

**THE RELATIONSHIP BETWEEN INVESTMENT STRATEGIES AND FINANCIAL  
PERFORMANCE OF PENSION FUNDS IN KENYA.**

**BY:**

**DOMSIANA ANYANGO ONYANGO**

**D61/60076/2010**

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF  
REQUIREMENTS OF MASTER OF BUSINESS ADMINISTRATION IN THE  
DEPARTMENT OF BUSINESS ADMINISTRATION UNIVERSITY OF NAIROBI.**

**2011.**

**DECLARATION**

I hereby declare that this research project is my original work; it has not been presented to any other institution of higher learning for academic purposes.

**Domsiana Anyango Onyango**

**D61/60076/2010**

Signed  ..... Date. .... 16

This project has been forwarded for examination with my approval as the university supervisor.

Signed  ..... Dat

**Supervisor: Dr. Josiah Aduda**

**Senior Lecturer,  
Department of Finance and Accounting,  
School of Business,  
University of Nairobi.**

## **ACKNOWLEDGEMENTS**

First and foremost, I wish to thank the Almighty God for His provision and the strength He gave me to pursue this course.

My supervisor Dr. Josiah Aduda who was indeed an inspiration to me, his useful guidance made these projects a reality. For this reason, I express my gratitude to him. He provided me with plenty of advice and help for which I should never forget to be grateful.

I feel deeply indebted to my daughters Hope and Manuela for their great sacrifice in terms of time provision just to have me go through the course.

Muthoni Wango of RBA who provided me with useful materials that helped in the development of this project I do indeed appreciate her assistance.

A profoundly thank my sister Babji, friends Caren Mondo, Carol Karimi, Carol Njoroge, Aggy Caffaso

This study would not have been actualized if my employer Teachers Service Commission did not grant me the support I received during the entire period of study.

To all my classmates from whom I received valuable comments, I say thank you all and may God bless you mightily.

## **DEDICATION**

To my dear husband Amos James and children Kimberly Hope and Kyla Manuela for their continued support and encouragement

## TABLE OF CONTENTS

DECLARATION.....	i
ACKNOWLEDGEMENTS.....	ii
DEDICATION.....	iii
TABLE OF CONTENTS.....	iv
List of tables.....	vii
DEFINITION OF TERMS.....	viii
LIST OF ABBREVIATIONS.....	ix
ABSTRACT.....	x
CHAPTER ONE.....	1
INTRODUCTION.....	1
1.0 Background to the study.....	1
1.1 Pension fund systems in Kenya.....	4
1.2. Statement of the problem.....	6
1.3 Objective of the study.....	7
1.4 Significance of the study.....	7
CHAPTER TWO.....	8
LITERATURE REVIEW.....	8
2.0 Introduction.....	8
2.1 Review of the theories.....	8
2.1.1 Systems theory view of pension funds.....	8
2.1.2 Agency Theory.....	9
2.1.3 The Investment Theories.....	10
2.1.3.1 Fisher's Theory of Investment: Theory of Interest Rates.....	10
2.1.3.2 The Expectations Theory of Interest Rates.....	11
2.1.3.3 The Market Segmentation Theory.....	11
2.1.4 Performance Measurement in Pension Funds.....	12
2.1.5 Importance of pension fund risk management.....	13
2.2 Investment factors for Pension funds.....	13
2.2.1 Cash flows.....	14
2.2.2 Risk Assessment.....	14
2.2.3 Safety.....	14

2.2.4 Growth of investments.....	15
2.2.5 Qualitative Investment factors of the firm.....	15
2.3 Review of empirical studies.....	16
2.4 Contribution rates.....	18
2.5 Rates of return.....	19
2.6 Replacement ratio.....	20
2.7 The Importance of Appropriate Measures of Performance.....	20
2.8 Summary.....	21
CHAPTER THREE.....	22
RESEARCH METHODOLOGY.....	22
3.1 Introduction.....	22
3.2. Research Design.....	22
3.3 Population.....	22
3.4 Sample.....	22
3.5 Data collection.....	23
3.6 Data analysis.....	23
3.6.1 Model Specification.....	24
3.7 Data validity and reliability.....	24
CHAPTER FOUR.....	26
DATA ANALYSIS AND PRESENTATION OF FINDINGS.....	26
4.1 Introduction.....	26
4.2 Analysis of the Response rate.....	26
4.3.0 Quantitative Data Analysis.....	26
4.3.1 Descriptive statistics.....	27
4.3.2 Pension funds governance strategies.....	27
4.3.3. Determinants of key investment strategies.....	28
4.3.4 Investment Income from the pension funds.....	29
4.3.5 Analysis of the performance of pension funds.....	30
CHAPTER FIVE.....	34
SUMMARY, CONCLUSION AND RECOMMENDATION.....	34
5.1 Summary.....	34
5.2 Conclusions.....	35
5.3 Policy Recommendations.....	36
5.4 Limitations of the study.....	37

5.5 Suggestions for further study.....	38
REFERENCES.....	39
APPENDIX 1.....	45
LIST OF REGISTERED SCHEMES.....	45
APPENDIX II.....	48
APPENDIX III.....	49
APPENDIX IV.....	52
LETTER OF INTRODUCTION.....	52
APPENDIX V.....	53
QUESTIONNAIRE.....	53

**List of tables**

Table 4.3.1 Summary statistics for portfolio investment.....	27
Table 4.3.2 Public Retirement System Governance Policies.....	28
Table 4.3.3. The most important single determinants of key investment strategies .....	29
Table 4.3.5 Analysis of findings.....	49



## **DEFINITION OF TERMS**

Annuity - a fixed sum of money paid each year to a person for the rest of his/her life, or a form of insurance that provides such a regular annual income.

Pension - a sum of money paid regularly to retired people or their dependants by government or former employers.

Retirement Benefit Scheme - is defined under the Retirement Benefit Authority Act 1997 as a scheme or arrangement under which persons are entitled to benefits in the form of payments upon retirement, death or termination of services.

Defined Benefit Plan - a pension plan where employees benefits are predetermined by use of a formula, the employee's contribution is fixed but the employer fluctuate to meet any deficit in the liabilities

Defined Contribution Plan - it is a pension design where the employer and employee pay a fixed rate of contribution. These contributions along with investments returns accumulate in a fund that is eventually used to provide pension benefits.

Replacement Rates - is the ratio of a person's pre - retirement income to retirement income.

## **LIST OF ABBREVIATIONS**

BCCI - Bank of Credit and Commerce International

CSPS - Civil Servant Pension Scheme

CMA - Capital Market Authority

DB - Defined Benefits

DC - Defined Contributions

DEA - Data Envelopment Analysis

EBRI - Employee Benefit Research Institute

GDP - Gross Domestic Product

IOPS - Institute for Pension Supervisors

IRS - Individual Retirement Scheme

OECD - Organization for Pension Supervisors

ORS - Occupational Retirement Schemes

PFL - Pension Fund Liabilities

PV - Present Value

RBA - Retirement Benefits Authority

U.S.A. - United States of America

WB - World Bank

## **ABSTRACT**

Pension funds are the principal sources of retirement income for millions of people in the world. They are also important contributors to the GDPs of countries and a significant source of capital in financial markets. The financial performance of Kenyan pension funds, both public and private, has however come under increased scrutiny. Research on how investment strategies affect financial performance in Kenya is therefore of great importance.

Pension funds are managed in diverse ways, with governance policies distinguished according to their board composition and size, how the trustees structure their investment decisions, what restrictions are placed on their investments, and whether they have independent performance evaluations. An examination on how these investment strategies, affect the funds' financial performance has been studied.

Performance evaluation models which include Sharpe's Ratio, Treynor's Index and Jensen's Index were used to test the relationship between investment decisions and financial performance. Using a sample of 36 pension funds, the study established that there were five basic challenges that were particularly critical in the context of Kenya: inadequate regulatory capacity; imprudent investment, macroeconomic instability; poor corporate governance; inability to extend coverage; and design issues such as choices between DB and DC schemes. The empirical results however showed that smaller pension funds were perceived to exhibit better financial efficiency, while pension funds with membership aged 31 - 40 were perceived to be better governed compared to other age groups.

The major recommendations proposed to address issues like reforming and enactment of adequate legal and institutional framework, undertaking sound investment projects, lower administrative costs by implementing time and cost effective operational systems, institute administrative and design changes to reduce contribution evasion. This will be in addition to the government measures to stabilize the macroeconomic environment.

# CHAPTER ONE

## INTRODUCTION

### **1.0 Background to the study**

A pension fund is a legally separated pool of assets bought with contributions to a pension fund for the exclusive purpose of financing pension fund retirement benefits (OECD 2008, Yermo 2002). Pension funds are the principal sources of retirement income for millions of people in the world. Pension funds are also important contributors to the gross domestic product (GDP) of countries. Retirement income accounts for 68% of the total income of retirees in Kenya, 45% in Australia, 45% in Austria and 80% in France while in South Africa 75% of the elderly population rely on pension income (Alliance Global Investor 2007). In the United States of America 82% of retirees depend on pension income (EBRI 2007). In Kenya, pension assets account for 30% of the country's GDP. It is therefore important that pension funds be managed effectively, not only in Kenya, but also in other countries. The Global Pension crisis has threatened to erode contributions that pension funds make to the world economies (OECD 2008). The crisis manifests in countries that have inadequate funds to cater for the retirement income of the ageing population as a result of depressed financial markets, (Kakwani, Sun and Hizn 2006). In Kenya, the losses were estimated at 35% (RBA 2009). Effective pension fund investment strategies are needed to ensure that pension fund assets are protected against externalities in the investment universe.

"Investment is the productive employment of capital". The qualification productive only means the production of return on the capital to the investor and does not refer to the nature of the particular use of capital. This means that an investment should necessarily produce income and therefore investments should be considered a process with the aim of producing income/return. Thus all the actions and decisions of the investor will be directed towards producing income. Alternatively it can also be stated that the investor will take all possible actions to reduce the risk that can result in loss to capital and ensure its safety and stability, so that gain is assured. There are a number of ways and means in which an investment is made one of them is through the means of a Pension fund. (Prime 1967)

Stanko (2002) defines "investment strategy" as the assortment of investments made by pension funds. The investment strategy determines the investment mix of the total funds of a pension fund that aims at having a careful balance between investment risks and returns (Stanko 2002; Eichholtz and Margaritova 2009). The investment strategy is therefore a plan that guides the choice of the investments that pension funds make.

Risky assets (equity investments) generally generate higher returns compared to the less risky ones (bonds) (Eaton and Nofsinger 2001; Asebedo and Grable 2004; Kakes 2006; Bikker *et al.* 2009; Baldurdottir 2000). This positive relationship between risk and returns causes a dilemma since to get more returns, pension funds have to take more risk (Eaton and Nofsinger 2001). It is therefore suggested that pension funds adopt appropriate investment strategies that provide higher returns on investments with moderate risk (Eaton and Nofsinger 2001). According to OECD (2006:2), the investment strategy varies depending on the type of pension fund. In the case of a DB, the goal of the investment strategy is to generate the highest possible returns consistent with the liabilities and 90 liquidity needs of the pension fund. In a DC pension fund, the main goal of the investment strategy is to generate gains that accrue to individual member account balances in light of the investment goals. The investment strategy thus contributes to the returns obtained on investments, which directly impacts on the financial efficiency of the pension fund (OECD 2006).

