* 2007); and (v) there must be feasible portfolio that minimizes risk (as measured by variance or standard deviation) for a given level of expected return and maximizes expected returns for a given level of risk.

More significantly, the modern portfolio theory suggests that markets are efficient; implying that market participants are well informed, have studied the fundamentals of the individual securities and are acting rationally and therefore, asset's transaction price is the best determinant of value. Indeed, the "Efficient Market Hypothesis" states that while the returns of different securities may vary as new information becomes available; these variations are inherently random and unpredictable. Assets are re-priced literally every second of the day according to what news is immediately available. As new information enters the market it is quickly reflected in the prices of securities and thus temporary pricing discrepancies are extremely difficult, if possible, to exploit for profit.

Advanced information dissemination technology and increased sophistication on the part of investors are actually causing the markets to become even more efficient, further complicating attempts to exploit price fluctuations. The implications of the Efficient Market Hypothesis are profound for investors. It implies that one should be deeply sceptical of anyone who claims to know how to "beat the market." One cannot expect to consistently beat the market by picking individual securities or by

"timing the market". Based on this hypothesis, it is argued that, investing in a market portfolio is a better strategy than attempting to analyze and pick individual securities or market timing – that is, attempting to time the entry and exit points of each asset. Thus, by investing in more than one asset class an investor can leap the benefit of diversification that reduces the overall risk of a portfolio. That is, the risk in one asset portfolio will be higher than the risk inherent in holding multi-asset Portfolio.

In fact, the modern portfolio theory is an approach to strategic asset allocation that strives for the highest return for a given level of risk or the lowest risk for a given level of return. As defined, strategic asset allocation involves making a conscious selection regarding the type of asset that will be part of investment portfolio over the long term. Therefore, when a portfolio is created, a benchmark portfolio (or base policy mix) is established, founded in expected return and risk. It assumes that an investor cannot predict market returns, therefore has to reduce risk by using long term risk and returns expectations for a complete market (Darts, 2008), and that; risk reduction can only be achieved by diversification across major asset class whose returns are less than perfect correlated one.

However, the mean-variance optimization algorithm is hardly used in practice due to a number of shortcomings, criticism and concerns from both academician and practitioners. These concerns, criticism and/or reservations rest on the arguments that; (i) historical returns and yield employed to project expected returns, volatility and/or covariance matrix are inefficient (bad) indicators/ estimators of future returns and/or market conditions, and (ii) recent studies present clear and robust evidence suggesting that both volatility and correlations vary across assets and over time as

opposed to the model's assumptions of constancy parameters. More significantly, several empirical studies indicate that a small change in expected returns creates a dramatic shift in asset mix when assets are highly correlated and exhibit the same level of volatility and subsequently, the procedure calibrate optimal weights with the largest asymptotic error (see, for example, Merton, 1980).

A realistic response to the above shortcomings is presented by Black and Litterman (1990, 1992) who developed an asset allocation model, christened as the Black-Litterman (BL) model which generates implied anticipated returns from current exposure of the market (benchmark) portfolio. Estimated implied returns are then employed to forecast individual assets returns. Yet, both the mean-variance optimization algorithm and the Black- Litterman model models assume that asset returns are normally, independently and identically distributed a contention which is highly challenged on the grounds that: (i) returns of most assets are neither Gaussian nor independent but display excess kurtosis, skweness and are better approximated by a non linear data generating process. To address this problem, studies by Alexander and Baptisa (2000), Sentana (2001) among others propose to optimize the mean-variance efficient frontier subject to Value-at-Risk (VAR) as a main constraint. This argument recurs in a study by Amenc and Martellini (2002) which forcefully indicates that specifying Value-at-Risk (VAR) as a main constraint is very important if non-gaussian alternative assets classes are considered in a mixed asset portfolio.

2.6.2 Risk – Parity/Factors Models

The classical approach to portfolio construction (i.e. the mean variance optimization procedure) is considered to be inefficient during the financial crisis. Empirical facts

indicate that asset classes are highly correlated during crisis and subsequently, lessen significantly the diversifications benefits of the mean variance optimization procedure as well as increasing losses to investors. As a result, a number of studies suggest new quantitative models for addressing asset allocation decisions based on the underlying risk factors rather than on asset classes such as, the Risk-Parity and the Risk factors models.

Risk – Parity model presents a new approach to asset allocation decisions (i.e. portfolio construction) by analyzing risk contribution of each asset. The method indicates that volatility of a portfolio based on the mean- variance optimization model parallels equities volatility and therefore, does not immune investors from downside risk. The objective of the risk-parity model is therefore to build a portfolio of mixed assets where each asset class has equal contribution to the risk (volatility) of the resulting index in order to achieve true diversification benefits. Nevertheless, Mergenthaler and Zhang (2010) suggest that the resulting portfolio is significantly exposed to fixed income assets (thanks to low volatility normally displayed by fixed income assets as well as lower correlations with other assets) and very sensitive to changes in interest rates. Further, they indicate that the portfolio generates realistic expected returns if it only employs leverage. As a result, these phenomena could increase loses and increase risk in the period of financial crisis.

An alternative approach to asset allocation decision based on the risk factors is to classify investment opportunity sets on the basis of risk-returns characteristics. The primary objective being identifying, analyzing and managing portfolios risk

exposure. For instance, a study by Lu (2011) indicates that one option is the "new alternative asset classification" which was operationalized by the California Public Employees Retirement System – CalPERS in July 2011. According to this procedure, a typical risk classes with optimal weight in brackets are: (i) income (16%) which include fixed income for delivering stable income; (ii) growth (63%) comprising of public and private equity for taking advantage of economic growth; (iii) real (13%) including real estate, infrastructure and forestland which help to preserve the real value of fund investment, (iv) inflation linked (4%) such as commodities and inflation linked-bonds mainly for hedging against inflation; and (v) liquidity (4%) which covers cash and nominal government bonds and helps to supply liquidity when need.

Furthermore, Lu (2011) indicates that a variant approach to the above classification is to allocate assets based on assets performance in adverse economic conditions. That is, based on risk and returns behaviour of each asset class during the crisis period without adjusting for long term targets. This approach translates to a portfolio constituting of: (i) Cash (2%) which includes short term liquid investments and helps funds to avoid hurriedly sale (fire sale prices) to meet expected liability and manage liquidity needs such as paying annual dividend; (ii) Interest rates such as government bonds (6%) as a cushion against severe equity market correlations; (iii) Company exposure (53%) including stocks, investment grade and high yield bonds as well as bank loans and private equity to take advantage of economic growth; (iv) real assets such as real estate, infrastructure and treasury inflation protected securities in order to preserve the real value of funds over time; and (v) special opportunities (21%) to

take advantage of perceived market opportunities. These include absolute returns, real returns mandate distressed debt, structured credit among others.

2.6.3 Liability Driven Investment Strategy

A different approach to portfolio construction is based on liability driven investment strategy. The primary objective of the liability driven approach is to reduce the volatility of the funded assets during portfolio construction by taking into account the liability profile of the investors (funds) under consideration. Mergenthaler and Zhang (2010) suggest the procedure generates a stable funded portfolio simply because it accounts for the economic behaviour of liabilities. However, this is only possible in theory, if the resulting portfolio is significantly exposed to long term fixed income assets such as bonds and an overlay of interest swaps (Mergenthaler and Zhang, 2010).

2.6.4 Economic Regimes Model

Economic regimes model is an approach to tactical and dynamic asset allocation strategies. In practice, many institutional investors are engaged in active asset allocation decisions by tactically rebalancing their long term strategic optimal portfolio by picking securities and/or timing market turning points based on short term market conditions and expectations – that is, based on expected returns and risk behavior of each asset class in various market (conditions) regimes. The goal is to generate the most revenue to achieve short term and long term financial goals of an organization or institution while keeping the level of risk to investors as low as possible (Campbell and Vieira, 2002).

The process involves forecasting further direction of macroeconomic variables such as inflation rates, GDP growth rates, employments rates, industrial production, construction spending, housing starts just to name a few. Subsequently, institutional investors re-balance long term strategic portfolio base on their forecast. Therefore, to implement this technique, institutional investors must pay special attention to behavioral relationships between expected performance of asset classes and macro economic variables as well as have proper insights into economic cycles, causes of the market turning points, and the ability to properly forecast correlations of assets in addition to the probability of future economic/market conditions.

2.7 Evaluation of Asset Allocation Strategy

The mostly applied performance measures of asset allocation strategy include; Annualized alpha, Annualized tracking error, Annualized information ratio and hit ratio. The Henriksson − Merton (HM) approach is occasionally invoked to appraise performance of the tactical structured portfolio - portfolio based on market timing.

Generally, Alpha metric refers to excess returns realized by investment managers as a result of implement a particular (active) decision, that is, aggressiveness of the strategy. For funds comparison purposes, an average annualized alpha over a specified period is normally used. On the other hand, tracking error refers to standard deviation of alpha over a measurement period and indicates how consistent performance over time is. Generally, investors apply annualized tracking error to measure performance. However, alpha and tracking errors coefficients are significantly sensitive to skill and aggressiveness of investment managers and,

consequently, are not appropriate metrics to compare performance of different funds or investment managers. To circumvent these problems, investment industry employs annualized information ratio or hit ratio to evaluate fairly performance of asset allocation strategy between funds or investment managers. While annualized information ration is given as the ratio of annualized alpha to annualized tracking error, hit ratio is computed as the fraction of times that the funds or managers can add value over a specified period. Indeed, hit ratio shows the frequency of success rather than the degree of success and indicates the probability of realizing the positive information ratio if returns are normally distributed.

