

**THE EFFECT OF PROPERTY INVESTMENT ON ASSET  
GROWTH OF PENSION FUNDS IN KENYA**

**BY**

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**D61/73337/2012**

**A RESEARCH PROJECT SUBMITTED IN PARTIAL  
FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD  
OF THE DEGREE OF MASTER OF BUSINESS  
ADMINISTRATION SCHOOL OF BUSINESS, UNIVERSITY OF  
NAIROBI**

**OCTOBER 2014**

## DECLARATION

I, Peter Mugambi hereby declare that this is my original work and has not been submitted for presentation and examination for any award of Degree in this university or any other university.

Signature ..... Date.....

Peter Mugambi

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

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## **ACKNOWLEDGEMENTS**

My appreciation goes to the Almighty God for granting me courage, good health and inspiration that was essential for this demanding study. Special thanks go to my supervisor, Mr. Mirie Mwangi, who despite his busy schedule was always readily available to advice and guide me professionally throughout the study. I would also like to acknowledge the guidance and advice from Mr. Herick Ondigo the chairman, department of Finance and Accounting and all the lecturers at the University of Nairobi.

## **DEDICATION**

This project work is dedicated to my late father John Mutiga Muthuri for his support and my entire family especially my wife for their encouragement and support and for bearing with me during the many months that I was absent from home.

## **TABLE OF CONTENTS**

|                                                               |           |
|---------------------------------------------------------------|-----------|
| ACKNOWLEDGEMENTS .....                                        | iii       |
| DEDICATION .....                                              | iv        |
| LIST OF ABBREVIATIONS .....                                   | ix        |
| ABSTRACT.....                                                 | x         |
| <b>CHAPTER ONE</b> .....                                      | <b>1</b>  |
| <b>INTRODUCTION</b> .....                                     | <b>1</b>  |
| 1.1. Background of the Study .....                            | 1         |
| 1.1.1. Property Investment .....                              | 1         |
| 1.1.2. Pension Funds Asset Growth .....                       | 4         |
| 1.1.3. Property Investment and Pension Fund Asset Growth..... | 6         |
| 1.1.4. Pension Funds in Kenya.....                            | 8         |
| 1.2. Research Problem .....                                   | 10        |
| 1.3. Research Objective .....                                 | 13        |
| 1.4. Value of the Study .....                                 | 13        |
| <b>CHAPTER TWO</b> .....                                      | <b>14</b> |
| <b>LITERATURE REVIEW</b> .....                                | <b>14</b> |
| 2.1 Introduction.....                                         | 14        |
| 2.2.2 The Arbitrage Pricing Theory .....                      | 16        |
| 2.3 Determinants of Pension Funds Asset Growth .....          | 20        |
| 2.3.1 Immovable Property and Pension Funds Asset Growth ..... | 20        |
| 2.4 Empirical Studies .....                                   | 24        |
| <b>CHAPTER THREE</b> .....                                    | <b>29</b> |
| <b>RESEARCH METHODOLOGY</b> .....                             | <b>29</b> |
| 3.1 Introduction.....                                         | 29        |