Old age poverty rates are increasing in the 21<sup>st</sup> century. The Institute for Pension Supervisors (IOPS) (2008) estimates the old age, poverty rates at 56% in Kenya with other African countries reading much higher rates. Research shows that old age poverty arises because 85% of the world's population over the age of 65 years has no retirement benefit at all (Horizon and Hinz 2001; Stewart and Yelm 2008). In the Sub-Saharan African, less than 10% of the population has a contributory pension arrangement to help them save for their retirement (Pallares-Miralles 2000). Pension fund arrangements should therefore be encouraged to enable the general population to save for retirement and consequently reduce the old age poverty levels. The pension fund industry is a significant source of capital in the Kenyan financial markets Omondi (2008). According to Omondi,

pension funds invested a sum of Ksh 420 billion in the Kenyan financial sector in 2010 of which Ksh 107 billion (22% of the outstanding domestic debt) was invested in government securities. Pension funds are thus significant institutional investors and must therefore be managed efficiently. Moreover, according to the Kenyan RBA (2009), there were 1679 pension funds by the close of 2008 of which 130 were in the public sector, 16 were individual retirement schemes and the rest were established by private enterprises. The financial performance of pension funds, both public and private has however come under increased scrutiny. It has been reported that of the 130 plans in the public sector, 69 are grossly under-funded and need urgent measures to revitalize them (Daily Nation 2010). Research on ways to improve the performance of pension funds in Kenya and arguably across the world is therefore of great importance. Pension fund performance is important as it results on investment and consequently high retirement benefits to the pensioners. Poor performance however leads to higher cost of operation, low returns on investment and in extreme cases to the demise of funds. However, low investment returns and the closure of pension funds reduce the latter's contribution and the GDP's of many countries (Bateman and Mitchell 2004).

The investment strategy used by a pension fund results in the investment mix between various investments options (Stanko 2002; Asebedo and Grable 2004). The elements of investment strategy that v/ill be related to operational efficiency include; investment regulations, liability insurance for investment decision makers, independent performance appraisal, investment policy, discretion to investment managers and maintaining a risk management policy. Pension fund performance is measured by taking into account fund-specific benchmarks and multiple cost components. Pension fund perform close to their benchmarks, where as size-matched mutual funds strongly underperform. Cost, risk, and style differences do not explain the performance gap. There are two main types of pension designs in Kenya. Defined benefits (DB) plans provide a pension that is defined in relation to salary and service. Individual members contributions if any, are typically at a fixed rate and their employer contribute a certain rate in order to meet the balance of the cost of providing the individual's benefits. Defined contribution (DC) plans do not

guarantee a level of pension. Instead, both the individual and the employer pay a fixed rate of contribution. These contributions along with investment returns accumulate in a fund that's eventually used to provide benefits at retirement. The certainty of contribution and simplicity in administration has made them the fastest growing provision in Kenya RBA News, (2004).

### **1.1 Pension fund systems in Kenya**

Pension fund systems in Kenya were first put in place after independence in 1963. The first post independent pension fund body, the National Social Security Fund (NSSF), was established in 1965. Prior to reforms, the pension fund system provided for benefits once a worker retired on attaining the mandatory retirement age of 55 years (RBA 2006). The guarantee was fixed on the worker's full basic salary throughout his life or that of the widow as the law did not envisage a situation where the wife would support the husband. This law was embodied in the NSSF Act and the Pensions Act (Cap 189).

The pension fund system in Kenya has been supervised by the independent Retirement Benefits Authority (RBA) since 2000, which oversees the 1997 RBA Act that brought about regulation, protection and structure to the pension fund industry. The RBA continues working to develop the industry and advise the government on pension policy reforms (RBA 2000).

Kenya's pension fund system embraces four components namely the NSSF, Civil Servants Pension Scheme (CSPS), Occupational Retirement Schemes (ORS) and Individual Retirement Schemes (IRS). Overall the system is estimated to cover fifteen percent of the labor force and to have accumulated assets of 18% of the GDP (Kakwani *et al.* 2006). The pension fund system covers an estimated 2 million workers leaving an estimated 5 million workers uninsured under any retirement scheme, of which at least 10% are at or near the retirement age. A distinction is however often made between a pension fund and a pension plan (OECD 2008). A pension plan has a legally binding contract with a clear retirement objective that may be part of the employment contract or may be required by law. Pension plans may offer additional benefits such as disability, sickness and survivors' benefits (Yermo 2002). A pension fund can be incorporated to

manage pension assets of various pension plans. In Kenya however, each pension plan is allowed to manage only pension assets on their own. Thus pension plans are also called pension funds or retirement income schemes in Kenya Kakwani *et al.* (2006).

The pension fund members have a legal or contractual claim on the assets of the fund. Pension funds are therefore trusts with legal capacity to invest and manage beneficiary funds with diligence and stewardship. Pension funds collect and accumulate contributions from employees and their sponsors (employers who establish the pension scheme), invest the contributions and hold the proceeds in stewardship for the benefit of the members on retirement (OECD 2004 EBRI, 2004). OECD further shows that although both the employee and the employer contribute to the pension fund, the employer is not obliged to contribute any fixed amount. The contribution rates by the sponsor and the employee are listed in the pension fund constitution and they differ from one employer to another. Yermo (2002).

Workers in Kenya are forbidden to withdraw retirement benefits from their employer's pension funds when they change jobs or before they reach the retirement age, except those in ill health or those who suffer permanent disability. The implication is that workers who leave their job before the retirement age of 60 years cannot access their employer's contributions but may withdraw their own contributions. The employer's contributions may however be transferred to another scheme of the employee's choice. Retirement savings contributed by both the employee and the sponsor can also be used as collateral when buying a home (Nyakundi 2009).

In summary, pension funds are distinct entities that are neither commercial corporations nor state owned enterprises. They therefore do not compete for customers or market share and they are single product entities as defined by the pension's law to provide members with financial security throughout their retirement life. Pension funds do not seek growth to pay dividends but instead they are evaluated on the basis of value adding to the members and long-term solvency and they limit risk by segregating their assets from those of the sponsoring entities. (Asher and Nandy 2006).



## **1.2. Statement of the problem**

The financial performance of pension schemes, which is reflected by their ability to generate sufficient revenues to meet their costs and benefit obligations in the medium and long term, can be facilitated by related sectoral reforms. In Kenya a range of regulatory and institutional reforms were put in place between 1990 and 2010 aimed at promoting the financial health and sustainability of pension schemes in the country. A study conducted by World Bank (WB 2007) indicates that Kenyan workers are condemned to old age poverty due to lack of clear acts to regulate investment of pension funds. The current study therefore traces the performance of pension investment returns.

A research gap has been identified, as the empirical literature does not relate the investment strategy to financial performance. The present study will establish the relationship between investment strategy and financial performance of pension funds in Kenya. Studies done by Claire *et al*, (2009) into the performance of UK pension funds have shown that wide variety of stakeholders stand to lose if public pension funding ratios sink, including retirees who might suffer benefit cuts and taxpayers who may have to pay for underfinanced benefit claims. Study done by Akwimbi W, (2011) took into account the fact that pension funds operate under different regulatory environments and, as result, they may be subject to specific investment constraints.

Another study done by Njuguna A, (2010) shows that there has been an increase in the types of instruments available for investment and some relaxation of the regulatory investment guidelines with more of a focus on scheme based investment strategies. Consequently financial troubles of a significant number of pension schemes have triggered an urgent need for formulation and implementation of solutions to the problem. No sufficient investigation has been done to determine the key variables such as governance, investment practices, legal and regulatory framework, administration costs, mode of financing, macroeconomic factors and demographic profiles, that influence the financial viability of pension systems in developing countries.

There is therefore lack of empirical Information on the subject area, particularly in Kenya. Again, none of the studies carried out in developed, or developing countries weighed and ranked the financial viability variables to determine their degree of influence. Another gap identified was lack of information on the role and influence of capital markets as an avenue for maximizing returns of pension funds investments. No empirical work has been done in the developing countries, particularly in Kenya, to determine the role and impact on the financial viability of pension funds. In a study by Akwimbi W, (2011) it was concluded that firms should conduct pension schemes where the employer contributes a certain percentage together with the employee contribution and the funds be invested and trustees should control the fund. The increasing importance of pension funds performance means that it is important that careful consideration should be given to the likely benefits that members can expect from them.

### **1.3 Objective of the study**

The main objective of the study is to establish the relationship between investment strategies and the financial performance of pension funds in Kenya.

### **1.4 Significance of the study**

The study will be of great importance to the pension participants (contributors) who will be keen to know the performance of pension schemes for their future wealth.

Pension contributors, managers of pension funds, Plan sponsors and workers representatives (trade union) should be concerned with implications of financial viability/adequacy.

Researchers and academicians seek to understand how the pension funds are invested so as to finance the retirees.

Regulators of pension sector such as the Retirement Benefits Authority and the Capital Market Authority may also be interested to know the implications changes in the level of funds availed to pension schemes and how the same are invested.

## CHAPTER TWO

### LITERATURE REVIEW

#### **2.0 Introduction**

Most employers including government and quasi government bodies set up pension plans or provident funds (generally referred to as retirement schemes) to cater for their employees at retirement. The main objectives of retirement benefit schemes are two folds; first is to redistribute income towards low income pensioners and prevent destitution at old age, the second objective is to help workers maintain living standards during retirement by replacing income from work at an adequate level. When setting up pension plans/provident funds, employers make a promise to employees to provide income to them on either attainment of retirement or leaving employment, but after benefits have vested. This creates a liability for the employer, who in turn is required to establish a pension or provident fund and, make periodic deposit in it so as to have sufficient assets to meet promised payments as they fall due (Wanyama, 2000). Contributions to the fund come from both employer and employee where the scheme is contributory or from only employer where the scheme is non-contributory. The contributions must be invested well for the fund to yield adequate returns and sustain itself to meet promised retirement benefits. This chapter will discuss the theories that support this study, empirical studies, and general literature specific to this study.

*J*

#### **2.1 Review of the theories**

##### **2.1.1 Systems theory via AV of pension funds**

Pension funds like other organizations, can be viewed as open systems since they collect and accumulate contributions from employees (members) and their sponsors (employers who establish the pension fund), invest the contributions and hold the proceeds in stewardship for the benefit of the members upon retirement (Davis 2005). Davis (2005) thus suggests that pension funds have definite inputs that they convert to outputs. Following this systems theory approach (inputs - conversion - outputs); efficiency in the present study is conceptualized as the pension fund's ability to maximize financial outputs (pension fund value and retirement benefits) from the scarce financial resources (contributions, investment funds, other inputs) available to it. According to Chansarn

(2005), a financially efficient system ensures distribution of limited funds to the most beneficial uses in the most effective manner. The systems approach is also evident in the OECD's (2004) description of efficiency. The latter defines efficiency as controlling spending, accomplishing more with lesser financial resources, commissioning long term investments to save financial resources in the long term and using budgets prudently.