2.8 Contribution of Asset Allocation Policy to Portfolio Performance

The need to examine and explore asset allocation strategies to the performance of pension funds and especially Tanzanian pension funds should by no means be understated. This section presents empirical evidence on the significance of asset allocation strategy on the performance of intuitional investors' portfolio. Setting the stage, Ibbotson and Kaplan (2000) suggest that the proportion of the performance attributable to asset allocation policy can be addressed in three different angles namely: (i) variability of portfolio returns over time captured by asset allocation policy; (ii) Variation of portfolio returns among funds explained by policy differences; and (iii), whether active asset management add value, that is the proportion of portfolio return corresponding to policy returns.

On the issue of variation of portfolio returns over time attributable to asset allocation strategy, a good number of studies rationalize asset allocation decisions to investors' objectives as well as risk and returns characteristics of different investment vehicles.

That is, the main objective of asset allocation is to maximize return for a chosen level of risk, or stated another way, to minimize risk given a certain expected level of return. Of course to maximize return and minimize risk, one needs to know the risk-return characteristics of the various asset classes. This premise is based on the assumptions that investors react differently when assets returns and/or risk drift away from their long term expectations. That is, investors switch position based on risk and returns characteristics of assets under consideration in addition to their attitude towards risk.

More importantly, empirical evidences demonstrate that asset allocation strategy and especially initial strategic asset allocation decision is the most significant factor driving total returns and risk of a well-diversified portfolio (Brinson *et al*. 1986, 1991; Bogle, 1994). In particular, a study by Ibbotson and Kaplan (2000) demonstrates that; (i) funds total returns can be decomposed into three parts namely; returns due to the overall market movements, the excess returns from asset allocation policy of the specific fund and, the active returns corresponding to market timing, asset selection and fees, and (ii) concludes that while portfolio returns corresponding to the active strategy sum to zero over time, the strategic (passive) asset allocation policy explains 100% of the returns after netting out transaction costs. These results indicate that funds managers who engage in the active (tactical/dynamic) asset allocation in the US cannot add value.

Brinson *et al*. (1986) suggests that on average asset allocation investment policy decisions account for more than 93.6% changes in quarterly total returns for large pension investors surpassing other factors such as market timing and asset selecting

which contribute 1.8% and 4.6% respectively. In a follow up study, Brinson et al. (1991) demonstrate variability of portfolio returns over time attributable to asset allocation decision is 91.5%. This argument recurs in a study by Ibbotson Associates *et al.* (2000) which demonstrates that asset allocation accounts for 91% of investments returns while stock selection attributes 5% of returns, market timing 2% and other factors only 2%.

Consistently, Drobert and Kohler (2002) show that variation of portfolio performance over time in response to asset allocation policy is 85.7% and conclude that while the impact of asset allocation policy is similar in the US and continental Europe, the impact of active management is quite different between the two continents. In fact, it is shown that, while the overall aggregate returns due to active management in the US is zero, continental Europe indicate negative 2.37% implying that active policy does not add value in the US while it destroys investors value in the Europe.

Furthermore, Vardharaj and Fabozzi (2007) suggest that variations on funds returns across funds due to asset allocation policy are around 33 – 75% and time varying. These findings clearly cement the view that substantial amount of portfolio returns corresponds to asset allocation decisions and signify the importance of asset allocation strategies. As well, it signifies that a correct benchmark portfolio has to be created for asset allocation policy to be of any value. In contrast, Ibbotson, *at. el.* 2000 indicates that active asset allocation policy has about the same effect on portfolio performance.

However, Hensel *et al.* (1991) as well as Ibbotson and Kaplan (2000) present evidence suggesting that market movements explain volatility of funds return in addition to asset allocation policy. A study by Ibbotson, Idzorek and Chen (2010) on the other hand, suggests that even if asset allocation policy does not explain 90% of the variation of total fund returns, it is a determining factor in portfolio performance. All the same, these evidences suggest that asset allocation drives long term results much more than asset selection or market timing.

Darts, (2008) explain that the objective of asset allocation is to increase the overall return from a portfolio for a given degree of risk or reduce the overall risk from the portfolio for a targeted level of return. A long the same line. In addition, Zimmermann, Drobetz and Oertmann (2002) highlight that, for asset allocation to achieve successful investment results for a given investors over a meaningful time frame, the right asset classes with the right properties need to be balanced together in the right proportions.

On the issue of variation of portfolio returns among funds explained by policy difference, Ibbotson and Kaplan (2000) illustrate that 40% of variation of returns across funds is attributable to asset allocation strategy. Drobert and Kohler (2002) on the other hand explains that the variation of portfolio performance across funds that is explained by policy differences is around 65% while market timing and or stock picking (i.e. active strategy) account for 35%.

Furthermore, Blake *et al.* (1999) indicate that while investors initial strategic asset allocation decision is a key determinant explaining portfolio returns variations over

time, it is insignificant in explaining variation of portfolio returns among funds. In addition, Brown *et al.* (2010) reveal that asset allocation policy is not related to variation of portfolio returns across funds but does have a significant indirect effect (i.e. 75%) in explaining variation of portfolio returns over time. The importance of asset allocation is further rationalized from a strategic asset allocation perspective. It is argued that, portfolio performance is very sensitive to strategic asset allocation – efficient and effective process of distributing a broad spectrum of asset classes into a portfolio subject to investors' objectives and attitude towards risk after understanding correlation between returns.

Sharpe (1992) explores the significance of asset allocation and management style on portfolio performance and points out that style and size explain 80-90% of mutual funds returns, while stock picking accounts for $10 - 20\%$, implying that aggregate portfolio returns are significantly supported by asset allocation policy rather than active management strategy.

2.9 Studies on Pension Funds in Tanzania

In the context of Tanzania Pension funds, there are a number studies which have tried to either understand asset allocation strategy of pension funds or examine the impact asset allocation decisions have on portfolio performance. A study by Hassan (2007) for instance, invokes the mean-variance optimization to examine factors contributing to poor asset allocation strategies and concludes that lack of (and/or shortcoming) project investment appraisal, high initial investment and subsequent maintenance cost; political clouts and government intervention; inefficiency in

marketing of investment building as well as straying away during project implementation stage are primary factors explaining underperformance of institutional investors portfolio. Further, Hassan (2007) suggests that application of asset allocation strategies need to be addressed before it causes stringent and intricate implications on provision of social security to members and other stakeholders.

Mwamoto (2003) and Selemani (2004) examine asset allocation policy of pension funds in Tanzania and demonstrate that in addition to real estate, pension funds invest in equities, bonds, cash and loan to registered companies. Without substantiating, Mwamoto (2003) and Selemani (2004) suggest that realized returns from pension funds portfolio are low due to poor asset allocation strategies. In the first place this is not surprising, since the investment policies of pension funds are determined by Boards that include representatives from government, workers union, politicians and employers. The result of this practice is a pattern of investments that reflects the priorities of the government but that are not in line with the objectives of the Pension Funds. This implies the challenges that Tanzanian pension funds face is not only in understanding the nature of asset mix that will enable them to fund their long term liabilities, but also in the need for defining the optimal asset allocation strategy.

Several studies employ pension funds data sets to understand investment practices of pension funds in Tanzania. Baruti (1997) for instance, presents a comprehensive survey on the potential of the Pension Funds to diversify into banking business with an aim of improving members benefit. Baruti further ventured into the market

aspects of social security products. Kailembo (2004), on the other hand, examines factors influencing contribution evasion and its implication for social security pension schemes using data from the NSSF. Kailembo and found that financial distress among many other reasons, force many firms not to submit members' contributions on time. Rugemalira (2005finds that the need to establish regulatory and supervisory framework for social security funds to be a significant challenge which has to be addressed before it causes stringent and intricate on provision of social security protection to members and other players in the social security sector.

2.10 Investment Trends

Tanzanian pension funds invest and manage their assets in accordance to the universal principles of investment of social security funds. In practice, the principles are designed to make sure that funds income is safely invested to generated superior returns while maintaining required level of liquidity, diversification as well as prudence. Recently (i.e. from 2002 to 2011), the proportion of assets under pension funds (in Tanzania) has increased drastically – see Figure 2.1. During this period, the fund's assets have increased from TZS 366,156.45 million in 2003 to 1,506,284.66 million in 2010, representing a cumulative growth of 311.38%. The average arithmetic growth per annum is around 34.6%. In fact, statistics suggest that pension funds investments increased significantly in 2007. Total investable funds jumped to 1,368,791.93 from 691,574.09, representing a growth of 97.92%. This is not surprising as PSPF effectively become operational in 2005. In 2008 however, cumulative pension funds investments indicate a slightly decrease of 5.33% compared to 2007 data.