|                                                                                                                    |           |
|--------------------------------------------------------------------------------------------------------------------|-----------|
| 3.2 Research Design.....                                                                                           | 29        |
| 3.3 Population of the Study .....                                                                                  | 29        |
| 3.4 Sample Size and Sampling Procedures.....                                                                       | 29        |
| 3.5 Data Collection .....                                                                                          | 30        |
| 3.6 Data Analysis .....                                                                                            | 30        |
| 3.6.1. The Analytical Model .....                                                                                  | 31        |
| 3.6.2 Diagnostic Tests.....                                                                                        | 31        |
| <b>CHAPTER FOUR.....</b>                                                                                           | <b>33</b> |
| <b>DATA ANALYSIS, RESULTS AND DISCUSSION.....</b>                                                                  | <b>33</b> |
| 4.1 Introduction.....                                                                                              | 33        |
| 4.2 Descriptive Statistics.....                                                                                    | 33        |
| Table 4.2: Descriptive Statistics Results (2009-2013).....                                                         | 33        |
| 4.3 Pearson’s Correlation Coefficient Analysis For Property Investment and Growth of Pension Funds In Kenya .....  | 34        |
| Table 4.3: Correlation Analysis Results .....                                                                      | 35        |
| 4.4 Regression Analysis and hypothesis testing .....                                                               | 36        |
| Table 4.4: Regression Model Summary of Property Investment and Growth of Pension Funds In Kenya ( 2009-2013) ..... | 36        |
| Table 4.5: Regression Coefficients of Property Investment and Growth of Pension Funds in Kenya .....               | 37        |
| 4.5 Discussion of Research Findings .....                                                                          | 39        |
| <b>CHAPTER FIVE .....</b>                                                                                          | <b>41</b> |
| <b>SUMMARY, CONCLUSION AND RECOMMENDATIONS .....</b>                                                               | <b>41</b> |
| 5.1 Introduction.....                                                                                              | 41        |
| 5.2 Summary .....                                                                                                  | 41        |
| 5.3 Conclusion .....                                                                                               | 42        |
| 5.5 Limitations of the Study.....                                                                                  | 43        |

|                                            |    |
|--------------------------------------------|----|
| 5.6 Suggestions for Further Research ..... | 44 |
| <b>REFERENCES</b> .....                    | 45 |

## **LIST OF TABLES**

|                                                                                                       |    |
|-------------------------------------------------------------------------------------------------------|----|
| Table 4.2: Descriptive Statistics Results (2009-2013).....                                            | 33 |
| Table 4.3: Correlation Analysis Results .....                                                         | 35 |
| Table 4.4: Regression Model Summary of property investment and growth of pension funds in Kenya ..... | 39 |
| Table 4.5: Regression coefficients of property investment and growth of pension funds in Kenya .....  | 36 |
| Table 4.6 property investment Vs growth of pension funds in Kenya .....                               | 39 |

## **LIST OF ABBREVIATIONS**

|         |                                                        |
|---------|--------------------------------------------------------|
| ANOVA   | Analysis of Variance                                   |
| CAPM    | Capital Asset Pricing Model                            |
| CEO     | Chief Executive Officer                                |
| CSPS    | Civil Servants Pension Scheme                          |
| GDP     | Gross Domestic Product                                 |
| GoK     | Government of Kenya                                    |
| IRS     | Individual Retirement Schemes                          |
| MPT     | Modern Portfolio Theory                                |
| NACRIEF | National Council of Real Estate investment Fiduciaries |
| NSSF    | National Social Security Fund                          |
| OECD    | Economic Co-operation and Development                  |
| ORS     | Occupation Retirement Schemes                          |
| RBA     | Retirement Benefits Authority                          |
| REITs   | Real Estate Investment Trust                           |
| SDF     | Stochastic Discount Factor                             |
| UK      | United Kingdom                                         |
| US      | United States of America                               |

## **ABSTRACT**

The study addresses the effect of property investment on pension funds assets growth in Kenya. Scheme trustees have a duty to ensure they invest the scheme assets prudently and maximize returns. Hence a deliberate decision has to be made on investment portfolio that maximizes the returns. Pension funds invest based on the investments guidelines and the investment policy statements. Investment in real estate offers considerable advantages for example it is a tangible asset with low volatility; and it generates an attractive income stream and long term capital appreciation and strong diversification benefits compared to stocks and bonds Investment in real estate has been shown to reduce risk. Pension scheme schemes investment in the long run with main goals being to preserve the member's benefits and grow the funds. The study assessed the effects of property investment on pension funds assets growth for a period of 5 years between 2009- 2013. The analysis of the correlations results seemed to support the hypothesis that each independent variable in property investment has its own particular informative value in the ability to explain assets growth. The significance of the coefficients was calculated at the level of 95%. The study findings indicate that property investment variables are statistically significance to asset growth as indicated by the positive and strong Pearson correlation coefficients. A Pearson coefficient measure showed a strong, significant, positive relationship between property investment and asset growth of pension schemes in Kenya.