Concurring with the systems approach, pension fund efficiency in the present study is defined as the ability of a pension fund to maximize its financial outputs (retirement benefits and asset values), operate at minimal costs, pay retirement benefits on time and generally optimize gains to members.

### **2.1.2 Agency Theory**

This theory expounds on one of the most important inherent characteristics of publicly held firms, the separation of ownership and control. Jensen and Meckling define the agency relationship as a contract under which one or more persons, the principal(s) engages another person, the agent, to perform some service on their behalf that involves delegating some decision-making authority to the agent. If both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in the best interests of the principal. In this theory, the agent acts in the interest of the shareholders but in practice, managers have information advantages over shareholders and have their own interests, which may not coincide with those of the owners. Apart from the issue of separation of ownership from control, Levinthal (1988) identifies other problems that can afflict any type of agency relationship. These can result from uncertainty and goal conflict or from an inability to write a contract that fully specifies the behavior of the agent in all situations. With respect to uncertainty, agency theorists have identified two categories of problems. First, there is the moral hazard problem, which involves an agent failing to exert the necessary effort to satisfactorily perform his or her job (shirking) or taking actions that benefit him or herself at the expense of the principal (opportunism). These problems result from a lack of monitoring or ineffective incentives. Second, there is the adverse selection problem, arising when an agent lacks the competence to perform the job. It results from, failure of the principal to verify the claimed skills of the agent.

The goal conflict problem results when there is divergence of interests between the principal and the agent. It is then difficult and or expensive for the principal to monitor the agent's behavior to ensure appropriate behavior (Eisenhardt, 1989). A fundamental assumption of agency theory cited by Hess and Impavido (2003) is that individuals are self-interested and will act on that self-interest; that is, they are opportunistic.

The agency theory has its shares of criticisms that have mounted in recent times following a rise in number of serious financial scandals reported including the Enron (2001) and the WorldCom (2002) sagas of the U.S, cases of corporate mismanagement such as those by Robert Maxwell (1991) and the Bank of Credit and Commerce International (BCCI) (1991) of the U.K. These were popular symbols of willful corporate fraud and corruption. The Enron and WorldCom scandals were a factor in the creation of the Sarbanes-Oxley Act of 2002. Such events have driven scholars and politicians to devote increasing attention to corporate governance leading to the development of the stewardship and stakeholder theory.

### **2.1.3 The Investment Theories.**

Investment theory encompasses the body of knowledge used to support the decision-making process of choosing investments for various purposes. It includes Fisher's Theory of Capital and Investment, the Portfolio Theory, the Capital Asset Pricing Model, the Arbitrage Pricing Theory, and the Efficient Market Flypothesis. But what motivates a person or an organization to invest? Goetzmann (1990) opines that the most common answer is savings - the desire to pass money from the present into the future. People and organizations anticipate future cash needs, and expect that their earnings in the future will not meet those needs. In addition there is the desire to increase wealth or make money grow or for charity. For pension schemes, the author argues that investments serve the purpose of accumulating wealth that will be used to pay determinable benefits to contributors during retirement.

#### **2.1.3.1 Fisher's Theory of Investment: Theory of Interest Rates**

Irving Fisher's theory of capital and investment was introduced in his *Nature of Capital and Income* (1906) and *Rate of Interest* (1907), although it has its clearest and most

famous exposition in his Theory of Interest (1930) (Fisher, 1930: Chs.6-8). The theory of interest sets the investment decision of the firm as an inter-temporal problem. The accumulation of their assets is therefore dependant on investment management, which is the professional management of various securities such as shares, bonds and assets in order to meet specified investment goals for the benefit of the investors. The theory is relevant to the study as pension funds are among the leading institutional investors in capital markets. The rates of assets accumulation hence pension benefits depend on investment management, which determines interest rates. The real interest rate, according to Fisher is the price that equates the supply and demand of capital. The supply depends on people's willingness to save and that is to postpone consumption while the demand depends on opportunities for productive investments.

#### **2.1.3.2 The Expectations Theory of Interest Rates**

According to the expectations hypothesis, longer-term rates are determined by investor expectations of future short-term rates. Thus the yields on financial assets of different maturities are related primarily by market expectations of future yields. Different term bonds can be viewed as a series of 1-period bonds, with yields of each period bond equal to the expected short-term interest rate for that period. Accordingly, if future interest rates are expected to rise, then the yield curve slopes upward, with longer term bonds paying higher yields.

#### **2.1.3.3 The Market Segmentation Theory**

The third theory that explains the yield curve, or the term structure of interest rates, the market segmentation theory, assumes that financial instruments of different terms are not substitutable (Hull, 1989). Both short and long-term interest rates are distinct markets, each with its own buyers and sellers, and are not easily substituted for each other. As a result, the supply and demand in the markets for short-term and long-term instruments is determined largely independently. Prospective investors decide in advance whether they need short-term or long-term instruments. If investors prefer their portfolio to be liquid, they will prefer short-term instruments to long-term instruments. Therefore, the market for short-term instruments will receive a higher demand. Higher demand for the

instrument implies higher prices and lower yield. This explains the fact that short-term yields are usually lower than long-term yields. This theory explains the predominance of the normal yield curve shape. However, because the supply and demand of the two markets are independent, the theory fails to explain the observed fact that yields tend to move together (upward and downward shifts in the curve). In addition the theory overlooks the fact that there is considerable degree of overlapping between different markets. Same institutions operate in different markets dealing in securities of different maturities. The theory attributes this to an investor preference for long-term securities, particularly pension funds that prefer guaranteed longer-term yields. The theory is therefore based on institutional practices followed by the commercial banks and insurance companies, pension funds and investment trusts. While the commercial banks mostly deal in short term securities, insurance companies, pension funds and investment trusts mostly deal in long-term securities.

#### **2.1.4 Performance Measurement in Pension Funds**

The performance of investments of pension funds is of central importance if accumulated assets are used to meet pension obligations. Its measurement is therefore a prerequisite for effective Investment as it serves the purpose of analyzing both past performance and for projecting future. Resulting information forms the basis for allocating the fund's assets among portfolio managers and ensures that investment is efficient relative to the opportunities available. Kidwell and Peterson (1994) once observed that understanding the past is a necessary prelude for contemplating the future.

Several techniques exist for the evaluation of financial performance of pension funds. Miller and Hanhose (1993), however, point out that current profitability is the most widely accepted measure and is evaluated either using return on assets or equity. Unfortunately this measure alone can't permit one to judge the long term performance of financial institutions because it could mislead if they have made investments that will perform poorly in future. In addition, the technique is a poor indicator of the growth or decline of financial institutions either alone or in group. Consequently the authors propose other measures to be considered along with profitability such as asset growth, those based on the size of investment return achieving a set investment return target,

reducing administrative costs, or any combination of these measures. Asset growth provides a reasonable indicator of both their current and long term performance and prospects.

### **2.1.5 Importance of pension fund risk management**

Retirement risk management has become important as a result of the global demographic aging coupled with social security benefit cuts and the volatile stock market returns (Maurer, Mitchell and Rogalla 2008). The major concern for pension fund stakeholders has been the variability of the value of pension fund investments which have always been based on the aberrant market values (Maurer *et al.* 2009).

Bikker *et al.* (2009) concur that pension funds are instrumental in the transfer of risk from individuals to collectives and hence are better risk managers compared to individual investors since they have incentives to invest in the long run and bear the long-term risks. The collectivism of the pension fund members enables them to bear risk that would have been otherwise avoided thus making them more efficient (Bikker *et al.* 2009). Pension fund risk management is important since risk tends to reduce the returns on investment over the long run, creates uncertainty about the value of pension assets when pension liabilities become due and raises questions that impact on the governance aspect of pension funds when irregularities and market volatility lead to losses in the pension funds (Maurer *et al.* 2009).

### **2.2 Investment factors for Pension funds**

The following factors are the basis for the criteria that are taken into account for Pension fund investments. These factors are generic and apply to the investment decisions of all kinds of investments. But taking into consideration certain specific aspects of the Pension funds, emphasis is given to some factors as stated below. The factors as stated below are interrelated and influenced by each other. The criterion for any investment evolves taking more than one factor into consideration.



### **2.2.1 Cash flows**

The investment decisions of the firms are determined by the cash flows. Luenberger (1998) has defined the cash flow sequence as the amount of money that will flow to and from an investor over time. These cash flows occur at known dates. Therefore this means that the investments can be rated according to the magnitude of its cash flows. The best investment decision can be had in terms of the pattern of cash flows of different investment models. These cash flows are defined based on quantitative assessment calculations like Net present value, internal rate of return, Payback period, Expected monetary value and Expected present value.

### **2.2.2 Risk Assessment**

One of the more tangible elements in the financial investment model is the investigation of financial risk. Hayes (1961) states that for the purpose of functional analysis, financial risk is defined as the risk to corporate solvency which may arise from the use of senior securities in the capital structure or because of the assumption of other forms of debt. Dowrei et.al (1961) has aptly stated that an investment programme involves balancing of return against risk. Risk assessment ranges from an analysis of stability and growth to the variety of other factors stated in the sections. Thus as Elton et al (1991) have also stated the value of a firm is a function of its dividends, growth and risk. The advance commitments of the Pension fund investor makes the assessment of risk a major priority. In this connection the concept of fiduciary duty also comes up which is defined as "relating to or involves confidence or trust between the investor and person for whom the investment is being done for protection of the finance depending on public confidence for the value of the currency" (Britannica online encyclopedia 1998). The Pension fund investor will take all possible actions to reduce the risk to his capital. The financial risk is based on a ratio analysis like the current ratio which shows the relationship of current liabilities to the current assets, the quick ratio shows the working capital of the company, or the turnover ratio which depicts the rate at which the expenses are turned into cash.

### **2.2.3 Safety**

Related literature states that the safety in a security implies safety of principle and safety of stable income from this principle. But as Prime (1967) has pointed out the two are interwoven in the sense that the inability of the issuer to pay the income sadly affects the

research gap has been identified, as the empirical literature does not relate the investment strategy to efficiency. The present study will investigate the appropriate investment strategy to maximize operational efficiency.

Value of the principle therefore safety becomes a major priority in making investment decisions. "The investors always seek security with high degree of safety adequate with relation to his circumstances and requirements" (Prime 1967). Pension fund investors give more emphasis on the safety of the investments, as they are liable to make future payments. In order to assess the safety the Pension fund investor will assess the long-term duration of the safety.

#### **2.2.4 Growth of investments**

An investment is made for appreciation. This is the growth factor. Growth or investment for appreciation as Dowrei (1961) has termed it involves investments in securities when the appreciation is expected to be based on increased earning power or improved financial condition. When growth of investment is an essential element or goal of investment then the investor will try to foretell the future instead of just measuring on the basis of prior records. He will try to anticipate important changes and its effect on the investment.

#### **2.2.5 Qualitative Investment factors of the firm**

The quantitative results portrayed in the financial statements of the firm are to be analyzed taking qualitative factors. An investigation into the demonstrated performance research gap has been identified, as the empirical literature does not relate the investment strategy to efficiency. The present study will investigate the appropriate investment strategy to maximize operational efficiency.