Figure 2.2 presents information on pension funds investments by asset class over a period of 8 years from 2003 through 2010.The fixed income financial assets category includes government securities such as treasury bills, treasury bonds and government shares. It comprises of corporate bonds, deposit in banks as well as loan and recoverable. Equities assets category consists of quoted and unquoted financial instruments from participating investment partners.
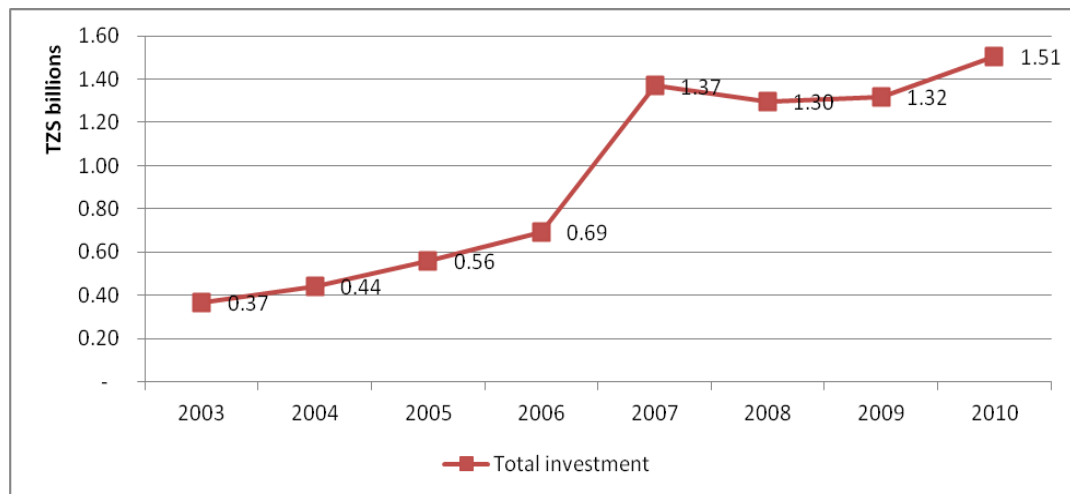
Figure 2.1: Trends of Pension Funds Investments from 2003 – 2010(Tshs Billion)
Source: PPF, PSPF, NSSF and GEPF (2010) financial statements

On the other hand, real assets include real estate, infrastructure and leased land. On aggregate, current statistics indicate that pension funds are heavily exposed to fixed income securities (75.93%) followed by equities (15.6%) and the remaining portion is allocated to real estate assets. Further, evidence suggests that the exposure to equities and bonds has been on the rise during this period though at a varying rate. In fact, an aggregate pension funds' portfolio of a multiple asset classes suggests that investment in fixed income securities has increased from 59.98% to 75.93% while equities weights has gone up by 3% from 12.21% in 2003 to 15.6% in 2010 and

mainly coming out of real estate investments in the recent years. That is, the exposure to real estate investments has been declining from 27.8% in 2003 to only 8.47% in 2010. In general, this empirical evidence presents interesting insight about Tanzanian pension funds portfolios. First, it suggests pension funds are conservative.
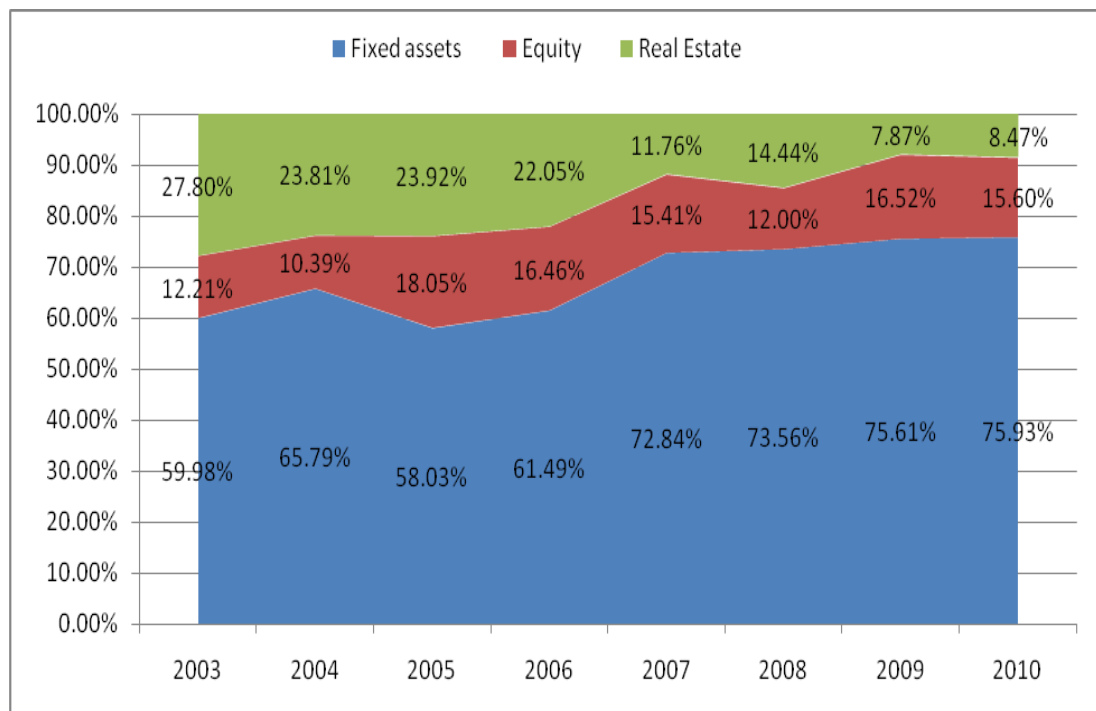
Figure 2.2: Pension Funds Investments by Asset Class 2003-2010
Source: **PPF and NSSF financial statements (2003-2010)**

Second, pension funds are more concerned about investment which are more liquid, and are less concerned about the effects of inflation. As well, investors are reluctant to augment the performance of investments in the long run by allocating a substantial amount of their resources in investment with relative higher risks such as equities. The figure below represents PPF and NSSF investments by asset class, and we believe this sample is a fare representative of pension funds industry in Tanzania. Data are sourced from their respective annual financial statements.

2.11 Assets Management in Different Pension Funds in Tanzania

It has been observed that in terms of diversity of assets classes, Table 2.3 demonstrates that the NSSF portfolio has a heavy investment (63.6%) to fixed income assets, 9.11% assigned to equities and 27.29% apportioned to real estate. Currently, the PPF portfolio suggests that 67% equivalent to 510.1 billions is invested in fixed assets, 13% (or TZS 89.3 billions) is apportioned to real estate and 19% is allocated to equities. The PSPF portfolio has a significant exposure (29.40%) in government securities, 24.05% apportioned to fixed deposit and 28.78% allocated to loans and special government projects. Other asset classes include equities (13.57%), real estate (2.33%) and corporate bonds translating to 1.87% of the portfolio.

Table 2.3: Current Status of asset classes on Pension Funds Portfolios

S/N	Investment Category	PPF	PSPF	NSSF	GEPF	Overall
1	Risk free investment	N/A	N/A	N/A	N/A	N/A
2	Fixed Income Assets	67.78%	84.10%	63.60%	60.00%	75.93%
3	Equities	18.85%	13.57%	9.11%	5%	15.60%
4	Real Assets	13.36%	2.33%	27.29%	35%	8.47%
	Total	99.99%	100%	100.00%	100%	100.00%

Source: **PPF, PSPF, NSSF, GEPF (2010) financial statements**
N/A: Not available for the sources used

The diversity of assets classes in the GEPF portfolio comprises of (60%) in fixed income assets, 5 % share of public and private equity and other assets such as real estate, lease lands and collective schemes amount to 35%. In general, the current exposure of fixed income assets in each portfolio is over 60% while the average

exposure being 75.93%. Even so, the long term profile of pension funds investments (See, for example, Table 2.13) demonstrates a significant variation in asset allocation, suggesting that investment structure is quite different from one investor to the other and is strongly sensitive to Funds (investors) objectives. It also indicates that there is no agreement (consensus) on the optimal asset mix decision.

2.13 Knowledge Gap

Previous studies (Baruti, 1997; Mwamoto, 2003; Selemani, 2004; Kailembo, 2004; Rugemalira, 2005 and Hassan, 2007; among others, have either tried to understand investment practices of Tanzania pension funds or explore asset allocation decisions, its importance as well as asset management practices from a normative approach Essentially, little has been made to document the asset allocation strategies that are used by pension funds in Tanzania and above all the factors that influence pension fund's choice of the asset allocation strategy are not known.

2.14   Conceptual Framework

Main goal of allocating assets among various asset classes is to maximize return for your chosen level of risk, or to minimize risk given a certain expected level of return. i.e. to maximize return and minimize risk, you need to know the risk-return characteristics of the various asset classes, by reducing your investment risks, you are in a better position to meet your financial goals. According to the conceptual framework below, Institutions have to adapt, to whether strategic asset allocation, tactical asset allocation and dynamic strategies for asset allocation. The strategies are designed to change the distribution of both risk and return which change linearly as

the risk free asset is introduced into a portfolio that diversification though asset allocation is also important.

There are number of factors that institutions consider when determining the choice of the asset allocation strategy for its institution, to mention but a few are interest rate in money market, fund's objectives, investment opportunities available, investment guidelines, internal investment policies and safety.

That, in order to maximize return for a given level of risk or minimise risk at a certain expected level of return, institutions have to choose right combination of assets.

Factors determining the choice of asset allocation strategies -Interest rate in money market -Internal investment policies -Investment guidelines. -Investment opportunities -Funds objectives -Safety etc	**Asset allocation choices** -Strategic -Tactical -Dynamic	Optimal risk/return levels
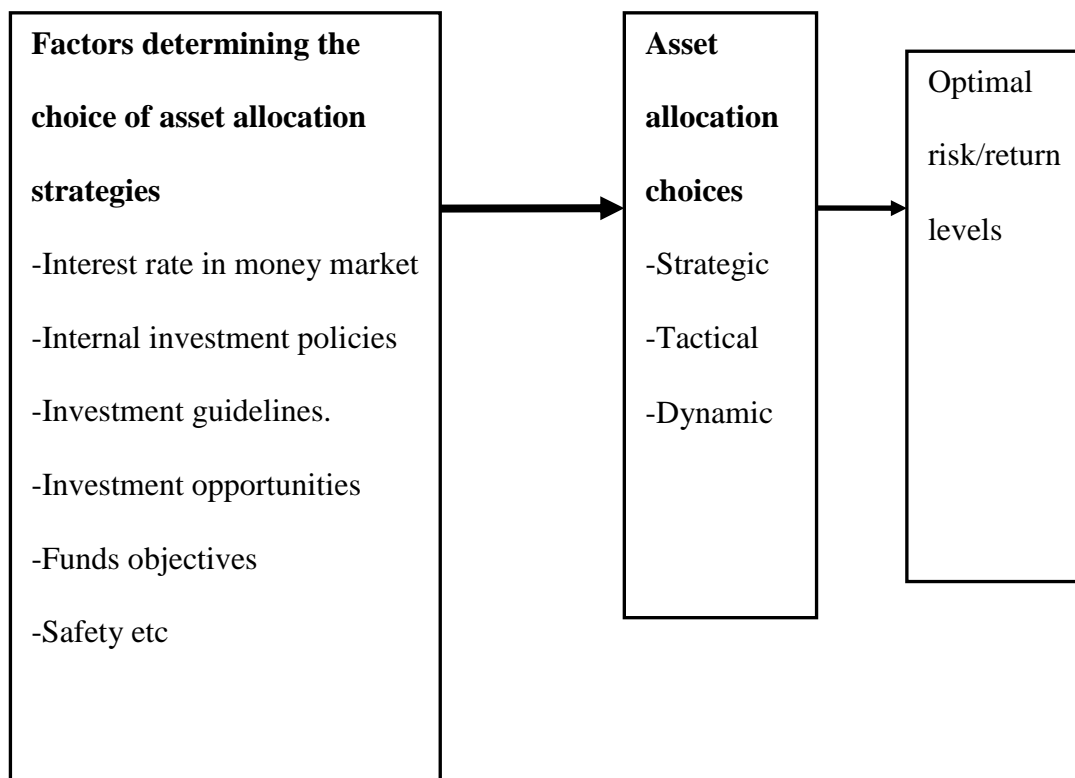
Figure 2.3: Conceptual Framework
Source: Researcher's conceptualization, 2011

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the design and the methods used in this study. It presents the research design, population and unity of enquiry, nature of sample and sampling procedure, area of study, type of data, methods of data collection, variables and methods of data analysis employed.