# CHAPTER ONE

## INTRODUCTION

### 1.1. Background of the Study

Real estate class has become increasingly important throughout the world. This can be attested by the trend of increased professionalism in asset management; real estate is the most important alternative asset class for pension funds. Real estate presents several strengths: diversification and reduction of the overall risk of the portfolio, hedging against inflation, delivering steady cash flows to the portfolio. These strengths became the main reasons to add real estate to pension funds' portfolio (Andonov, Eichholtz and Kok, 2012).

For quite some time, real estate has been the most significant alternative asset class in the portfolio of institutional investors portfolio primarily due to its steady and predictable appreciation overtime, it's low correlation with other assets classes, its strong risk adjusted performance in comparison to equities and bonds and its inflation hedging capabilities. Real estate investment trusts have several advantages such as higher clarity of returns, governance mechanism allowing for management direct monitoring, possibility for investments that support local development and, furthermore, advantages deriving from diversification and de-correlation typical of real estate investments (Bocchialini, 2013).

#### 1.1.1. Property Investment

Property investment is defined as land or a building or part of both held by the owner or by the lessee under a finance lease to earn rentals or for capital appreciation or both. Real estate means land and its improvements water rights associated with land,

mines, minerals, quarries under the land, air and other rights and privileges related to land. Real estate meaning varies from place to place. In some jurisdiction leases are not considered real estates. In other places the lease duration determines whether the tenant's interest is real estate. In other places the word land is used interchangeably with real estate. Real estate includes not only land but also improvement on the land, such as a house and other structures (James et al., 2003).

According to Charles, Thomas and Gillett (2007) estate can be also be defined as interest in real property whether that interest is tangible or intangible , freehold or non free hold and would also include a mobile home if permanently attached to the land. Historically, property investments were seen as low risk, long term and illiquid assets. Reddy (2001) asserts that property plays a significant role in investment portfolios as it is considered a secure income generating good capital growth investment. It is regarded as less volatile investment than shares, providing a reliable hedge against inflation and offering diversification benefits. However, it suffers a shortfall because of its illiquidity factor.

Investment in real estate offers considerable advantages for example it is a tangible asset with low volatility; and it generates an attractive income stream and long term capital appreciation and strong diversification benefits compared to stocks and bonds .However, investment in real estate has considerable drawbacks; they are illiquid, needs expert management and require significant capital to build a diversified portfolio .Organized market focused on real estate direct trading is not available, so finding a buyer or a seller may be difficult (Vančura, 2012). Investors therefore have sought alternatives, such as the publicly traded real estate securities (REITs) to invest

in so as to gain the advantages of real estate investment without its disadvantages (Ciochetti, 2002).

Corgel and Gibson (2011) indicates that there are several possibilities an investor has when investing in direct real estate, which includes undeveloped land, residential rental properties, office buildings, shopping malls and industrial properties. Residential property owners decide to turn their home into a rental property when they move to a new home. The value of the property can appreciate significantly over a short period of time, although the opposite is also possible.

One of the main disadvantages of residential rental properties is the maintenance problem. Office buildings are generally seen to be more risky than residential properties, since a greater knowledge of property management and leasing is necessary. The main disadvantage of direct investment in an office building is that the purchase price is substantially greater than for residential property due mainly to the higher cost of land and better quality construction. Office buildings are affected more by cyclical changes in the economy shopping centers are considered to be blue-chip investment properties despite the fact that there is greater and more skillful competition. The returns on a well located center are secure and stable. The rates of return on shopping centers can be very good. Some of these factors which affect the performance of shopping centers are competition entering the market, outdated design and layout and changes in trade area income levels and in population density (Tom and Nolan, 1997).