One of the companies as revealed by the financial statements can be the major basis for the measurement of the values of securities. Therefore the pension fund investor will analyze the Balance sheet , Assets and the cash flow statements of the firms in order to assess as Hayes (1961) and Prime (1967) have analyzed.

### **2.3 Review of empirical studies**

Empirical literature reviewed suggests that there are some research gaps regarding the performance of pension funds. The research gaps relate to computation of efficiency, governance, investment strategy and pension fund size. Studies on the performance of pension funds either use financial ratio analysis (Dulebohn 1995) or compare the pension fund returns with the market indices (Stanko 2002; Bikker and Dreu 2009). The use of Data Envelopment Analysis (DEA) has been documented as a more superior technique of analysis of efficiency (Cinca, Mai Morinero and Garcia 2002; Barros and Garcia 2006) since it enables the ranking of the institutions being evaluated and generates scores for inefficiencies. Very few studies have used DEA to measure pension fund performance.

Although corporate governance has attracted much attention in the recent past, focus has not shifted to pension fund governance and credibility of the pension systems as important determinants of pension funds (Besley and Prat 2005; Carmichael and Palacios 2003; Ambatchsheer 2001). Additionally, there appears to be a research gap on the attributes of an effective pension fund board of trustees in terms of composition; whether to provide finance education to the trustees or whether to compensate trustees for the services they offer. The present study intends to determine the governance variables that ensure high financial efficiency of pension funds.

Literature on the relationship between size and efficiency reveals mixed findings. Studies that report on the absence of the relationship include Cicotello and Grant (1996), Droms and Walker (2001) and Grinblatt and Titmat (1994). Contradictory results on the same proposition are included in Gallagher and Martin (2005) and Cheong (2007). In terms of risk, Droms and Walker (2001) noted that portfolios of smaller funds are more risky than larger funds but found that smaller funds outperforming the larger funds. Malhotra and McLeod (2000) found contradicting results on the same issue. The contradictory findings of the empirical studies have left a research gap on the optimum fund size. The present study will attempt to determine the fund size that is prevalent in the most efficient pension funds.

Different authors (Asebedo and Grable 2004; Markese 2000; Stanko 2002) relate the investment strategy to the mix that an investor makes in the investment portfolio. Asebedo and Grable (2004) further identify two investment management styles: passive and active management and argue that passive investment management is more conservative than active investment management. A research gap has been identified, as the empirical literature does not relate the investment strategy to efficiency. The present study will investigate the appropriate investment strategy to maximize operational efficiency.

Local studies done by Alexander Forbes Survey Consulting Actuaries Schemes' Survey shows that there has been an increase in the types of instruments available for investment and some relaxation of the regulatory investment guidelines with more of a focus on scheme based investment strategies. As part of the closer integration within the East African Community, from 2007, investments in Tanzania and Uganda are treated as domestic investments for the purposes of determining a scheme's exposure to offshore investments. The new legislative requirements have seen a number of local and international asset management and pension administration firms enter the market resulting in an increase in competition, lower fees and enhanced service levels.

Various studies have been reviewed in line with investment of pension schemes. It is important to note that the studies are mainly foreign with a few local ones. In a study by Mghali (2003), he concluded that firms should conduct pension schemes where the employer contributes a certain percentage together with the employee contribution and then invested and trustees should control the fund. Mugweru (2001) in his study on National Social Security Fund (NSSF) recommended that investment department at NSSF should consist of professionals who adhere to proper investment policies and procedures.

Study done by William Ambaka Akwimbi (2011) took into account the fact that pension funds operate under different regulatory environments and, as result, they may be subject to specific investment constraints. It therefore used four hypothetical benchmarks to assess the performance of privately managed pension funds in each country. The study

findings established that the performance of pension funds in most countries is below what it would have been possible, as indicated. The increasing importance of pension funds performance means that it is important that careful consideration should be given to the likely benefits that members can expect from them, by the negative value of the returns net of benchmark returns for each country.

The increasing importance of pension funds performance means that it is important that careful consideration should be given to the likely benefits that members can expect from them. The pension benefit that an individual will get from pension funds depends on many factors including the age they start saving, the age they retire, how much they and their employer contribute, investment returns, and investment and administration charges and the cost of buying an annuity at retirement. Of these factors, the one that an individual and scheme sponsor may have control over is the level of contributions.

#### **2.4 Contribution rates**

Pension benefits largely depend on the amount both the employer and employee contribute to the plan. The contribution rate is given as a percentage of current annual earnings. Research done by Broadbent et al, (2006) indicates that on average or at the median of the distribution, U.S. participants contribute five percent of gross salary to their accounts and that about quarter of participants contribute less than four percent of pay. Broadbent et al, (2006) further asserts that an annual contribution of six percent would be sufficient to replace about seventy five percent of earnings in retirement if those contributions were made constantly for forty years, if employers matched one half of the worker's contributions each year, and if the account were to earn, a seven and half percent annual (nominal) return.

Parke et al, (2005) posit that contribution rates to pension plans seem to be affected significantly by particular design features of the plan; in particular, contribution rates tend to rise significantly when employers match a portion of the worker's contributions, offers provisions for workers to take loans against account balances, and give workers arrangement of investment options to chose from.

In the U.K., how contributions rates have been highlighted as a cause of concern for retirement, the Pension Commission (2004), using data from various surveys, found that DB plan contributions are in the 16-20 percent range compared to about 7-11 percent for DC plans. Blake (2000) notes that a modest contribution rate will still provide an adequate retirement income, but this outcome is contingent upon a period of sustained contributions, he estimates that a contribution rate of 11 percent will provide a retirement income of two-thirds of final salary, for a male retiring at age 65, assuming an average annual salary of 3 percent and nominal rate of return on plan contribution of six percent per annum.

Odundo (2006), in his address at World Bank conference in Washington DC, indicated that the average income replacement ratio in Kenya stands at 20% against the minimum 40% recommended by the World Bank and ILO. He attributes the low replacement ratio to low contribution rates, easy access to benefits while in employment and upon changing jobs.

## **2.5 Rates of return**

Porteba et al (2006), asserts that accrued benefits in pension funds do not depend on financial market returns, except in extreme circumstances that correspond to an insolvent pension plan. Yet benefits in DC plans are tied directly to financial returns. They maintain that DC plans expose prospective retirees to greater risk than DB plans precisely because of this financial market link.

The uncertainty of interest rate is a major concern in most pension plan designs. Shiller (2005) posits that individuals in DC plans face the risk that they may retire at a time when equity markets have fallen. This means that they may face double hurt of lower fund at retirement and cost of purchasing annuity. This problem is more acute in a developing economy where the stock market is not well developed.

## **2.6 Replacement ratio**

A commonly used measure of adequacy is the replacement rate, defined as post retirement relative to pre-retirement income (McNair et al 2005).using this approach, income is considered adequate if it is sufficient to generate given replacement rate. The Macdonald two-thirds retirement models will be used.

The two-thirds retirement model described in the Macdonald and Cairns (2006), states that a pension plan member retires once their accounts can provide a sufficient wage replacement income. The retirement income shall be considered adequate if it yields 40% of the pre-retirement income. This is the rate recommended for developing economies by World Bank and International Labor Organization (ILO).

The two-thirds retirement income benchmark is an adequate salary replacement level according to the range given in the report prepared by the Canadian Institute of Actuaries (1996).it is also near the actual average replacement ratio of each of the Organization for Economic Co-operation and Development (OECD) countries, moreover, MacGill et al(1996)explained that most retirement income adequacy models assume that workers can maintain their standard of living after retirement with a pension income between 60-80% of their pre-retirement wages.

## **2.7 The Importance of Appropriate [Measures of Performance**

The spectacular losses experienced by many pension funds since the onset of the financial crisis in late 2008 have been widely noted and debated. The OECD estimates the losses of pension funds in OECD countries to be \$5.4 trillion or about 20 percent of the value of assets in these countries in 2008 (Antolm and Stewart 2009). The returns of pension funds in Latin America and Central Europe in 2008 were two digits negative.

A focus on short-term nominal returns on investments, however, hides the fact that returns are only one of several factors that will determine the performance of pension funds to provide retirement income to their Members. Others factors include administrative and investment management costs, the density of contributions, and the behavior of participants in choosing a retirement age. The other factors that drive pension benefits in an asset-backed setting have received much research and policy attention in recent years. For instance, countries have designed a variety of mechanisms to reduce costs, including the imposition of caps on fees (Central and Eastern European countries),

centralization of collections and the use of blind accounts (Latvia and Sweden), lotteries that allocate new contributors among funds (Chile and Poland), and paperless transactions (Estonia). Policy makers are aware of the alternatives available, and the challenge is to ensure that the alternatives chosen are properly implemented. 1 Collective pension arrangements established by employers and employee associations can also be an effective way to keep costs low, especially when the funds established achieve sufficient scale (for example, Denmark, Iceland, and the Netherlands).

Density of contributions is also an important factor that has affected the pension benefits in countries with large informal sectors. Individuals with a low density of contributions are likely to face low accumulated assets at retirement age, and therefore are likely to have low retirement incomes. The retirement age is also an important factor that affects the performance of pension funds. Because the accumulation period is shorter in countries that allow individuals to retire earlier, individuals are likely to receive lower retirement income. As a consequence, governments in some countries have been raising the official retirement age or have introduced incentives to delay retirement. The capacity of funded individual account systems to deliver retirement income will be further challenged in this respect as life expectancy continues to increase in virtually all countries.

## **2.8 Summary**

A lot of research has been done on the performance of pension funds, more specifically in developed countries. From the literature, most OECD achieve adequate replacement ratio of 66% to 100%. However, the retirement income covered defined benefits, the defined contribution plans, social security and housing as part of retirement income. No comparative study has been done focusing on the financial performance of pension fund income and the income disparity among retirees in both the defined contribution and defined benefits pension designs. This study tries to establish if at the time of retirement there is enough funds in the pension funds to compensate and maintain the retirees after they have quit employment.



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

In this chapter, the research methodology followed in the study is discussed. This includes the research design, sampling design, measuring instruments and data analyses.

#### **3.2. Research Design**

Saunders, Lewis and Thornhill (2009) define research design as the theory of how research should be undertaken, which includes the theoretical assumptions upon which research is based and the implications of these for the method or methods adopted. The research design provides the systematic plan of inquiry from the researcher's assumptions, through the research design (data collection and analysis techniques) to result interpretation (Saunders *et al.* 2009).

The study used survey technique as research design. Survey design gives a numeric description of part of the population called the sample on the basis of the data that was collected. The data that collected was quantitative.

#### **3.3 Population**

The population for the study consisted of 1679 pension funds in the RBA register by 31 December 2010. The study quantified financial and operational performance of the funds for the period 2006 to 2010. Pension funds that were licensed before 2006 were omitted due to lack of coherent data.

#### **3.4 Sample**

The sampling unit for this study was derived using Systematic sampling as a statistical method which involves the selection of elements from a frame. In the list of registered schemes therefore, every thirtieth pension scheme will be selected for study. According to Mugenda and Mugenda (1999), 10% sample size of a population of 300 and above is adequate whereas a population of less than 300 requires a sample size of 30%, hence a sample size of 50 pension funds. A survey of all the 50 pension funds in Nairobi District will be conducted; the questionnaires will be addressed to the trustees/managers of the

pension funds. It is assumed that trustees/managers are the board of management of a pension fund and are most informed about pension fund management issues.