3.2 Research Design

Exploratory was the main design in this study. The major purpose of exploratory is to determine the state of affairs, as it exists at present. According to Saunders Lewis and Thornhill (2003) Exploratory Studies' in research design is useful for exploring and clarifying the perception and peoples actions through searching different literature, by talking to the experts and taking their advices and their way of doing things. In exploratory research, the researcher has to use facts or information already available, and analyze these to make critical evaluation of the material. In this study, exploratory techniques were used to describe as well as analyze asset allocation of Tanzania pension funds. This method was chosen because the research requires informal discussion with the management or employees of that particular Institution, and it provides insights to the researcher.

3.3 Area of Study

The study was conducted in Dar es Salaam. Dar es Salaam was chosen because the study is based on pension funds in Tanzania, and that the headquarters of all pension

funds are in Dar es Salaam with an exception of the Local Authorities Pension fund (LAPF), headquarters of which are in Dodoma.

3.4 The Population

All social security schemes in Tanzania constituted the study population. These are the National Social Security Fund (NSSF), Public Service Pension Fund (PSPF), National Health Insurance Fund (NHIF), Parastatals Pension Fund (PPF), the Local Authority Pension Fund (LAPF) and the Government Employees Pension Funds (GEPF). In additional all departments in a particular Pension Fund formed our population while all workers under each department formed the target population of the respondents.

3.5 The Sample Size and Sampling Procedures

Sampling is a range of procedures where a researcher uses to gather information about people, places or things to study (Kombo and Tromp, 2006). Although it should be noted that there is no exactly number of elements to be selected to form a sample, Economist, 1997(cited by Saunders *et al.,* 2000:15) suggest a minimum of 30 items to be included in a sample when statistical analysis adopted. However, this study did not to make any statistical inferences and therefore this consideration was not necessary.

The criterion used to select pension funds was location in which a pension funds must have its headquarters in Dar es Salaam. A second criterion was that a pension fund should have significant investment portfolio of long term assets. Consequently,

LAPF and NHIF were respectively excluded leading to a final sample of four (4) pension funds.

These were NSSF, PPF, GEPF and PSPF.

Both the departments and respondents in each pension fund were purposively selected. Only departments dealing with allocation of funds in each Pension fund namely; investment department, planning department, and portfolio management (estate) department formed our sample. However in some of the selected pension funds, investment and planning were under one department.

As for the respondents, the study targeted officers knowledgeable and able to respond to questions and deliver the required data. In particular, it included the persons having expertise or experiences about the asset allocation issues in these institutions such as data on asset mix, proportion of the assets in each selected market (asset mix), investment (time) horizon, asset diversification strategies and risk-return characteristics. Originally it was planned that five officers will be selected at random from each department.

This was found to be impractical as they all work to implement the organization's policy on investment (asset allocation). The population of such officers was also limited. Thus, fewer officers than planned were involved mainly heads of the sampled departments. No respondents were drawn from regional offices. There is no reason to believe that this restriction had biased the results. Table 3.1 presents the final sample. In total, 2 to 3 interviews were carried out in the selected cases making a total of 12 interviews.

Table 3.1: Composition of the Sample

S/No	Fund	Number of respondents projected	Actual Number of respondents
1.	PPF	5	4
2.	NSSF	3	3
3.	GEPF	3	2
4.	PSPF	4	3
	Total	**15**	**12**

Source: Researcher (2011)

3.6 Data Type and Collection Procedures

The study collected two types of primary data. First it dealt with the asset allocations strategies in use in the samples pension funds; and secondly it dealt with the factors that influence the pension fund's choice of a particular allocation strategy. To achieve this, interviewer-administered questionnaire, also known as structured interview (Saunders, *et al*., 2003) where the researcher physically met with the respondents and read them same set of questions in a predetermined order and recorded his or her response to each.

3.7 Data Collection Instrument: The Questionnaire

The study used a questionnaire in a manner described in section 3.6. Hague and Jackson (1996), provides the advantages of using questionnaire as being economical and that respondents in distant locations can be reached, the questions are standardized, anonymity can be assured and questions can be written for specific purposes. For the purpose of this study, the questionnaire was administered by the researcher. The questionnaire was designed to have three sections. The first section

was designed to collect personal data on the respondents, covering gender, age, academic qualification, the pension fund to which he or she belongs and work experience in within the fund and the department. This part contained a mixture of closed and open ended questions.

The second section also contained a mixture of open and closed ended questions. The first question was designed to capture the areas in which the fund invested its money. The second section contained 16 different statements designed to capture features of asset allocation strategy used by the pension fund under the study. Respondents were asked to give their opinion in terms of the extent to which they agree to such statement. A five-point Likert scale was used. The last section contained two open ended questions aimed at capturing the factors that influence the pension funds to choose the asset allocation strategy they use.

3.8 Reliability and Validity of Measurements

3.8.1 Reliability

Reliability refers to the extent to which data collection techniques will yield consistent findings, similar observation, would be made or conclusions reached by other researchers or there is transparency in how sense was made from the raw data (Saunders, *et. al.,* 2003). This was ensured by having an interviewer-administered questionnaire to guide the interview rather than the "drop and collect later" approach. This ensured that respondents answered the same questions and in the same order with control by the researcher where potential misunderstanding of the questions were detected and rectified during the interview process.

3.8.2 Validity

Validity is concerned with whether the findings are really about what they appear to be about (Saunders, *et. al.,* 2009). In addition, White (2002:26) argues that validity is concerned with the idea that the research design fully addresses the research questions and objectives researcher is trying to answer and achieve respectively. To ensures validity, this study used a number of measures: (i) focusing on officers who deal daily with the investment decisions of the pension fund to reduce the possibility that the results may be biased simply because the respondents did not have the opportunity to understand or participate in the investment decision processes of the Fund, (ii) having more than one officer in the Fund's selected department participating in the interview answering the same questions and in the same order, the purpose being to countercheck whether different officers give same account of the subject matters being investigated.

3.9 Data Processing and Analysis

Data collected was handled at different levels. Data from section A of the questionnaire was summarized and results presented in tables and charts. Question 8 in section B contained 16 statements in a 5 point-Likert style where respondents were asked to rate from "strongly disagree" to "strongly agree". Strongly Percentage of those who responded strongly agree or agree to a given statement were aggregated and reported. Scores on statements representing features of a particular asset allocation strategy were then aggregated to come up with the percentage of respondents either agreeing or strongly agreeing that the strategy exists in the pension funds. These results were then compared with the suggestions of modern

portfolio theory for the extent of conformity. Data collected from section C (open-ended questions) were analysed for content where themes were developed to represent either reasons for or factors influencing the choice of allocation strategy.

3.10 Ethical Consideration

The researcher asked the informed consent from the respondents to willingly participate and provide information. The researcher observed the right of the respondents to privacy and confidentiality of the information they provided. In ensuring research principles, the researcher ensured confidentiality on personal identities of the respondents and those associated with the information they provided.

CHAPTER FOUR

4.0 FINDINGS

4.1 Introduction

This chapter presents and discusses the findings of the study. It is organised in four

sections as follows. Section 4.2 presents the description of the sample while section

4.3 presents the assets in which pension funds in Tanzania invest their money.

Section 4.4 presents finding on the assets allocation strategies used by the Tanzania's

pension funds.   Section 4.4 discusses the findings about the assets allocation

strategies in relations to the suggestions of the modern portfolio theory (MPT) and

concludes on the extent to which the identified asset allocation strategies conform to

such suggestions. Finally, Section 4.5 presents results on the factors that influence

the pension funds' choice of asset allocation strategies.

4.2   Respondents

4.2.1 Distribution Of Respondents Across Funds

To address the objectives of the study, 15 officers were targeted for interview.

However, only 12 officers (80%) eventually participated. Table 4.1 details the

number of interviewees relative to the target number in each Fund.

Table 4.1: Respondents per Fund

S/No	Fund	No of officers targeted	No of officers interviewed	Response Rate (%)
1	PPF	5	4	80.0
2	NSSF	3	3	100.0
3	GEPF	3	2	66.7
4	PSPF	4	3	75.0

Tota l	**15**	**12**	**80.0**

Source: Field data, 2011

4.2.2 Respondents' Working Departments and Experience

Table 4.2 presents distribution of respondents in their working departments. Out of the twelve, seven respondents were from the investment departments and five were from the planning departments. All were fully engaged in determining and implementing asset allocation strategies in their pension funds in which they work.