Industrial properties refer to warehouses and mini-warehouses as well as factories and industrial parks. Factories are considered more risky as they are not easily converted to other use. Finally, undeveloped land is seen as the most risky investment. The reason is because it is purchased in a raw state, usually on the outskirts of a city or town, in the hope that someday in the future it will be used for growth. In conclusion, investing in direct real estate requires expertise and high capital expenditures and is only available to well endowed investors (Bourassa and de Bruin, 1998).

Despite the distinct advantages of holding real estate in a portfolio, there are problems associated with the cost of the investment and a lack of expertise to invest directly in real estate. REITs give the investor the ability to invest in several types of real estate at a limited cost and under the administration of a trained manager. REITs are mutual funds investing in real estate assets. Their shares are listed on stock exchanges. They enable their shareholders to own a portion of real estate, thus bringing diversification possibilities to small and medium investors. REITs are financial intermediaries that raise funds mainly by issuing shares, and they invest in mortgages and equity participation in income producing properties. REITs can thus be seen as a hybrid asset that encompasses parts of both stock and real estate. It is a public business trust, usually organized in corporate form and created for the purpose of owning and operating real estate (Vančura, 2012)

### **1.1.2. Pension Funds Asset Growth**

Pension funds may grow from three different sources: Employee contribution, employer contribution and investment returns on these contributions. If the sum of these three components is greater than the benefits payments in that year the pension

asset will increase. The power of compounding makes investment income a more important asset source of pension funds assets growth over time. Since the mid 1950s there was increase in asset allocation in equities and accompanied by an equally constant decrease asset allocation to the fixed income investment. If pension assets are less than pension liabilities then the difference is called the unfunded pension liability and pension plan is considered underfunded (Peyton, Park and Lotito, 2007).

Many pension funds invest in other assets classes like private equities primarily to attain long term returns in excess of returns from stock market in exchange for greater risk. Some of the most significant investors in private equity are now pension funds with a desire to invest in something other than the traditional mix of bonds, equities and property. In many ways, pension funds are ideal investors in private equity funds. Their size means they can make meaningful investments and they have access to sufficient research resources to find and build relationships with the industry's major players. For pension funds, investment in private equity brings other benefits (Ciochetti, 2002)

The long-term nature of private equity investing makes it an ideal asset class for pension funds, which have long-term liabilities to finance. Given its illiquid nature, it is not as easy to take money in and out of private equity investments as it is in the stock market. However for investors that are prepared to take a long term view, the rewards have been worth waiting for. The other main benefit the asset class brings is diversification. But despite these apparent advantages, the asset class does bring some risks. Debt markets, which have grown dramatically and been accommodating of the industry's borrowing requirements, could be negatively affected by a major corporate

collapse, a surge in interest rates or some unforeseen geopolitical event (Connor and Falzon, 2006).

In several countries, pension funds and insurance companies are important investors in bonds. The demand for long-dated bonds has increased, driven by stricter asset-liability matching regulations governing pension funds in some countries, as well as new risk-based regulations for insurance companies. Likewise, new international accounting standards reinforce the need for pension funds to match assets and long-term liabilities. Projections of rapidly ageing and longer-living populations in most OECD countries indicate that the demand bond is poised to grow further (Connor, 2006).

### **1.1.3. Property Investment and Pension Fund Asset Growth**

Reddy (2001) notes that investment in real estate is the most significant alternative asset class in the portfolio of institutional investors portfolio primarily due to its steady and predictable appreciation overtime, it's low correlation with other assets classes, it's strong risk adjusted performance in comparison to equities and bonds and its inflation hedging capabilities. Pension funds have shifted their focus to new sets of asset classes for better performances to achieve growth in assets. Real estate has increasingly become competitive and most firms are diversifying their portfolios to real estate to increase their incomes. Real estate has been viewed as an important asset for pension funds due to its investment characteristics of high quality, income producing, and its low risk and portfolio diversification benefits.