### **3.5 Data collection**

Structured questionnaires were used to collect primary data on issues pertaining to the size of the pension fund, the membership, and the total members who have since left and have been paid their pension benefits and the portfolio investment and expected returns.

Secondary data will be obtained from published records; such data includes returns on bonds, equity, bank interest rates, inflation rates and annual salary increment. The questionnaires were administered personally.

### **3.6 Data analysis**

The study used Multivariate analysis (MYA) based on the statistical principle of multivariate statistics, which involves observation and analysis of more than one statistical variable at a time. In design and analysis, the technique is used to perform trade studies across multiple dimensions while taking into account the effects of all variables on the responses of interest. The variables that are being use in this study include inadequate regulatory capacity, imprudent investment, macroeconomic instability; poor corporate governance; inability to extend coverage; and design issues such as choices between DB and DC schemes, funding versus PAYGO principles and public versus private management. Both descriptive and inferential statistics will be used to assess the performance of pension funds. Comparative analysis was then done on the accumulated assets. Other performance measures that were used to evaluate funds include Sharpe's ratio, Treynors measure and Jensen's Alpha.

Secondly, the instruments, used to measure the latent variables, were assessed for reliability and validity. Thirdly, various data analysis techniques were used to test the relationships among the variables in the final sample. SPSS package and excel was used to analyze data.

### 3.6.1 Model Specification

#### 1. Pension Fund Liabilities

PFL = Market value of pension fund assets - PV (Expected contributions)  $(1-T)$  - Market value of the pension fund assets + PV (expected pension fund benefits from past and future services)

Where:  $(1-T)$  = corporate tax rate.

PFL = Market value of pension fund assets -  $E E$  (contributions in year  $t$ )  $(1-T)$  +  $E E$  (Benefits in year  $t$ )

$(1 + K_b (1-T)) (1 + K_b)$

Where  $K_b$  = cost of senior debt.

#### 2. Performance evaluation

Rating a fund manager's performance relative to an external benchmark after allowing for the level of risk associated with the strategy used:

##### a. Sharpe's ratio (Risk/reward ratio)

Sharpe's ratio =  $(R_p - R_f) / \sigma_p$

Where  $R_p$  = return on the portfolio

$R_f$  = risk free rate

$\sigma_p$  = standard deviation of returns of the portfolio

##### b. Treynor's index

Treynor's index =  $(R_p - R_f) / \beta_p$

Where  $\beta_p$  = standard deviation of returns of the individual asset i.e. portfolio beta

##### c. Jensens index

It determines whether the fund manager has outperformed the market index.

$R_p - R_f = \alpha_p + \beta_p (R_m - R_f) + \epsilon_p$

Where  $\alpha_p$  = return realized by fund manager

### 3.7 Data validity and reliability

An instrument is considered reliable if the results of a study can be reproduced under a similar methodology (Joppe 2000). Reliability is therefore the extent to which measures yield consistent results (Zikmund 2000). To be considered reliable, the measuring

instrument must be free of errors and the results or observations must be replicable or repeatable (Joppe, 2000). The consistency or reliability implied in the research instrument relates to three issues namely (1) the degree to which a measurement, given repeatedly, remains the same (2) stability of a measurement over time and (3) the similarity of measurements within a given time period (Kirk and Miller 1986). Reliability of a measuring instrument is established by determining the association between the scores obtained from different administrations of the instrument (Joppe, 2000). An instrument is considered reliable if the degree of association is high.

Validity of the measuring instrument determines whether the research truly measures that which it was intended to measure or how truthful the research results are (Joppe 2000, Jones 1993, Smit 1991). Validity thus involves ascertaining whether the means of measurement are accurate and whether they are actually capturing the variables they were supposed to measure (Golafshani 2003).

## **CHAPTER FOUR**

### **DATA ANALYSIS AND PRESENTATION OF FINDINGS**

#### **4.1 Introduction**

The study focused on how investment decisions affect the financial performance of pension funds in Kenya. The study also sought to establish what guides the investment managers when they are making investment decisions. Primary data were obtained through the administration of questionnaires to different pension schemes based in Nairobi. The data collected were on total funds under management, portfolio division of the total funds managed, criteria for investment decision making and on challenges and risk of investment.

#### **4.2 Analysis of the Response rate**

A total of fifty (50) questionnaires to different pension schemes. Thirty six (36) questionnaires were collected back. The self-questionnaire measured the elements that generally describe the investment strategies employed by pension funds. These strategies, among others, include: investment committees making investment decisions; not restricting investment in any company; covering trustees with liability insurance; increased investment in fixed interest investments (bonds and treasury bills) as opposed to equity investments, conducting independent evaluations of pension fund performance to confirm rates reported by fund administrators. The financial performance of the pension funds was measured using Sharpe's Ratio which measures the excess return (or risk premium) per unit of risk in an investment strategy. The investment return comprised of dividend income and capital gains from equity investment, interest from both bond investment and fixed income investment, and also rental income from fixed assets. The pension fund liabilities include investment management expenses, administrative expenses and benefits payable (including annuities and lump sum amounts).

#### **4.3.0 Quantitative Data Analysis**

Quantitative approach in this study has yielded quantifiable concrete data such as return on investment, risk analysis of investment and the accumulated retirement benefits.

### 4.3.1 Descriptive statistics

The descriptive statistics are for financial performance, company profile and investment decisions.

Regression analysis was conducted to test the relationship between investment decisions and financial performance of pension funds. To examine pension plan investment strategies, four quantifiable measures were explored: (1) equity investment (the fraction of pension assets placed in stocks) ;(2) investment made in bonds, both Government bonds and corporate bonds (3) offshore investment management (whether asset management is contracted to offshore investment firms); and (4) fixed income investment. Concentration is on these four because they are among the key investment decisions that pension manager's make. The results are in the table below.

**Table 4.3.1 Summary statistics for portfolio investment**

<b>Investment strategies</b>	<b>Mean</b>	<b>Std deviation</b>
Equity investment	<b>41.7</b>	<b>18.6</b>
Bond investment	<b>27.9%</b>	<b>44.9</b>
Off- shore investment	<b>49.4</b>	<b>41.5</b>
Fixed income investment	<b>75.0</b>	<b>43.4</b>

**Source: Author (2011)**

### 4.3.2 Pension funds governance strategies

Pension plans all have similar goals - that is, they seek to pay promised retiree benefits with a low tax burden on the public - there is nevertheless considerable variation across their organizational structures. That is, some retirement systems have instituted elaborate rules and policies, while others have relatively few; some boards are actively involved in setting investment strategies, while others leave it to system administrators; some boards include present and former public employees, and others do not. Boards with more independent directors are more likely to take an active part in the company's strategic

decision-making; they are less likely to be sued for breach of fiduciary obligations by shareholders; and they are more likely to resist "greenmail" payments (the purchase of a block of shares at above market price from a large stockholder threatening to take control or unseat management).

Drawing on this literature but recognizing key differences pertinent to the pension funds, focus is on areas of pension plan governance where we believe the impact on investment strategies may be greatest and where we have survey information. These areas include: (1) investment restrictions; (2) independent performance evaluations; (3) board responsibility for asset allocations; (4) board direct responsibility for investment decisions; (5) board size; and (6) board composition. The proportion of the retirement systems using each of these governance practices appears in Table 2.

**Table 4.3.2 Public Retirement System Governance Policies**

<b>Governance Policies</b>	<b>Mean</b>	<b>Standard Deviation</b>
Investment restrictions	26.9%	44.4
Independent performance evaluation	70.6	45.7
Board sets asset allocations	72.7	44.6
Board directly responsible for investments	48.6	50.1
Board composition/size:		
Number of plan trustees	7.90	3.49
Plan participants as % of trustees	63.1	25.9

**Source: Authors' calculations (2011).**

#### **4.3.3. Determinants of key investment strategies**

An analysis of portfolio regulations reveals that they were critical in the determination of asset mix in pension fund portfolio which in turn affected the performance of pension funds. The composition of a pension governing board would also be expected to affect investment strategies. Systems with annual independent performance evaluations put more money in equities and international holdings, but invest less tactically. Funds whose boards are charged with setting allocation policies are less likely to invest tactically; those with larger boards are more likely to tilt toward equity and international investments, and toward inside management of the Investments. On the other hand, board

composition, measured as the fraction of members who are plan participants, has little measurable bearing on these investment strategies.

**Table 4.3.3. The most important single determinants of key investment strategies**

<b>Investment strategy</b>	<b>Most important governance determinant</b>
Allocation of funds into equities	Independent performance evaluation
Placement of funds in fixed income	Board responsible for investments
Bond investment	Board responsible for setting asset allocations
Offshore investment	Number of governors
Economic targeting	None

**Source: Authors' (2011).**

#### **4.3.4 Investment Income from the pension funds**

The table shows the analysis of how the pension funds receives its investment income and as can be seen from the graph, a good percentage of income comes from interest income followed by rental income and then dividend income that is followed closely by income from other sources. It is therefore clearly evident that most pension funds invest in fixed income securities like government bonds that yield income to the schemes in form of interest income.

<b>Investment income -admin expenses</b>	<b>Amount (in Kshs)</b>
Dividend	1,560,605,695
Interest income	9,583,149,283
Rental income	2,007,698,829
Other income	1,439,098,183



### 4.3.5 Analysis of the performance of pension funds

$PFL = \text{Market value of pension fund assets} - PV(\text{Expected contributions}) (1-T) - \text{Market value of the pension fund assets} + PV(\text{expected pension fund benefits from past and future services})$

Where:  $(1-T)$  = corporate tax rate.

$PFL = \text{Market value of pension fund assets} - E E (\text{contributions in year } t) (1-T) + E E (\text{Benefits in year } t)$

$(1 + K_b(1-T))(1 + K_b)$

Where  $K_b$  = cost of senior debt.

### 4.4 Summary and interpretation of findings

Financial performance of pension schemes depends on the investment strategies that the scheme applies on its funds. Governance policies do influence investment strategies, and investment strategies in turn shape financial performance. Governance has little direct impact on performance apart from what is mediated through investment strategies. Four governance policies which include investment restrictions, performance evaluations, board purview, and board composition/size, have an important link with investment strategies. Two of the investment strategy variables, notably equity and international investing, are associated with higher fund performance the following year, controlling for other factors. These results imply that asset allocation accounts for a large element of the difference in returns among systems.

The results further showed that the membership age, design, regulations and operational efficiency of pension funds exerted no significant influence on their financial efficiency. The results also revealed that the membership age, size and design of pension funds did not influence how these funds were led by their leadership.

Risky assets (equity investments) generally generate higher returns compared to the less risky ones (bonds). This positive relationship between risk and returns causes a dilemma since to get more returns, pension funds have to take more risk. It is therefore suggested that pension funds adopt appropriate investment strategies that provide higher returns on

investments with moderate risk. Pension fund management needs to be efficient because they have administrative responsibilities they make decisions regarding entitlements and benefits and ensure that the long-term obligations are met in the context of risk and uncertainty. This suggests that pension funds are like other business organizations in that they have goals and objectives to be realized and so their efficiency can be assessed on the basis of their ability to achieve these objectives.