Table 4.2: Respondents per Working Department

S/No	Fund	Investment department	Planning department	Total
1	PPF	3	1	4
2	NSSF	1	2	3
3	GEPF	1	1	2
4	PSPF	2	1	3
	Total	**7**	**5**	**12**

Source Field data, 2011

In terms of working experience, Figure 4.1 indicates that 43% of respondents have worked with pension funds for more than four years, 29% have worked with the respective fund for between two and three years, 21% between one and two years and only 7% of the respondents worked for less than a year. In additional 33% of the respondents have worked in other departments for three to four years before joining the current department; while 18% have worked in other departments for seven to nine years. 49 % have no experience in other departments.

4.2.3 Respondents Education

Table 4.3 shows that the most of respondents were graduates. There were more bachelors degree holders. This indicates that the minimum qualification of officers in units dealing with planning and asset allocation responsibilities is first degree. With the current globalization, there is a need for them to be given opportunities to learn the emerging technologies to support in their work.
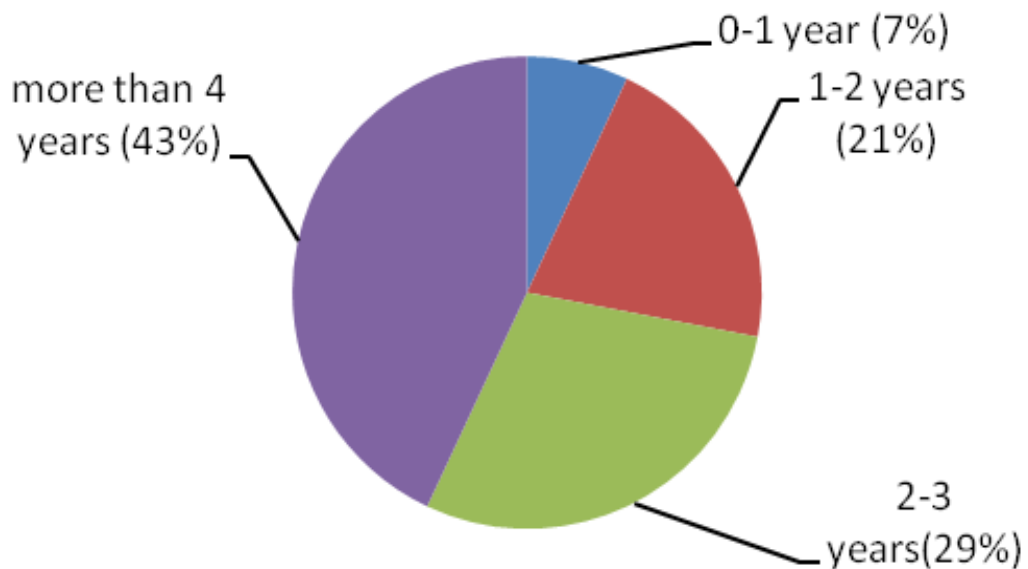
Figure 4.1: Respondents Working Experience
*Source:*Field data, 2011

Table 4.3: Respondents' Level of Education

Education Level	NSSF	PPF	PSPF	GEPF	Total
Secondary education	N/A	N/A	N/A	N/A	N/A
Diploma	N/A	N/A	N/A	N/A	N/A
Degree/advanced diploma	1	1	2	1	5
Masters	1	2	2	2	7
Others	N/A	N/A	N/A	N/A	N/A
Total	**2**	**3**	**4**	**3**	**12**

Source: Field data 2011

4.2.4 Assets in which Pension Funds Invest

Asset allocation depends more on money collected from contributions from members. The challenge is how to make the contributing members benefit from the funds. This question is not new, as similar question have also been raised in developed countries. According to Coronado *et al* (2003) and Willmore (2007) public funds are in most cases mismanaged and that funds do not attract members because they fear of getting suboptimal effects during their retirement. In Table 4 .4 indicates asset allocation by different pension funds in Tanzania.

Table 4.4: Assets in which Tanzanian Pension Fund Invest

ASSETS	NSSF	PSPF	PPF	GEPF
Fixed income assets	P	P	P	P
Equities	P	P	P	P
Real Estate	P	P	P	P
Loans	P	P		P
Special government project		P		
Collective schemes				P
Police project		P		
TISS project		P		
MSE's lending	P			
Housing finance	P			
Infrastructure	P			
Emerging market	P			

Source: Field data 2011

Figure 4.4 shows that, most institutions invest in fixed income assets, equities, real estate, and loans, and that only NSSF invest in MSE's lending, housing finance, infrastructure and emerging markets.

4.4 Investment Allocation Strategies

Given the importance of asset allocation strategies in influencing the wealth outcome, the first objective of this study was to identify the asset allocation strategies adopted by pension funds in Tanzania. The question was addressed by asking respondents to give their opinion in terms of whether they agree or disagree with a set of selected positive statements which are believed to characterise a given allocation strategy.

The literature review identified three categories of asset allocation strategies namely – strategic asset allocation strategy, tactical assets allocation strategy and dynamic assets allocations strategy. The opinion was measured in a five point Likert scale ranging from strongly agree, agree, neutral, disagree and strongly disagree. In the analysis, those disagreeing and strongly disagreeing were put together the total is reported as a percentage of all respondents. Likewise, those agreeing and strongly agreeing were reported together and percentage of those who agree to a given statement. Table 4.5 presents the results. Respondents were first asked to determine whether the respective pension fund has and investment policy that govern investment activities in the respective fund. It was found, as was expected, that all the case pension funds have investment policy in place and they used them to guide the investment activities in the respective fund.

The results shows that in the course of allocating funds in different asset classes, fund managers used institutional investment policy to guide them in taking up the acceptable investment opportunities and set a limit on the percentages combination of investment on the portfolio. It is the investment policy that created a benchmark (base) portfolio that determines the long term asset mix and short term active asset allocation strategies. Respondents further explained that the investment policies were determined by board of directors who in most cases are not technocrats and non-professionals including the politician, and representatives from workers union and other government departments. .As a result assets mix may reflect other priorities that are not in agreement with overall pension funds objectives.

> *In our department not always what we plan is what we implement. We have a large influence from politicians and that most of the board members do not include technocrats in the fields of asset allocation strategies* [Ngooo[1], respondent, a member working in one of the planning department]

According to Ngooo, there are possibilities that the asset allocation strategy that is eventually implemented would deviate from the one that is most practical in order to be inline with the interests behind the Board of Directors. This might have both positive and negative impacts in their planned portfolios. The asset allocations strategies are detailed in the coming subsections.

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[1] It is a pseudo name

4.3.1 Strategic Asset Allocation

Respondents were read six different statements which, as per the literature reviewed, characterize the strategic asset allocation strategy. Respondents were asked to give their opinion on each of these statements by indicating the extent to which they agree or disagree that the statement reflects what they do when allocating assets in their respective fund. Table 4.5 presents the results.

Ninety percent of the respondents either agreed or strongly agreed that asset allocation strategy of their respective pension funds follow both their base policy as well as the investment policy, objectives and risk tolerance level. Eighty (80) percent of the respondents indicated that their investment policies are based on expected rates of return for each asset class. Equally 80 percent of the respondents agreed that asset combination is based on time scale and that their asset combination is based on market rise and fall/economy strength and weakens.

However, only half of the respondents indicated that their asset combination is based on expected returns. This latter results is not surprising as it confirms what was claimed earlier that political interference in some instances force the funds to take up investments even when their expected return are not as promising as the alternatives. From these results it is clear that pension funds in Tanzania do use some degree of strategic asset allocation strategy in investing members' contributions except for the potential political interference.

Table 4.5: Strategic Asset Allocation Strategy in Tanzania Pension Funds

S/N	Statement	Disagree (%)	Neither/Nor (%)	Agree (%)

S/N	Statement	Disagree (%)	Neither/Nor (%)	Agree (%)
1	Our investment policy is based on expected rates of return for each asset class	10	10	80
2	Asset combination is based on Time scale	0	20	80
3	Our asset combination is based on expected return	0	50	50
4	Asset allocation strategies for this institution follow our base policy, objectives and risk tolerance level.	0	0	90
5	Our allocation strategy adhere to the investment policy	0	10	90
6	Our asset combination is based on market rise and fall/economy strength and weakens	0	20	80

Source: Field Data 2011

On the other hand 10% were indecisive on whether investment policy is based on expected rate of return and only 10% were unable to say whether institutional allocation strategy adhered to investment policy. This is in accordance to Sharpe (1987) who argues that investors do employ strategic asset allocation strategies when taking care of their investment in relation to risks and expected returns.

4.3.2 Dynamic Asset Allocation

Respondents were also asked to give their opinion as to the extent they agree or disagree to a number of statements supposed to reflect the characteristics of dynamic asset allocation strategy. Table 4.6 presents the results.

Table 4.6: Dynamic *Asset Allocation*

S/N	Statement	Disagree (%)	Neither/Nor (%)	Agree (%)

1.	Our asset allocation strategy are designed for the short term profit as a way to achieve the overall investment objectives	40	50	10
2.	Our institution adjust asset mix as the market rise or fall	0	20	80
3.	We frequently sell the declining assets and buy the increasing assets	0	70	30
4.	If stock shows weakness our institution adjust according to expected returns	0	10	90
5.	Our institution adjust allocation strategy flexibility to take part in economic conditions that are more favourable	10	20	70
6.	Our strategy is reviewed by rebalancing the portfolio with long asset position	0	20	80

Source: Field Data 2011

In Table 4.6, 90% of the respondents either agree or strongly agree to the statement that when stock shows weakness their institutions adjust their portfolio to maintain the expected return. Again 80% agree or strongly agree to the statement that their institutions' strategy is reviewed by rebalancing the portfolio with long asset position and similar proportion agree or strongly agree to the statement that their institutions adjust asset mix as the market rises or falls. In additional, 70% of the respondents agree or strongly agree to the statement that their institutions adjust allocation strategy flexibly to take advantage of economic conditions that are more favourable.