Investment in real estate has been shown to reduce risk; enhance returns; act as a hedge for inflation and deliver strong cash flows to the investor (Fabozzi, Gordon and Hudson-Wilson, 2003). The volatility in the equity market has therefore highlighted the property's benefits in diversifying pension fund portfolio (Peyton, 2007). Real estate investments are useful because of their diversifications potential. Their returns are less dependent on the returns of bonds and shares. The price of properties apart from economic factors depends on non economic factors like population expansion or development of technology.

Property has two types of potential returns, one is from rent paid by tenants and the other is from the property increasing in value called capital gain. Property investments are not considered to be 'liquid' because an investor is limited to withdraw the investment unless after a certain period of time. To convert the property into cash, the owner can decide to sell the property or increase the mortgage. This is quite expensive due to extra costs such as valuation and real-estate agent fees (Charles, Jacobus, Thomas and Gillett, 2007).

Most investors buy investment properties to make a long-term profit as prices rise to increase assets. In the short term there may be little or no profit from rent after expenses like mortgage, insurance, rates and maintenance are deducted from the income generated by the property. Apart from buying property an investor can decide whether to buy property directly or invest in managed funds that buy and sell commercial property. These funds may own properties such as office buildings, factories, and shopping centres directly, or they may own shares in other funds that own the property (known as property securities). As an investor you receive income

when the managed fund makes a profit on rents it receives, or sells the buildings or shares at a profit (Collett, 2000).

#### **1.1.4. Pension Funds in Kenya**

Among the first pension funds to be established in Kenya are the Kenya government officers superannuation fund was established by the minister of local government under legal notice 313 of 1963 as a pension fund under the Kenya government (Pensions). This scheme has since been closed to new entrants as from July 2012. The other scheme that was formed post independence is the National Social Security fund (NSSF), which was established in 1965 Retirement Benefit Scheme fund system provides for benefits once a worker retired on attaining the mandatory retirement age of 55. Since independence the pension sector has grown with many occupation schemes being formed by employers to secure employees future (RBA, 2014).

However the pension sector was unregulated and most employees retired with no money as employers did not separate schemes money and companies' monies. Many employers ploughed back the monies deducted for pension leaving pensioners with no recourse. The Government established a body corporate called RBA to regulate the establishment and the management of the pension schemes in Kenya since 2000 and also to protect the interest of the members and sponsors.

Retirement Benefit Scheme fund system has four components: NSSF; Civil Servants Pension Scheme (CSPS); Occupational Retirement Schemes (ORS); Individual Retirement Schemes. NSSF is a public provident fund (pays benefits as a lump sum) that covers an estimate of 800 000 members in both the formal and informal sectors

and contributions to NSSF are mandatory for employees in firms with 5 or more employees, whereby members contribute 5% of their monthly earnings subject to a maximum of Ksh. 200 that is matched by an equal contribution by the employer. (Pensions Act Cap 189).

Retirement Benefit Scheme benefits are available to those who attain retirement age and retired from active employment. Civil servants pension schemes was formed for the civil servants, judiciary employees, military personnel, armed forces, teachers and parliamentarians and CSPS provides benefits including old age pension, injury and compensation, survival benefits, dependency pension for 5 years after death of a pensioner, disability pension (military only) and gratuities in the form of lump sums. The CSPS report of December 2006 indicates that it had 125 000 members.

In a bid to accumulate retirement savings for their employees, ORS were established and in Kenya ORS are operated on Defined Benefit or on Defined Contribution Retirement Benefit Scheme structures though for Kenyan case, the Defined Contribution is the predominant design; even though it is not mandatory for employers to set up the ORS, once this is established the fund falls under the mandate of the Retirement Benefits Authority and thus must comply with the laid down regulations. The ORS are estimated to cover an estimated 3% of the working population in Kenya.