Research on private pension plans indicates that asset allocation is a key driver of fund financial performance. In particular, the asset allocation decision between equity and fixed-income investments may play a greater role than the tactical movements of holdings within asset classes in shaping system performance. The appropriate investment strategy should be anchored on four pillars namely: the prudent person rule (ensuring that all investments made are in the best interests of members), diversification (ensuring that pension investments are not concentrated in a specific asset), maturity matching (ensuring that investments mature as liabilities become due) and it should have a clear statement of investment policies.

Despite the higher returns expected from equities, poor global market performance since 2005 has led many institutional investors to shift their investment mix to incorporate more fixed interest securities at the expense of equity investments. This was done to mitigate the effects of the low returns noted on equity. Strategic decision-making is therefore related to the investment strategy. Since strategic decision-making is the process of setting the parameters of institutional performance, matching its objectives and goals to long-term investment strategies informed by experience and expectations. Strategic investment decision-making results in higher returns that contribute to increased efficiency. Pension funds with a clear statement of investment principles perform better than those without. Increased pension fund returns are dependent on the active management of the investment portfolios for example, found that pension funds that invest more in equity stocks perform better than those that invest more in bonds and other fixed securities.

Investment diversification leads to average performance but minimizes losses during periods of poor stock market performance. Through proper investment strategy risk is avoided and timing is enhanced. Adapting portfolio holdings to changing economic circumstances is the essence of active investment management, and if it is effective, it should produce better returns during the year ahead. On the other hand, active management is more costly than a passive indexing strategy, and there is a suggestion that active management may not generate higher net returns after management fees.

Outsourcing of asset management should also improve investment returns since outside investment managers are likely to bring superior professional experience and skills to the pension plan investment decisions. Moreover, contracting-out allows a retirement system to change its investment managers more readily in response to poor performance. As a public agency, the pension fund is likely to find it more difficult to oust inside managers for weak results than to dismiss an outside firm for comparable shortcomings. Finally, outside managers are likely to be better shielded against political pressures to pick state and local companies for investment. A comparison of internally-managed pension funds with mutual funds revealed lower risk-adjusted returns among the former, suggesting that external management has yielded superior results in the past.

The other two investment strategy variables we use — pension preferences for equities over bonds, and international over domestic holdings - are also expected to affect pension investment performance. This is because recent analysis indicates that asset allocation decisions are more significant drivers of performance than market timing or the selection of specific securities. Retirement system trustees are usually not professional money managers, and hence they may be unfamiliar with the issues and considerations that go into making day-to-day investment decisions. Still, some pension boards fix the allocation of assets among classes of investments, and some even take a direct hand in picking the investments. The data set provides measures for both aspects of trustee engagement in investment strategies - whether a board sets asset allocations and whether the board is directly responsible for investments - and we anticipate that plans with trustees more engaged in either area will pursue less tactical investing strategies.

Results from the research also shows that most pension schemes expected a return of between 20% and 30% after investing for a period of not less than one year. In the absence of more relevant long-term measures of performance, the existing emphasis on short-term returns creates incentives for pension fund managers to focus their efforts on maximizing short-term returns. However, the funds with better short term performance are not necessarily those best aligned with the long run performance of a pension system. The literature on strategic asset allocation provides numerous examples of cases where short-term asset allocation conflicts with longer term objectives, including selection of the risk-free asset and international portfolio diversification.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATION

#### 5.1 Summary

The study has assessed the relationship between financial performances against the investment strategy. The study further examined how the funds are invested in different portfolios. Performance model was used to measure how investments performed

The analysis of the chosen sample shows that investment strategies affect the financial performance of pension funds. Choice of investment strategy affected the financial performance of the scheme.

The research shows that the pension schemes suffer from a series of significant weaknesses reflecting deficiencies in their design, in the financing and administration, aggravated by the economic crisis and the radical measures necessary to face the structural causes. The most pertinent concerns were lack of adequate legal and regulatory framework, the low coverage with marginalization of informal sector, lack of institutional capacity to deliver the social assistance programme effectively, imprudent investments that lead to negative rates of returns on overall investment portfolio, excessive government control and interference in the activities of Pension schemes, macroeconomic stability, misappropriation of scheme funds, and design issue such as choices between DB and DC schemes. In addition there were pressures arising from shrinking contribution bases and growing beneficiary populations, both of which were caused by contractions in economic activity. A high level of unremitted contributions from the employers to the schemes, inefficient administration and institution weaknesses that increase costs or reduce returns to member's, poor governance and insufficient expertise.

Optimal portfolio allocation requires a sophisticated approach that includes an intertemporal optimization of pension portfolios, which needs to take into consideration a number of different variables, including the risks of the different financial instruments, the age of individuals, human capital risk, and individual preferences.

Administrative costs of pension systems on the other hand are always controversial. Often a lot of emphasis is put on costs of reform while ignoring the benefits. Short-term transition costs are usually over emphasized without consideration of the beneficial long-term impact on the financial sustainability of the system.

## **5.2 Conclusions**

The research highlights the potential to improve the effectiveness of pension funds to achieve their ultimate objective of providing income replacement in retirement by developing portfolio strategies that adopt the long term horizon and consider the influence of a range of human capital and other preferences in the formulation of asset allocation strategies. These optimal portfolios could provide a useful benchmark to evaluate the performance of fund managers that would considerably improve the value of performance measurement in relation to the methods now used that are derived from evaluation of other types of investment management with very different attributes than pension funds.

Without portfolio design and performance measurement criteria that are explicitly derived from consideration of the particular nature of pension funds the theory and evidence presented in this research project indicates that a reliance on market competition with minimal criteria for investment strategies will not result in investment portfolio that will effectively achieve the goal of consumption smoothing and income replacement.

This suggests the need to find a better balance between the role of the market and the role of the government in enhancing the performance of pension funds and reducing the risks of pension shortfalls due to inefficiencies in the portfolio allocation

Introducing a system of performance benchmarks that are based on parameters that specifically consider the ability of the fund's investment strategy to deliver retirement income will significantly improve the efficiency of retirement savings. The optimal portfolios derived from this process can both serve as guidelines of defaults investment

choices that are better aligned with the needs of different groups of members and also provide benchmarks that permit meaningful evaluation of the performance of fund managers. The use of pension investment performance benchmarks is especially important to address some of the key criticisms of defined contribution system, facilitating competition on the ability to manage the relevant risks and deliver reliable levels of income replacement. This would represent one of the more important innovations in pension systems and further advance the increasing convergence of defined benefit and defined contribution designs.

The performance of pension funds should be measured against a benchmark, but in terms of welfare, as opposed to simple returns. Traditional methods for performance evaluation of mutual funds are based on returns compared with the benchmark. These methods rely on the concept that a higher return to risk differential maps into better performance, overlooking the pension fund's ability to hedge labor income risk and pension risk of plan participants. In traditional methods of performance evaluation, it is not easy to identify whether performance is due to strategic asset allocation or short term timing and security selection.

### **5.3 Policy Recommendations**

Rates of returns are a very limited indicator of pension fund performance, and the sole reliance on this indicator can be counter productive; secondly, competition may not bring pension portfolios towards the optimal long-term allocation and thirdly, pension funds need to measure performance against optimal long-term benchmarks the design of which is essential for optimizing the value of the benefits received at retirement. Finally, it is argued that governments can play an important role in setting up these optimal benchmarks, but should not interfere in asset allocation.

Pension fund performance should be focused on evaluating the value added by portfolio managers with respect to benchmark. Performance measures are relative measures, and in order to be meaningful they need be compared against passive investment strategies.

Simple measures of performance, such as returns, do not provide any point of reference and therefore are not informative with respect to the value added by managers. High returns of pension funds, for example, might be related to high interest rates in the economy or a country specific risk premium arising from the lack of development of the domestic capital market. Performance should be calculated against four proxies for the risk free rate: a short term local rate, a local long term rate, a short term T-Bills rate, and the annual return on long term Treasury bonds.

To improve the long term performance of pension funds, regulation will have to move beyond the current reliance on market forces that function through competition and short term incentives.

As a way of increasing the contributors' responsibility for their own retirement income, some pension schemes have opened up the number of investment opportunities through the creation of lifestyle pension funds that provide varying asset allocation approaches intended to produce different risk and return outcomes. The assumption implicit in this approach is that members will be able to assess their own circumstances and select the fund best aligned with their longer term objectives and risk capacity. However, these actions have not been accompanied by guidance to contributors on strategies they can employ to optimize their expected pension funds at retirement age.

On regulation and supervision, pension schemes must work with stakeholders to bring about a harmonized, workable and transparent legislative and institutional framework for the retirement benefits industry. This will be through enactment of adequate legal framework to strengthen the fiduciary responsibilities of pension funds trustees and to improve the financial soundness of pension funds. It will also involve bringing all stakeholders into full compliance with the Retirement Benefits Act.

#### **5.4 Limitations of the study**

There was also delay in filling questionnaire by the managers of various pension schemes and data for this study was collected in one county that is Nairobi which is not a representative of all the counties in Kenya.



It appears that pension funds are yet to embrace the culture of transparency and accountability despite RBA's effort to enforce compliance of the RBA Act. Information with respect to specific pension funds in Kenya is not readily available at the RBA and even with the specific funds because of confidentiality rules and red tape.

The researcher did not have direct control over the manner in which the respondents answered the questionnaires. This limited the work of the researcher to get the correct data required to make the analysis and to reach the objective of the study.

### **5.5 Suggestions for further study**

Studies on financial performance of pension funds all point out that the investment return of pension funds is a function of several factors such as investment policies, a country's economic performance, reform costs, unemployment rates amongst others. None of the studies however has been done to examine the impact of these factors to the solvency of pension funds.

The second area of new research should be to evaluate the causal relationship between pension fund financial health and a range of variables such as macroeconomic factors, the legal and regulatory framework, demographic profile, investment practices among others.

Further studies may be done to rank the factors according to their relative weight on their influence on the solvency of pension funds and to examine the real root cause of pension fund financial duress and provide an international comparison with other research findings.

Another proposed area of new research is to examine the role and impact of financial markets as avenues for maximizing returns of pension funds investments in developing countries.