Notable results from Table 4.6 are the 10% respondents who agree or strongly agree to the statement that their institutions' asset allocation strategy is designed for the short term profit as a way of achieving the overall investment objectives as well as the 30% respondents who agree of strongly agree to the statement that their

institutions frequently sell the declining assets and buy the increasing assets. These two results are consistent with the behaviour of pension funds on the Dar es Salaam Stock Exchange where they seem to practice a buy and hold strategy, specifically on the shares.

Thus overall the results suggest that the Tanzanian pension funds do adopt dynamic asset allocation strategy to some extent. This is because contrary to what is insisted in dynamic asset allocation strategy, for Tanzanian pension funds, those assets that are underperforming are normally not sold and that in most cases assets allocation strategy are not designed for the short term profit as a way to achieve the overall investment objectives.

4.3.3 Tactical Asset Allocation

Respondents were also asked to give their opinion as to whether they agree or disagree to statements which reflect the use of tactical asset allocation strategy. Table 4.7 presents results on tactical asset allocation. Of particular interest here are the first and the last statements in which 80 percent of the respondents either agree or strongly agree that their institutions adjust the asset mix as economy strengthens or weakens and that their strategy are based on temporary overweighting overvalued assets and or underweighting assets that appear to be exposed to short term risk. These are typical characteristics of tactical asset allocation strategy. The rest of the results in Table 4.8 are the same as those in Table 4.6.

Table 4.7: Tactical asset allocation

S/N	Statement	Disagree (%)	Neither/Nor (%)	Agree (%)
1.	We adjust the asset mix as economy strengthens or weakens	0	30	70
2.	Our asset allocation strategy are designed for the short term profit as a way to achieve the overall investment objectives	40	50	10
3.	Our institution adjust allocation strategy flexibility to take part in economic conditions that are more favourable	10	20	70
4.	Our strategy is reviewed by rebalancing the portfolio with long asset position	0	20	80
5.	Asset allocation is based on temporary overweighting overvalued asset and/or underweighting asset that appear to be exposed to s/term risk	0	30	70

Source: Field data, 2011

In practice, tactical asset allocation is done in order to identify the asset that are outperforming (overweighed) in the short term or underperforming relative to their long term expectations. In that case, assets that appears to be exposed to short term risks are overvalued or underweighted. Respondents viewed that in the short run, tactical asset allocation was practiced more than dynamic asset allocation strategies by Tanzanian pension funds.

In analysing questionnaires according different Tanzanian pension funds, respondents from NSSF were of the view that they reviewed asset allocation strategies periodically in order to take part in economic conditions that are more optimistic for a particular investment opportunity than other pension funds. In similar

analysis mode, PPF and GEPF strongly indicate adjustment of portfolio strategies to be implemented for several reasons, such as: first, to match expected income streams with long term obligations, that is, the portfolio is reviewed with the aim of rebalancing the asset mix with long asset position; to capitalize on economic conditions that are more favourable for one category of investment class than others; and finally, allocation strategy is reviewed as the economy strengthens or weakens. The PSPF on the other hand, illustrates that allocation strategy is adjusted if stock/bonds markets show weakness and/or in order to match long term obligations with expected income streams, that is, long asset position

Overall, it is concluded that pension funds in Tanzania use strategic, dynamic and tactical asset allocation strategies to a greater extent although the extent varies from one fund to the other.

4.4 Asset Allocation Strategies of Pension Funds in Tanzania and the Principles of Modern Portfolio Theory

Modern portfolio Theory uses variance optimization (model) algorithm pioneered by Markowitz (1952) to create the strategic portfolio (asset allocation). This technique creates a portfolio of mixed assets that have collectively lower risk than any individual asset. In other words, the framework calibrates the minimum −variance frontier that correspond to optimal portfolios for a given level of risk − optimal weight to assign to each asset class in order to realize the highest level of returns for a given level of risk. According to Glezakos *et al*, (2007), the most efficiency frontier will represent well-diversified portfolio thus a powerful means of archiving risk reduction. That is, the asset making up the portfolio should be negatively correlated

and there must be feasible portfolio that minimizes risk (as measured by variance or standard deviation) for a given level of expected return and maximizes expected returns for a given level of risk.

Our findings from the field shows that all Tanzanian pension funds uses investment policy and Social Security Regulatory Authority guidelines to guide them on the acceptable investment opportunities/set a limit on the percentage combination of investment among different asset classes. The investment policy is then used to create a benchmark (base) portfolio that determines the long term asset mix and short term tactical and dynamic asset allocation. Results also indicate that in the process of combining different assets, institutions consider diversification but no optimal weights are assigned to each asset class in order to realize the highest level of returns for a given level of risk as it would be considered under the suggestions of the modern portfolio theory. Thus it is concluded that the asset allocation strategies of pension funds in Tanzania do not obey the principles of the modern portfolio theory as the assets are not sold even when they do not make profit. Most pension funds do allocate assets based on the two policies discussed in this section and that no attempt is made to optimize asset combination in the portfolios as the modern portfolio theory would recommend.

4.5 Factors Influencing the Choice of Asset Allocations Strategies

The last objective of this study was to identify factors that influence the choice of asset allocation strategies for the Tanzanian pension funds. To address this issue,

respondents were asked to highlight factors which influence their choice of asset allocation strategy in their respective institutions. Table No. 4.8 summarizes the factors identified by the respondents. All funds pointed out that their choice of asset allocation strategies is governed by (i) the fluctuating interest rate on the money markets (ii) regulatory requirements as issued and administered by the SSRA; and (iii) Fund's internal policies and guidelines.

Inadequacy of profitable investment opportunities was cited by the three major funds while safety of the investment is cited by two of the major funds but also GEPF. Political clout and yield were cited by two of the major funds so as the desire to maintain value and the fund's objectives. Finally, risk tolerance level, liquidity requirements, diversification, socio economic utility and inflation were cited once and by the same fund.

Table 4 8: Determinants of Asset Allocation Strategies

S/N	Statement	Overall	PPF	PSPF	NSSF	GEPF
1.	Falling interest rates in money market	4	**P**	**P**	**P**	**P**
2.	Social Security Regulatory Authority guidelines	4	**P**	**P**	**P**	**P**
3.	Investment policy and guidelines	4	**P**	**P**	**P**	**P**
4.	The absence of enough investment opportunities in Tanzania	3	**P**	**P**	**P**	
5.	Safety	3	**P**		**P**	**P**
6.	Property developers in Tanzania are not enough	2	**P**	**P**		
7.	Fund objectives	2	**P**		**P**	
8.	Politics clout	2	**P**	**P**		
9..	Yield	2	**P**	**P**		
10.	Maintenance of value	2	**P**		**P**	
11.	Risk tolerance level	1	**P**			
12.	Liquidity	1	**P**			
13.	Diversification	1	**P**			
14.	Social -Economic utility	1	**P**			
15.	Inflation	1	**P**			

Source: Field data, 2011

The dominance of the investment policy, interest rate, and SSRA guidelines as the primary factors driving asset allocation strategies is not surprising at all as pension funds collect contributions from members and are obliged to invest the funds in income generating investments with the objective of creating and maintaining liquidity and solvency. Likewise, pension funds need to maintain liquidity, safety and the ability to meet both short and long term funds obligations. Differently stated,

pension funds are obliged to compensate (repay) their contributing members in the incidence of loss of employment and/or in the event of injury in the work place. Further, the benefits and services covered by the pension funds include but not limited to sickness benefits, old age benefits, family, maternity, invalidity medical care as well as survivors benefits as highlighted above. All these would guide pension funds in the course of setting their investment allocation strategies.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The main objective of the study was to evaluate the asset allocations strategies of the Tanzania's pension funds. Specifically, the study sought to identify such strategies and compare them with those that are suggested by the modern portfolio theory (MPT) and finally, it sought to identify the factors that influence the Fund's choice of such strategies. To achieve these objectives, interviews using structured questionnaire were carried out with selected officers of four out of the six pension funds in Tanzania. In total twelve officers were interviewed. Data so collected was cleaned, summarized and analyzed and results presented using different tools. This chapter summarizes the key findings and presents conclusions and recommendations regarding asset allocation strategies of Tanzanian pension funds. Finally the chapter presents areas for future research.

5.2 Summary of the Key Findings

The findings reveals that to a certain extent pension funds in Tanzania use strategic, dynamic, and tactical asset allocation strategies in allocating funds into investment avenues, although such extent varies from Fund to Fund. Investment guidelines issued by SSRA and internal policies seem to be the most relied upon strategies by all Funds. In addition, only less than 30 percent of the respondents agreed that their funds frequently sell the declining assets and buy the increasing assets, behaviour achievable through active participation in the secondary stock markets for

investments in securities and in other markets for non-security assets. Also less than 10 percent agreed that their institution's allocation strategies are designed for the short term profit as a way to achieve the overall investment objectives.

These results are consistent with the practice observed on the Dar es Salaam Stock market where despite these funds being very active in the primary securities market, they are less or inactive in the secondary stock markets, meaning that they tend to enjoy the buy-and-hold strategy.

When compared with the suggestions of the modern portfolio theory the study finds that although all the statements to which the respondents agreed to reflects some of the characteristics of the modern portfolio theory suggestion, little attempt is made to optimize the assets combination in the portfolios. This is the most important feature of MPT and is missing in all the funds involved in the study.

Furthermore, the study reveals that in choosing the asset allocation strategy, funds in Tanzania consider mainly interest rates on the money markets, SSRA guidelines, internal investment policies and guidelines, availability of profitable investment opportunities, and safety of the investment avenues.