The Individual Retirement Schemes (IRS) are run by financial institutions, in Kenya its is run by insurance companies which provide an avenue for saving where

employers do not have their own schemes, and for workers who wish to make additional voluntary contributions; as at close of 2009 (RBA, 2013).

## **1.2. Research Problem**

The turbulent nature of the environment has intensified a review of available investment opportunities that are less risky and profitable through a thorough review of financial analysis. This has triggered a shift from the stock market to real estate markets. Haight & Singer (2004) notes that buying high flying stocks with no regards to intrinsic values resulted in hundreds of thousands of investors losing their life savings and this was attributed by failure to understand the key concepts in the stock market, this crisis highly discouraged potential investors from investing in the stock market.

Anyanzwa (2004) argues that property investment in Kenya has proved to be one of the most profitable areas of investment; this has fuelled the need for retirement benefit schemes to investment in real estate to reap better return. Property investment enhances portfolio diversification and enhances returns incase other asset classes do not perform well. Previously, pension schemes have suffered losses due to poor choice of investments and lack of diversification. Levinrad (2010) argues that Real estate investment is not affected by volatility and other microeconomic factors that negatively impact on returns. Property investment has much advantage since its returns are consistent in the long-term as result of capital appreciation. Despite this, many pension schemes have not been able to invest in property since this form of investment requires huge capital (RBA, 2013).

Real estate investments are useful because of their diversifications potential. Their returns are less dependent on the returns of bonds and shares. The price of properties apart from economic factors depends on non economic factors like population expansion or development of technology. Bruin & Flint-Hartle (2003) examined what motivated investors to invest in property in New Zealand; he found that economic reasons motivating the property investment decision included expected return on investment, wealth accumulation through long-term capital gain/growth and attitude to risk. It was found that wealth accumulation and long-term capital gain was the most important consideration in the property investment decision.

Andonov, Eichholtz and Kok (2012) carried out an investigation on the link between the costs and performance of pension funds' real investments are driven three main variables: size, the choice to invest internally or externally, and geography. The study found out that larger pension funds were more likely to invest in real estate due to lower costs and higher net returns.

Yunus (2007) investigated on the degree of long run integration and short run dynamics among the major public property markets in terms of market capitalization in the US over the period 2000-2006, he found that US investors could attain substantial diversification benefits from investing in many of the international property markets in the long-run as well as in the short-run. Other researchers include: Bocchialini (2013) who analyzed Italian pension funds to determine whether there was any relationship between diversification of real estate portfolios and increase in total assets. The results showed that a positive relationship between the two variables.

A Few local studies have been done on property investment on asset growth of pension funds in Kenya; Njuguna (2011) conducted a survey of pension plans in Kenya on determinants of pension governance, empirical results show that pension governance is influenced by pension regulations, leadership, and membership age. The pension plan, design and number of members do not have significant influence on how the pension plans are governed.

Nzalu (2013) did an assessment of the Factors Affecting the Growth in Real Estate Investment in Kenya, the study found out that GDP is the most significant contributor to the growth in real estate. In addition, GDP growth, interest rate variation and growth in inflation were found to be statistically significant determinant of real estate growth. Munyi (2013) carried out a descriptive survey research design in Free Area estate. The study sought to investigate the factors influencing volatility of financial returns in the real estate investment in Free Area estate of Nakuru Municipality. The researcher found out that volatility of returns in real estate investment in Free Area estate is affected by duration of holding real property, cost of funds, type of property, and the volume of units.

After a thorough review of the available literature in this area, the study found a gap in knowledge since very little has been done on the effects of property investment on asset growth of pension funds in Kenya. Therefore this study attempts to answer the following research question: what is the effect of property investment in pension funds asset growth in Kenya?

### **1.3. Research Objective**

The objective of this study is to determine the effect of property investment in pension funds asset growth in Kenya.