## REFERENCES

- Ahmad, M. 2009. *The Impact of Global Challenges on Retirement Reforms in Africa. IRF Conference. National Pension Commission.*
- Akwim, W.2011. *The impact of pension sector reforms on the financial Viability of pension plans in Kenya*
- Alliance Global Investor 2007. *Global Pension Fund Statistics.*  
<http://www.pensionfundsonline.co.iiik/pdfs/countryoverview.pdf>.
- Amana, R.2006. *Investment of Pension Fund Assets in Kenya, [www.rba.go.ke](http://www.rba.go.ke).*
- Ambachtsheer, K. 2001. *A Framework for Public Pension Fund Management. Public Pension Fund Management Conference. World Bank.*
- Baker, Logue, D. & Rader, J. And Clap, N. 2005. *Managing Pension and Retirement Plans: A Guide for Employer, Administrators and other Fiduciaries. Oxford University Press.*
- Asher, M. & Nandy, A., 2006. *Reforming Provident and Pension Fund Regulation in India. Journal of Financial Regulation and Compliance.*
- Antolin, P. & Stewart F. 2009. *Private Pensions and Policy Responses to the Financial and Economic Crisis. IOPS.*
- Aon Consulting Inc. 2005. *Replacement Ratio Study. A Measurement Tool for Retirement Planning.*
- Asebedo, G. & Grable, J. 2004. *Predicting Mutual Fund Over performance over a nine-year period. Financial Counseling and Planning.*
- Asher, M. & Nandy, A. 2006. *Governance and Regulation of Provident and Pension Schemes in Asia. Edward Elgar.*
- Barrientos, A. 2007. *New Strategies for Old-Age Income Security in Low Income Countries. World Social Security Forum. Moscow.*
- Bateman, H. & Mitchell, O.S. 2004. *New evidence on pension plan design and administrative expenses: the Australian experience. Journal of Pension Economics and Finance*

- Bikker, J., & Dreu, J. 2009. *Operating Costs of Pension Funds: The impact of scale, governance and plan design*. *Journal of Pension Economics and Finance*.
- Blake, D. 2007. Pension Liability Risks: Manage or Sell. International Monetary Fund and De Nederlandsche Bank. February 15, 2007 — IMF Headquarters, Washington, D.C.
- Blome, S., Fachinger, K., Franzen, D., Scheuenstuhl, G. & Yermo J. 2007. *Pension Fund Regulation and Risk Management: Results from an ALM Optimisation Exercise*. OECD Publishing.
- Bohl, M., Gottschalk, K. & Rozalia, P. 2005. Institutional Investors and Stock Market
- Brady, J. 2009. Can 401 (k) *Plans provide Adequate Retirement Resources?* Pension Research Council.
- Braham, M.B. 2007. Structural Pension Reform: The Chilean Experience. Networks Financial Institute.
- Brunner, G., Hinz, R. & Rocha, R. 2008. Risk Based Supervision of Pension Funds: A Review of International Experience and Preliminary Assessment of the First Outcomes. World Bank. Policy Research.
- Burke, M. 2007. Making Choices: *Research Paradigms and Information Management: practical applications of philosophy in IM research*.
- Burney, A., & Mahmood, N., 2006. *A Brief History of Mathematical Logic and Applications of Logic in CS/IT*. Karachi University Journal of Science.
- Calvert, G., Laurent, E., John, E., & Sodini, P., 2006. Down or Out: Assessing the Welfare Costs of Household Investment Mistakes. NBER Working Paper No. 12030.
- Campbell, J. Y. & Viceira, L.M. 2002. *Strategic Asset allocation - Portfolio choice for long-term investors*. Oxford University Press.
- Cant, M., Gerber-Nel, C., Nel, D. & Kotze, T. 2003. *Marketing Research*. New Africa
- Catalan M. 2004. *Pension Funds and Corporate Governance in Developing Countries*: *Journal of Pension Economics and Finance*.
- Charnes, A., Cooper, W. & Rhodes, E. 1978. *Measuring the efficiency of decision-making units*. *European Journal of Operation Research*.
- Chen, H. 2008. *Stock selection using data envelopment analysis*. *Industrial Management and Data Systems*.

- Chlon-Dominczak, A. 2003. *Costs and Charges of pension funds in transition economies*. Conference on Pension Reform in Russia.
- Chon, J., Hong, H., Huang, M. & Kubik, J. D. 2004. Does fund size erode mutual fund performance? *The role of liquidity and organization*. American Economic Review.
- Clapman P. 2007. Best Practice Principles. *Committee on Pension Fund Governance*. Stanford Institutional Investors' Forum. Stanford University.
- Claire, A., Cuthbertson, K., & Nitzsche, D. 2009. *Performance of UK Pension funds*.
- Clark, G. & Urwin, R. 2007. *Best Practice Investment Management: Lessons from Asset Owners from the Oxford-Watson Wyatt Project on Governance*. Pension Time Bomb in Kenya.
- Davis E. P. 2006. *How will Ageing Affect the Structure of Financial Markets?*
- Davis E.P. & Flu, Y. 2005. *Is there a link between pension fund assets and economic growth?* A cross country study. Brunel University.
- Delebohn. H. J. 1995. *A Longitudinal and Comparative Analysis of the Funded Status of Local Public Pension Plans*. Public Budgeting and Finance.
- EBRI. 2004. *Retirement Income Statistics*. Employee Benefit Research Institute.
- EBRI. 2007. *Retirement Income Statistics*. Employee Benefits Research Institute.
- Gallagher, D.R & Martin, K.M. 2005. *Size and Investment Performance: A Research*
- Gifford, J. 2004. *Measuring the social, environmental and ethical performance of pension funds*. Journal of Australian Political Economy. .
- Golafshani, N. 2003. *Understanding Reliability and Validity in Qualitative Research*.
- Grinblatt, M. & Titmann, S. 1994. *A study of monthly mutual fund returns and performance evaluation techniques*. Journal of Financial and Quantitative Analysis,
- Guo, Z. & Sheffield, J. 2006. *A Paradigmatic and Methodological Examination of KM Research: 2000-2004*. Proceedings of the 39th Hawaii International Conference on System Sciences.
- Heit, E. 2009. *Inductive Reasoning: Experimental, Developmental and Computational Approaches*. Cambridge University Press.
- Henon, E. & Kanouse, D. 2004. *Efficient Administration: Achieving Winning Results*. Available: Diversified Investment Advisors Report on Retirement Plans.

- Holzmann, R. & Hinz, S. 2001. *New Ideas about Old Age Security*. World Bank. Washington DC.
- Hughes, G. & Stewart J. 2004. *Reforming Pensions in Europe: Evolution of Pension Financing and Sources of Retirement Income*. Edward Elgar.
- Hustead, E. 2008. *Administrative Costs of State Defined Benefit and Defined Contribution Systems*. Pension Research Council.
- Impavido G., Musalem, A. & Alberto R. 2000. *Contractual savings, stock, and asset markets*. World Bank. Policy Research. \
- IOPS. 2007a. *Experiences and Challenges with the Introduction*.
- Johnson, K.L. & Graaf, F.J. 2009. *Modernizing Pension Fund Legal Standards for the 21 Century*. Rotman International Journal of Pension Fund Management.
- Kakes J. & Broeders, D. 2006. *The Sustainability of the Dutch Pension System*. De Nederlandsche Bank.
- Kakwani, N., Sun, H. & Hinz, R. 2006. *Old-Age Poverty and Social Pensions in Kenya, International Poverty Center*.
- Kimball, M., & Shumway, T. 2006. *Investor Sophistication, and the Participation, Home Bias, Diversification, and Employer Stock Puzzles*. University of Michigan.
- Kirk, J. & Miller, M. 1986. *Reliability and validity in qualitative research*. Sage Publications.
- Lusardi, A. & Mitchell O. 2007. *Financial Literacy and Retirement Planning: New Evidence from the Rand American Life Panel*. Pension Research Council.
- Mahon, A. & Donohoe, S. 2006. *Irish Occupational Pensions: An Overview and Analysis of Scale Economies*. Paper Presented at the Irish Association of Pension Funds Defined Contribution Seminar.
- Merton, R. & Bodie, Z. 2005. *Design of Financial Systems: Towards a Synthesis of Function and Structure*, Harvard University. Working Paper.
- Meyer, J. 2004. *Inertia Creeps: Reforming the German Public Pension System*. Journal of Australian Political Economy.
- Miller, J. 2002. *Board as a monitor of Organizational Activity: The Applicability of Agency Theory to Non Profit Boards*. Non Profit Management and Leadership.

- Nyakundi, B. 2009, *Pension Coverage in Kenya: Legal and Policy Framework Required Enhancing Pension Coverage in Kenya*.
- Njuguna, A. 2010. *Strategies to improve Pension Funds Performance in Kenya*.
- Odundo, E. 2003, Retirement Benefits Authority, *Kenya on Pensions Reforms: An Agenda for Sub-Saharan Africa Seminar*, World Bank: Washington DC.
- OECD. (2008), *Recommendation on Good Practices for Financial Education relating to Private Pensions*, OECD Publishing.
- Palacios, R. & Pallares-Millares, M. 2000. *International Patterns of Pension Provision*. Pension Primer Paper. World Bank.
- Parasuraman, B. 1991. Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing*.
- Quigley, J. 2006. Real Estate Portfolio Allocation: *The European Consumers' Perspective*. Conference Paper presented at the Annual Conference of the Real Estate Research Institute. Chicago.
- Qureshi, I. & McKay, J. 2007. *The Prize of Global Governance. Benefits and Compensation International*.
- RBA Quarterly Reports 2006, 2007, 2008, and 2009. Available: <http://www.rba.go.ke>
- Roe, M.J. 2006. Legal Origins, politics and stock markets. *Harvard Law Review*.
- Roux, W. 2006. *Validity of the measuring instruments used to determine the success of learners in the airline industry*. Unpublished Doctoral Thesis. Tshwane University of Technology.
- RBA. (2008), *Report on Retirees' and Pensioners' Survey*,
- Remund, D. (2010), "Financial Literacy Explicated: The Case for a Clearer Definition in an Increasingly Complex Economy", in, *Journal of Consumer Affairs*.
- Schellenberg, G., Turcotte, M. & Ram, B. (2005), *preparing for retirement Canadian Social Trends*.
- Skog, J. (2006), *Who Knows What about their Pensions? Financial Literacy in the Chilean Individual Account System*, Population for Aging Research Center: PARC.
- Saunders. M, Lewis. P, Thornhill. A., 2009. *Research Methods for Business Students*. 5th Edition. Prentice Hall.

- Scott, J. Watson, J., & Hu, W. 2009. *What Makes a Better Annuity?* Pension Research Council.
- Simpson, A. 2003. *Money Talks: The rise of socially responsible Investors: Managing to be responsible in a turbulent World.* R. Cowe. London Spiro.
- Stewart, F. & Yermo J. 2009. *Pensions in Africa.* OECD Publishing.
- United Nations. 2007. *Pensions in Developing Countries: A Quest for Modern Format for Intergenerational solidarity.* United Nations.
- Wagner, R.K. 2002. *Smart people doing dumb things: the case of managerial incompetence.* In *Why Smart People Can be so stupid.* Edited by Sternberg, R.J. Yale University Press
- Walsh, R., Tzelepis, F. & Stojanovski, E. 2007. *Australian pension funds and tobacco investments: promoting ill Health and out-of-step with their members.* *Health Promotion International.*
- Weber, R. 2004. Editor's Comments: *The Rhetoric of Positivism Versus Interpretivism: A personal View.* MIS Quarterly
- Weller, C. & Baker, D. 2005. *Smoothing the waves of pension funding: Could changes in funding rules help avoid cyclical under-funding?* Journal of Policy Reform.
- World Bank. 1994. *Averting the Old Age Crisis: Policies to Protect the Old and Promote Growth.* Oxford University Press. 16.
- Yang, T. 2005. *Understanding the Defined Benefit versus Defined Contribution Choice.* Pension Research Council PRC
- Yermo, J. 2008a. *Survey of Investment Regulation of Pension Funds.* OECD Publishing.
- Yogo, M. 2009. *Portfolio Choice in Retirement: Health Risk and the Demand for Annuities, Housing, and Risky Assets.* Pension Research Council.
- Yumeng, Z. 2009. *Optimal DC Plan Design: Applications of Behavioural Finance and Non Expected Utility Theories.* 28th International Congress of Actuaries. London.