As stated in the preceding paragraph, the supremacy of these factors is not astounding at all as pension funds collect contributions from members and are not only obliged to invest the funds in income enhancing investments with the objective of creating and maintaining liquidity and solvency but also are obliged to meet both

short and long term funds obligations – that is, compensate their contributing members in the incidence of loss of employment and/or in the event of injury in the work place, sickness, old age, maternity, invalidity medical care as well as pay survivors benefits.

5.3 Conclusions and Implications

5.3.1 Conclusions

It can be concluded that pension funds in Tanzania are making significant progress in adopting modern asset allocation strategies in allocating funds in various investment assets, prefer buy- and hold- strategy and are yet to engage modern optimization models that balance expected risk and return better than relying only on policy guidelines.

It can also be concluded that their choice of strategy is mainly influenced by the SSRA guidelines as well and the Funds' internal investment policies and guidelines and interest rates on the money markets.

5.3.2 Implications

5.3.2.1 Implications to Policy Makers

Policy makers should review policies periodically in order to take advantages of what is going on in the market place. Policy makers should also include an item in the policy document that encourages Tanzanian Pension Funds to use available theories and models for optimal combination of assets. Furthermore, investment policy should be created by professionals who can use and advise on advantages of applying asset allocation theories/models and portfolio optimization.

5.3.2.2 Implications to the Industry

Fund managers are still in position to explore optimization models in order to determine the most optimal combination of assets in terms of balancing the expected risk and return of their investments. There should also be training with aims of continually updating and strengthening the managers' ability to assimilate optimization models in order to achieve optimal asset allocation. Likewise, pension funds needs to maintain liquidity, safety and the ability to meet both short and long term funds obligations.

5.3.2.3 Implications to Academicians

Academicians are also in position to carry out further research that will include customers and beneficiaries' views on the way Tanzanian Pension Funds allocate contributor's funds into different vehicle.

5.4 Recommendations

On the case of strategies to use in allocating assets, there is a need to involve technocrats and professionals in making decisions about allocating funds. This might help the implementers to see to it that they are accountable of the consequences of their plans and actions. On the other hand, there is a need to ensure that assets that are not making profit are sold or replaced with assets with potential for higher returns.

Training and capacity building programmes should be put in place, which should go hand in hand with investment in ICT capabilities for data handling and analysis.

These are fundamental requirements if the Funds are to attain the ability to determine optimal combination of assets.

Social Security Regulatory Authority guidelines; Funds' internal Investment policy and guidelines; should be periodically reviewed to take into account the fast changing investment and market conditions in Tanzania

5.5 Areas for Further Research

The study covered only four pension funds and only the respondents involved in planning and investment were involved. This was because; the researcher wanted to get views of the practitioners. The study was a small scale. The findings of this study are likely to form the basis for further study to include customer views, the other management team members of pension funds, and the views of the beneficiaries from the pension funds.

REFERENCES

Alesstalo, N. and Puttonen, V. (2005*). Asset allocation in Finished Pension Funds, *Journal of Pension Economics and Finance*,1, pp (1-20).

Alexander, G.J. and Baptista, A.M. (2000) "Economic Implications of Using a MeanVaR Model for Portfolio Selection: A Comparison with Mean-Variance Analysis", Working Paper, University of Minnesota.

Arnott, R. and Fabozzi, F. (1988). *Asset Allocation: A Handbook of Portfolio Policies, Strategies and Tactics,* U.S.A: Probus Professional Publishers.

Baruti, E. (1997), *The Role of NSSF as a Non Bank Financial Institution in the transition to market Economy.* Unpublished MBA (Finance) Dissertation, UDSM.

Bitters, W.E (ed.) (1997) The New Science of Asset Allocation, Glenlake Business Monographs.

Black, F. and Litterman, R. (1991). "Global asset allocation with equities, bonds, and currencies", *Fixed Income income research.* Goldman, Sachs and company, October.

Black, F. and Litterman, R. (1992). Global Portfolio Optimization, *Financial Analysts Journal*, September, pp 28-43.

Blake, D., Lehmann, B.N., and Timmermann, A. (1999). Asset Allocation Dynamics and Pension Fund Performance, *The Journal of Business*. 72(4) pp 429-461.

Bogle, J.C. (1994). *Bogle on Mutual Funds: New Perspectives for the Intelligent Investor.* Irwin: Homewood, Ill.

Brennan, M. J. E. S. Schwartz, and Lagnado R. (1997). Strategic Asset Allocation, *Journal of Economic Dynamics and Control* 21, pp 1377-1403.

Brinson, G. P., Hood, L. R., and Beebower, G. L. (1986). Determinants of portfolio Performance. *Financial Analysts Journal*, Vol. 42, pp. 39-44.

Brinson, G. P., Singer, B. D. and Beebower, G. (1991). Determinants of portfolio performance II: An update, *Financial Analysts Journal*, Vol. 47(3), pp. 39-44.

Brown, K. C., Garlappi, L. and Tiu, C. (2010). Asset allocation and portfolio performance: evidence from university endowment funds, Journal of Financial Markets, 13, pp. 268-294.

Campbell, J.Y. (1987). Stock Returns and the Term Structure, Journal of Financial Economics 18, pp. 373-399.

Campbell, J. and Shiller, R. (1988). Stock prices, earnings, and expected dividends, *Journal of Finance*, 43, pp 661-676.

Campbell, J. Y and Vieira, L. M. (2002) *strategic asset allocation. Portfolio choice for long term investor's* New York: Oxford University Press.

Campbell, J.Y. Chacko, G,. Jorge F. Rodriguez, J.F., and Viceira, L.M. (2004). Strategic asset allocation in a continuous time VAR model, *Journal of Economic Dynamics and Control*. 28(11), pp. 2195-2214.

Clarke. R.G (1997).Tactical asset allocation as a stand alone asset, *Derivatives Quarterly*, pp 55-59.

Cooksey, B., and Lokuji, A. (1995). *Some Practical Research Guidelines,* REPOA Special Paper 12, REPOA, Dar es Salaam.

Coronado J. L., Engen E. M., Knight B. (2003) "Public Funds and Private Capital Markets: The Investment Practices and Performance of State and Local Pension Funds," *National Tax Journal*, LVI (3), pp 579−594.

Creswell, J.W. (1998) *Research design: qualitative, quantitative and mixed methods.* Thousand Oaks, CA. Sage Publications.

Darts, D.M. (2008). *The Art of Asset Allocation; Principles and Investment Strategies for Any Market*, 2nd edition, , Columbus : McGraw-Hill

Dau, K. R. (2003). Extending social security coverage through Micro Insurance schemes. *Social Security Documentation Africa Series No 25, Abidjan, ISSA.*

Drobert, W. and Kohler, F., (2002). The contribution of asset allocation policy to portfolio performance. *Financial Markets and Portfolio Management*, 16(2): pp 219 – 233.

Eifert, B., Gelb, A., and Ramachandran, V. (2005). Business Environment and Comparative Advantage in Africa: Evidence from the Investment Climate Data: www.cgdev.org/files/2732_file_WP56_1_revis.pdf "as accessed on 6.6.2013".

Faccio, M. and Lasfer, M.A. (2000). Do occupational pension funds monitor companies in which they hold large status, *Journal of Corporate Governance* Vol 6, pp 71-110.

Fama, E. and French, K. (1989). Business Conditions and Expected Returns on Stocks and Bonds, *Journal of Financial Economics*, 25, pp 23-49.

Ferri, R. (2010). *All about asset allocation*. Second edition, Columbus US: McGraw-Hill

Gelb, A. (2006). "*Costs and Competitiveness in Africa,*" PSD Forum, World Bank.

Glezakos, M., Merika, A., and Kaligosfiris, H. (2007). Interdependence of major world stock exchanges: How is the Athens stock exchange affected?. *International Research Journal of Finance and Economics*, 7, pp 24-39.

Hague, P. and Jackson, P. (1996), '*Marketing Research: A Guide to Planning, Methodology and Evaluation.*' London: Kogan Page Limited.

Hassan, A. F. (2007) *Analysis of factors leading to the increasing trends in nonperforming assets of the pension funds in Tanzania*. The case study of NSSF. Unpublished MBA dissertation, University of Dar es Salaam.

Hensel, C.R., Ezra, D.D. and Ilkiw, J. H. (1991). The importance of the asset allocation decision. *Financial analysts Journal*, 47(4): pp 65 – 72.

Hornby A. S. (1992); *Oxford Advanced Learner's Dictionary*, 4th e.d, Oxford: Oxford University Press.

Hubbard, D. W. (2009). *The Failure of Risk Management,* New Jersey: John Wiley & Sons.

Ibbotson Associates (1998). *Stocks, Bills and Inflation*, year book, Chicago, IL. Ibbotson Associates.

Ibbotson, R.G., and Kaplan, P.D. (2000). Does asset allocation policy explain 40, 90 or 100 percent of performance? *Financial Analyst Journal*, 56:pp 26 – 33.

Ibbotson J.X, R.G and Idzorek, T.M., Chen, P.,(2010). The Equal Importance of Asset Allocation and Active Management. *Financial Analysts Journal* 66, pp 1-9.

ILO (1952). Social Security (Minimum Standards) Convention (No. 102). Geneva,: International Labour Office.

ILO (2008). "Social Protection Expenditure and Performance Review in Tanzania Mainland". *International Labour Office; Social Security Department.*

Infanger, G. (1999). *Dynamic Asset Allocation using scholastic programming and scholastic Dynamic programming Techniques* . Belmont: The scientific Pres

Kailembo, Y. K. (2004) *Cash Management in non banking Financial Institutions*. A case study of NSSF. Unpublished MBA Dissertation, University of Dar es salaam.

Karl Mergenthaler and Helen Zhang, (2010), Public pension funds: asset allocation strategies. J.P.Morgan Investment Analytics and Consulting, December 2010 edition, page 2 – 4.

Keim, D., and Stambaugh, R. (1986). Predicting returns in the stock and bond markets, *Journal of Financial Economics*, 17,pp 357-390.