### **1.4. Value of the Study**

The study will inform the role the real estate investment plays in the pension sector. More particularly the returns associated with this investment. Pension scheme invest in many assets classes. Pension funds invest to grow the member's pension contribution so that when the members retire or stop working they have a safety net. The study will help to shed more light on how to grow the portfolio by increasing property exposure to optimal level. This will in turn grow the pension schemes asset size.

The study will enhance the theories of portfolio, arbitrage pricing model as well as capital assets pricing model. The principles of risk and returns will be assessed in regards to real estate investment. The study will analyze the returns and risk of this asset class as well as the expected returns.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The section covers the theoretical framework of this study it also provides solid evidence of various scholars and researchers locally and globally. The study has highlights on the empirical studies in Kenya and abroad and a summary of the literature review addressing the gaps of the study.

#### **2.2 Theoretical Framework**

Pension funds are moving into new asset classes in search for yield, real estate is one of the areas of investment that have attracted attention to pension fund investments programs. Real estate has been viewed as an important asset for pension funds due to its investment characteristics of high quality, income producing, and its low risk and portfolio diversification benefits (APREA, 2010). Investment in real estate has been shown to reduce risk; enhance returns; act as a hedge for inflation and deliver strong cash flows to the investor (Mutero and Kayiira, 2010).The volatility in the equity market has therefore highlighted the property's benefits in diversifying pension fund portfolio.

##### **2.2.1 Modern Portfolio Theory**

Modern Portfolio Theory (MPT) approaches investing by examining the entire market and the whole economy. The theory is an alternative to the older method of analyzing each investment's individual merits. When investors look at each investment's individual merits, they're analyzing one investment without worrying about the way different investments will perform relative to each other. On the other hand, MPT

places a large emphasis on the correlation between investments (Findlay & Hamilton, 1979).

Correlation is the amount we can expect various investments and various asset classes to change in value compared with each other. Portfolio and investment theory suggest that investors should diversify their investment portfolio in order to reduce total risk at a given level of return. Markowitz (1952) developed a basic portfolio model that demonstrated how risk could be reduced within a portfolio by combining assets whose returns demonstrate less than perfect positive correlation.

The Markowitz theory exploited the low correlation between two assets and demonstrates that as long as the correlation between the two assets is low, the risk component of a portfolio would be less than the average of the risk of the individual assets (Goslings and Petri, 1991). Portfolio could be reduced by spreading the amount of funds available for investments into a variety of opportunities, each in a different risk class. Institutional investors have over the years achieved portfolio diversification using property and equity as their prime investments (Reddy, 2001).

Property investments were seen as low risk, long term and illiquid assets (Reddy, 2001). Property plays a significant role in investment portfolios as it is considered a secure income generating good capital growth investment. It is regarded as less volatile investment than shares, providing a reliable hedge against inflation and offering diversification benefits. However, it suffers a shortfall because of its illiquidity factor (Friedman, 1970).

The proponents of MPT argued Property's high relative management costs are increased by a globally-scattered portfolio where no scale efficiencies can be obtained; there are additional costs in monitoring the local managing agents. Gordon (1991), as a result, the tendency would be to concentrate holdings on a small number of markets (and on larger units) thus sacrificing potential diversification gains. Market access may be problematic; particularly where the market capitalization is small in relation to the size of fund there may simply be no appropriately sized buildings available. Liquidity problems make it difficult to implement and actively manage a portfolio strategy (Brown, 1991).

Markets with low correlations to the global portfolio are often those with least research and most restrictive market practices. Information may be difficult and costly to obtain; it is rare that data will be of good quality and with a long time-series. Furthermore, there may be comparability problems caused by differences in ownership and legal structures, valuation methodologies and terminology. In individual asset selection, local factors may dominate, placing the overseas investor without a local partner at a relative disadvantage. Finally, the absence of regularly produced and accurate market capitalizations makes the construction of a benchmark world real estate performance index highly problematic. These factors make the implementation of a formal international portfolio diversification strategy complex, but not infeasible (Ennis and Burik, 1991)

### **2.2.2 The Arbitrage Pricing Theory**

According to Shanken (1985), the arbitrage pricing theory (APT) approach to the portfolio strategy decision involves choosing the desirable degree of exposure to the

fundamental economic risks that influence both asset returns and organizations. This focus differs from that of traditional investment analysis and is ideally suited to the management of large pools of funds. Choosing the optimal degree of risk exposure requires an understanding of the level of risk exposure of the organization. At the core of APT is the recognition that only a few systematic factors affect the long-term average returns of financial assets (Ross, 1976).