**APPENDIX 1**  
**LIST OF REGISTERED SCHEMES**

A I C Guthairira/Nguirubi Project Staff Provident Fund

African Alliance for YMCA's Retirement Benefits Scheme

African Evangelistic Enterprise Staff Provident Scheme

Aga Khan Educational Service Companies Staff Retirement Benefits Scheme

Airside Limited Staff Pension Scheme

Allied Assessors Limited - Staff Retirement Benefit Scheme

Anglo African Property Holdings Ltd. Staff Retirement Benefits Scheme

Ardhi Sacco Staff Retirement Benefits Scheme

Automobile Association of Kenya Staff Retirement Benefits Scheme

Baptist Mission of Kenya Staff Retirement Benefits Scheme "B"

Bible Translation & Literacy (EA) Staff Retirement Benefits Scheme

BOC Kenya Ltd Staff Retirement Benefits Scheme

British American Insurance Co. Limited Staff Pension Plan

British American Insurance Company (Kenya) Limited - Umbrella Provident Fund

CDC Capital Partners Provident Fund

Charterhouse Bank Limited Staff Provident Fund

Citibank Kenya Provident Fund

Consolidated Bank of Kenya Ltd Staff Retirement Benefits Scheme

Cosmos Limited Staff Provident Fund

Daystar University Provident Fund

Diamond Trust of Kenya Limited Staff Pension and Life Assurance



EABS Bank Staff Retirement Benefits Scheme

23. East African Foundry Works Staff Provident Fund

24. Electricity Regulatory Board Staff Pension Plan

25. Express Kenya Limited Executive Staff Benefits Scheme

26. Family Bank Staff Pension Scheme

27. Family Health International Staff Provident Fund Scheme

28. Geminia Insurance Company Ltd Staff Retirement Benefits Scheme

29. Grand Regency Hotel Staff Provident Fund Scheme

30. Housing Finance Company of Kenya Limited Staff Retirement Benefits Scheme

31. Image Registrars Staff Provident Fund

32. Insurance Company of East Africa Limited Staff Provident Fund and Life Assurance Scheme

33. International Fund for Animal Welfare (IFAW) Staff Retirement Benefits Scheme

34. Jamii Sacco Society Limited Staff Retirement Benefits Scheme

35. Jogoo Sacco Staff Provident Fund

36. Kenya Agency Force of Alico (K) Limited (CFC) Staff Pension Scheme

37. Langata High School Staff Retirement Benefits Scheme

38. Magereza Staff Co-operative Savings and Credit Society Limited Staff Provident Fund

39. Nacico Co-operative Savings & Credit Society Limited Staff Pension Scheme

40. Old Mutual Kenya Staff Provident Fund

41. Pan Africa Insurance Co. Limited Staff Retirement Benefits Scheme

42. Real Insurance Company Limited Staff Provident Fund

43. Sarova Pension Scheme
44. Small and Micro-Enterprise Programme (SMEP) Staff Retirement Benefits Scheme
45. The Anglican Church of Kenya Staff Provident Fund
46. Ufundi Savings and Credit Society Limited Staff Provident Fund
47. Vision Institute of Professionals Limited Provident Fund
48. Water Sector Institutions Pension Scheme
49. Wrigley Kenya Provident Fund
50. Young Women's Christian Association Provident Fund

### APPENDIX III

Estimate effects of investment strategies on return on pension assets

**Dependent Variable: Rate of Return on Assets**

<b>Explanatory Variables: Investment Policies and Governance Strategies</b>	(1)	(2)
<b>Governance Policies:</b> Investment restrictions	-0.23 (0.59)	-0.16(0.59)
Independent performance evaluation	0.81 (0.67)	0.43 (0.72)
Board sets asset allocations	-0.72 (0.71)	-0.48 (0.76)
Board responsible for investments	0.18 (0.51)	0.43 (0.55)
Number of trustees	-0.08 (0.06)	0.15 (0.07)*
Plan participants as % of trustees	-1.16 (10.6)	-1.16 (1.07)
<b>Investment Strategies:</b> Tactical investing of assets	1.69 (0.65)*	1.25 (0.69)
Equities as % of total assets	0.07(0.02)**	0.07 (0.02)**
External management of all assets	0.58 (0.58)	0.71 (0.58)
International investment of some assets	2.17(0.52)**	1.87 (0.56)**
<b>Other Controls:</b> Investment risk (s.d. of annual ROA )		0.05 (0.09)
<b>Multiple R2</b>	0.38**	0.41**

Source: Authors' calculations

Note: \*\* p <.01; \*p<.05; regression based on 35 retirement systems; linear regression for ROA.

APPENDIX III

**Table 4.3.5 Analysis of findings**

No	Scheme name	Market value of pension fund assets (Value =e -1)	PV (Expected contributions) (1-T)	PV (expected pension fund benefits from past and future services)	Employer Contribution	Contributions in year	Benefits in year
1	Baptist mission of Kenya pension scheme	800M	5M	33M	4M	9M	0.6M
2	Water sector institutes	300M	2.7M	44M	3.7M	6.4M	0.9M
3	Image registrars staff prov fund	50M	1.9M	24M	2.3M	4.2M	2.3M
4	A.I.C. Guthairira project	50M	17M	1.9M	2.3M	4.2M	2.5M
5	Dayster University Prov Fund	180M	16M	33M	2M	9M	13M
6	Grand Regency Hotel staff prov	500M	2.8	28M	3.4M	6.2M	59M
7	African Evangelistic Enterp Staff fund	94M	4.4M		23M	4.4M	65M
8	Geminia Insurance coy Ltd staff retirement	320M	5.8M	8.5M	58M	14.3M	110M
9	Express Kenya Ltd staff scheme	290M	5.8M	6.2M	34M	12M	48M
10	African Alliance for YMCA's	95M	8.2	5-2M	53M	13.4	53M
11	Faulu Kenya Ltd Staff	80M	90,000	140,000	48M	230,000	58M
12	Electricity Regulatory Board Staff Pension	250M	2.3M	3.5M	48M	5.8M	258M
13	Small and Micro-Entr	60M	1.9M	2.9M	43M	4.8M	33M

	Prog Staff Ret.						
14	CitiBank Kenya Provident Fund	1.3B	43 M	53M	800M	96M	1.5B
15	Bible Translation & Literacy (EA) Staff Scheme	10M	1.5M	1.8M	8M	3.2M	9M
16	EABS Bank Retirement Benefit Scheme	800M	37M	36M	58M	72M	500M
17	CDC Capital Partners Provident Fund	LIB	12.9M	23M	68M	35.9M	621M
18	Charterhouse Bank Ltc Provident Fund	450M	2.7M	4.9M	58M	7.6M	68M
19	Pan Africa Insurnce Ltd Staff Fund	900M	4M	2.5M	96M	6.5M	98M
20	Jubilee Insurance	300M	28.6M	48.3M	396M	76.9M	85M
21	Reck it Benckiser E.A. Staff fund	29M	3M	2.1M	59M	5.1M	77M
22	Kenya Agency Force Of Alico	63M	3.2M	3M	38M	6.2M	89M
23	Langata High School Staff Retire Scheme	3M	75000		1.3M	75000	800000
24	Sarova Pension Scheme	50M	4.1M	6.1M	28M	10.2M	44M
25	Old Mutual Kenya Staff Provident Fund	800M	2.8M	6.5M	87M	9.3M	98M •
26	East African Foundry Works	9M	60000	79000	6M	139000	6M
27	The Anglican Church Of Kenya Staff Scheme	9M	90000	170000	15M	260000	19M
28	BOC Kenya	79M	7.4M		58M	7.4M	84M

	Ltd Staff Retirement Ben Scheme						
29	Jogoo Sacco Staff Provident Fund	9M	740000		6M	740000	9M
30	Consolidated Bank Of Kenya Staff Retir Scheme	44M	60M		59M	60M	68M
31	Allied Assessors Ltd retirement Ben Scheme	56M	7M	5.2M	69M	12.2M	78M
32	Automobile Association Of Kenya Ret. Scheme	300M	9M	12.3M	97M	21.3M	102M
33	Ardhi Sacco Staff Ret Scheme	503M	8M	13M	89M	21M	580M
34	Aga Khan Educ. Comp Staff Ben	170M	15M	18M	78M	33M	78M

## APPENDIX III

### LETTER OF INTRODUCTION

I am a postgraduate student at University Of Nairobi, pursuing Master Of Business Administration in Finance.

I am carrying out a study entitled "investigation on the relationship between financial performance and investment strategies of pension funds in Kenya" among selected pension funds in partial fulfillment for my degree requirement.

Your participation in this exercise will be highly appreciated as an integral part of this study, hence the request for your assistance to fill out this questionnaire.

The information provided for this study will be treated in strict confidence and used purely for academic purposes.

Sincerely,

Domsiana Anyango Onyango

Graduate student.

**APPENDIX V**  
**QUESTIONNAIRE**

**SECTION A: COMPANY PROFILE**

Company Name;

Type of Company;

Total funds under Management Kshs;

Of which retirement benefits assets Kshs;

**SECTION B: FINANCIAL PERFORMANCE**

5. Please enter the requested financial information about pension plan in the table below.

Financial Attribute	2006	2007	2008	2009	2010
Member Contributions					
Sponsor Contributions					
Total incomes(dividend, rent and interest)					
Administrative expenses					
Investment management expenses					
Benefits payable(including annuities and lump sum amounts)					
Fixed Assets					
<b>Total Value of Funds</b>					



6. Please indicate the number of members who have left the fund (retired, death of shifted to other funds) as a result of which benefits were paid or are due.

Number of pensioners who have left	2006	2007	2008	2009	2010
Less than 100					
100-200					
200-300					
300-400					
400-500					
Over 500					

7. Please indicate below the number of members of your pension plan.

	Less than 100	100-200	200-300	300-400	400-500	Over 500
Active members	1	2	3	4	5	6

**SECTION C: INVESTMENT DECISIONS**

8. What criteria do you consider for making investment decisions?  
Please rank between 1 to 5 1 being most important and 5 least important.

Investment criteria	Rank
Steady Returns	
Growth Potential	
Business plan	
Proactive Management	
Ethical considerations	

10. What is the average rate of return you expect from the investments you make?

11. After how much time do you expect rate of return.

12. Do you consider the Long-term nature of the liabilities while making investment decisions?

13. What legal requirements have to be complied with in making investment decisions?

**SECTION D: CHALLENGES AND RISK OF INVESTMENT**

14. As a fund manager of retirement benefits scheme's funds, what challenges do you face in your investment function?

15. In investment world there are risks, as a fund manager in Kenya, what risks do you face in your fund management duties?

16. What would be the best way to share information between the Authority and the fund managers on the retirement benefits industry?

**I do indeed appreciate the time you have taken to answer all the questions to the best of your ability**

**Domsiana Anyango**

**Thank you and God bless you.**