Kessy, S A. (2001). *Investment decision and risk assessment*. The case of NIC. Unpublished MBA dissertation, University of Dar es Salaam.

Kombo D K & Tromp D, L. A. (2006). *Proposal writing and thesis proposal*: An introduction.: Nairobi. Pauline's Publications, Africa.

Kothari, C. R. (2004). *Research Methodology, Methods & Techniques*, Second edition: New Delhi New Age International (P) ltd Publishers.

Kwaku, K. (2007), *Capital Flows and Development of African Economies*: Towards an Action Plan for Financing Investment In, United Nations Economic Commission for Africa. Available at http://www.doc88.com/p-592546873075.html "as accessed on 6.8.2012".

Lincoln, Y.S. and Guba, E.G. (1994). *Fourth Generation Evaluation*. Beverly Hills, Sage.

Lu, Y. (2011). Long term investors and their asset allocation: where are they now. Global Financial Stability Report - International Monetary Fund ,

Lyn C., Daykin C.D. and Palandra M.T (2006). Professionalism within the business context. *International Congress of Actuaries Paris, May 28 – June 2, 2006.* Available at http://www.ica2006.com/Papiers/348/348.pdf "as accessed on 2.8.2012".

Markowitz, H. (1952). Portfolio Selection, *Journal of Finance* 7 (1), pp 77-91.

Massinda, J. A (1997). *Unconventional investment portfolio performance evaluation: a comparative analysis of NSSF, NIC and PPF*. Unpublished MBA (Finance) dissertation, University of Dar es Salaam.

McDaniel, C. & Gate, R. (2001). *Marketing Research Essentials*, 3rd ed., Ohio: South-Western College Publishing.

Mergenthaler, K. & Zhang, H. (2010). Public Pension Funds: Asset Allocation strategies, J.P. Morgan Investment Analytics and Consulting Newsletter, December 2010 edition

Merton, R. (1980). On Estimating the Expected Return on the Market: An Exploratory Investigation, Journal of Financial Economics, 8, pp. 323-362.

Mwamoto, R.T. (2003). *An analysis of investment performance of Pension Funds in Tanzania. A comparative case study of the NSSF and PPF*. Unpublished MBA (Finance) Dissertation, University of Dar es Salaam.

Ndulu, B., Chakraborti, L., Lijane, L., Ramachandran, V., and Wolgin J.(2007). *Challenge of African Growth: Opportunities, Constraints and Strategic Directions*, Washington, DC: World Bank.

OECD (2011). "Asset Allocation of Pension Funds and Public Pension Reserve Funds", in *Pensions at a Glance 2011: Retirement income Systems in OECD and G20 Countries*, OECD Publishing. http://dx.doi.org/10.1787/pension_ glance-2011-41-en "as accessed on 14.3.2013)".

Philips, T. K., Rogers, G. T., and Capaldi R.E. (1996). Tactical Asset Allocation: 1977-1994. *The Journal of Portfolio Management. pp* 57-64.

Randolph, H. (2005). Determinants of portfolio Performance-20 Years Later, *Financial Analysts Journal*. Vol 2, pp 12-23.

Remenyi, D., Williams, B., Money, A. and Swartz, E. (1998), 'Doing Research in Business and Management: An Introduction to Process and Method', London: SAGE Publications Ltd.

Rugemalira, J. R. (2005) *Regulation and supervision of pension funds Analysis of factors necessitating the Establishment of Regulating and supervisory Frame work of pension Fund in Tanzania*. Unpublished MBA Dissertation. University of Dar es Salaam.

Saunders, M., Lewis, P. and Thornhill, A. (2003). *Research methods for business students* third edition, Harlow: Pearson Education Limited

Scott, P. G. (1991). Strategic Asset allocation for Pension Funds. *The Journal of Finance* 3, pp 33-49.

Seleman, A. (2004). *Efficiency of Public Managed pension funds in Tanzania*. A comparison of the NSSF and PPF. Unpublished MBA Dissertation University of Dar es salaam.

Sentana, E., (2001). Mean-Variance Portfolio Allocation with a Value-at-Risk Constraint, SEMFI, working paper 0105.

Sharpe, W, F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *Journal of Finance* 19 (3):pp 425–442.

Sharpe, W. F. (1987). An Algorithm for Portfolio Improvement, In Kenneth D. Lawrence, John B. Guerard, Jr. and Gary D. Reeves, eds. *Advances in Mathematical Programming and Financial Planning*, Vol. 1, pp. 155-170. Greenwich: JAI Press, Inc.

Sharpe, W. F. (1992). Asset allocation: Management style and performance measurement, An Asset class factor model can help make order out of chaos, *The Journal of Portfolio Management, Vol 2, pp. 7-19.*

Stainback, S. and Stainback, W. (1988). *Understanding and Conducting Qualitative Research.* Dubuque, Kendell Hunt.

United Republic of Tanzania, (2006) NSSF *and* PPF *investment policy*.

United Republic of Tanzania, (2007) NSSF *Medium and Long Term Corporate Plans* Report.

United Republic of Tanzania, (2008) *National Social Protection Framework*, Ministry of Finance and Economic Affairs.

United Republic of Tanzania*, www.tanzania.go.tz*, accessed on February 2010

United Republic of Tanzania (2003). The National Social Security Policy, Dar Es Salaam: Ministry of Labour, Youth Development and Sports.

United Republic of Tanzania (2010). National Audit Report: A Performance Audit on the Processing of Terminal Benefits of Retirees from the Central and Local Government of Tanzania. A Case Study of Public Service Pension Funds (PSPF) and Local Authorities Pension Fund (LAPF). Dar Es Salaam: National Audit Office.

Vardharaj, R. and Fabozzi, F. J. (2007). Sector, Style, Region: explaining stock allocation performance. *Financial Analyst Journal*, 63(3): pp 59 – 79.

Willmore, L. (2007). Universal Pensions for Developing Countries *World Development* Vol 35, Issue 1, pp. 24-51.

Zimmermann, H., Drobetz, W., and Oertmann, P. (2002). *Global Asset Allocation: New Methods and Applications*. New York: John Wiley & Sons.

APPENDICES

Appendix 1: Questionnaire for Interview

I am **BEATRICE FELICIAN a postgraduate student The Open University of Tanzania studying for a Master of Business Management**. In partial fulfilment of the requirements for the award of the degree, I am conducting a research, titled "**An investigation of the asset allocation strategies of Tanzanian's pension funds".** The findings of this research will shade light on how pension funds in Tanzania perform asset allocation. They will also help the Faculty incorporate, into its curriculum, practical issues on portfolio management practices in Tanzania. All information that will be handled with strict confidentiality. Thank you very much for your assistance.

SECTION A: Background Information

Please Tick Where Appropriate (√)

ID. NO _____

1.   Which Social security scheme do you belong to?

    (a)   NSSF

    (b)   PPF

    (c)   PSPF

    (d)   GEPF

2.   Which department do you belong to?

    (a)   Planning and investment department

    (b)   Research and statistics department

(c)   Portfolio/Estate management department

(d)   Any other.

       Please specify…………….………….……. …………………….…………

3.   For how long have you been working in your department?

(a)   Less than one year.

(b)   Between One – two years

(c)   Three to four years.

(d)   More than four years.

4.   Have you ever worked in other sections in the organization?

(a)   Yes

(b)   No

       If yes please mention, ……………………………….……….……………

5.   Highest academic qualification

(a)   Secondary education

(b)   Degree /Advanced diploma

(c)   Masters degree

(d)   Others (please state)……………………………….......................…..

6.   Where do you invest your funds?

(a)   ……………………………………………………...……………

(b)   ………………………………81…………………….…………………….

(c) …………………………………………..…………………………………….

(d) …………………………………………..…………………………………

(e) …………………………………………..……………………………….

(f) …………………………………………..…………………………………

7. Does your organization have investment guidelines which govern the investment of funds?

(a) Yes

(b) No

SECTION B: QUESTIONS RELATING TO RESEARCH QUESTION ON

8. Please in the table below tick where appropriate (√)

S/NO	Statement	Strongly Disagree	Disagree	Neither/ Nor	Agree	Strongly Agree
1.	We do have an investment policy					
2.	Our Investment policy is based on expected rates of return for each asset class					
3.	Our asset combination is based on Time scale.					
4.	Asset combination is based on Expected return.					
5.	Asset allocation strategies for this Institution follow our base policy objectives and risk tolerance level					
6.	Our allocation strategy adhere to the investment policy,					
7.	Our asset combination is based on Market rise and fall/economy strength and weakness.					
8.	Our asset allocation strategy are designed for the short term profit as a way to achieve the overall investment objectives					

S/NO	Statement	Strongly Disagree	Disagree	Neither/ Nor	Agree	Strongly Agree
9.	Our Institution adjust asset mix as the market rise or fall					
10.	We frequently sell the declining assets and buy the increasing assets					
11.	If stock market shows weakness our institution adjust according to expected rates of return					
12.	Our Institution adjusts allocation strategy flexibility to take part in economic conditions that are more favorable for one asset class than for others.					
13.	Our strategy is reviewed by rebalancing the portfolio with long asset position.					
14.	Our asset allocation strategy are designed for the short term profit as a way to achieve the overall investment objectives					
15.	We adjust the asset mix as the economy strengthen or weakens					
16.	Asset allocation is based on temporary overweighting overvalued asset and/or underweighting asset that appear to be exposed to s/term risk					

SECTION C: QUESTIONS RELATING TO RESEARCH QUESTION THREE

9. Apart from above questions what do you think are reasons for your institution choosing the current applied asset allocation strategy?

    ……………………………………………………………………………………

    ……………………………………………………………………………………

10. What do you think are the factors influence your institution (pension funds) choice of asset allocation strategy?

THANKS FOR YOUR CO-OPERATION