APT does not deny the myriad factors that influence the daily price variability of individual stocks and bonds, but it focuses on the major forces that move aggregates of assets in large portfolios. By identifying these forces, we can gain an intuitive appreciation of their influence on portfolio returns. The ultimate goal is to acquire a better understanding of portfolio structuring and evaluation and thereby to improve overall portfolio design and performance (Roll and Ross, 1995).

Other attempts to apply the APT to compute the cost of capital include Bower, Bower and Logue in the year 1984 Goldenberg and Robin who use the APT to study the cost of capital for utility stocks, and Antoniou, Garrett and Priestley who use the APT to calculate the cost of equity capital when examining the impact of the European exchange rate mechanism. Different studies use different factors and consequently obtain different results; a reflection of the main drawback of the APT the theory does not specify what factors to use (Rosenberg et al., 1984)

According to Pastor et al., (2002), this drawback is one of the main reasons that the U.S. Federal Reserve Board has decided not to use the APT to formulate the imputed cost of equity capital for priced services at Federal Reserve Banks. The application of

asset pricing models to the evaluation of money managers was pioneered by Jensen. When using the APT to evaluate money managers, the managed funds' returns are regressed on the factors, and the intercepts are compared with the returns on benchmark securities such as Treasury bills. (Roll & Ross, 1980). The proponents of this theory include; Busse and Carhart. The APT is a one-period model that delivers arbitrage-free pricing of existing assets (and portfolios of these assets), given the factor structure of their returns. Applying it to price derivatives on existing assets or to price trading strategies is problematic, because its stochastic discount factor is a random variable which may be negative (Roll and Ross, 1980).

Negativity of the SDF in an environment which permits derivatives leads to a pricing contradiction or arbitrage. Consider, for instance, the price of an option that pays its holder whenever the SDF is negative (Pastor and Stambaugh, 2002). Being a limited liability security, such an option should have a positive price, but applying the SDF to its payoff pattern delivers a negative price. (The observation that the stochastic discount factor of the CAPM may be negative is in to Dybvig and Ingersoll (1982) who also studied some of the implications of this observation (Péñaranda and Sentana, 2004).

### **2.2.3 The Capital Asset Pricing Model**

Although mean variance analysis has been advocated as a framework for making investment decisions, a major problem of investment has been how to determine expected rates of return. Asset pricing theories attempt to provide a solution. Asset pricing theories try to explain why certain capital assets have higher expected returns

than others and why the expected returns are at different points in time. CAPM is considered the most basic asset pricing model (Gordon, 1991).

The model often expressed as CAPM of Sharpe (1964) and Lintner points the birth of asset pricing theory. It describes the relationship between risk and expected return and is used in the pricing of risky securities. The CAPM is still widely used in evaluating the performance of managed portfolio and estimating the cost of capital for firms even though, it is about five decades old. The CAPM emphasizes that to calculate the expected return of a security; two important things need to be known by the investor; the risk premium of the overall equity/portfolio, and the security's beta versus the market (Goslings and Petri, 1991). The security's premium is determined by the component of its return that is perfectly correlated with the market, thus the extent to which the security is a substitute for investing in the market. In other words, the component of the security's return that is uncorrelated with the market can be diversified away and does not demand a risk premium (Findlay, Hamilton, Messer and Yormark, 1979).

The CAPM model states that the return to investors has to be equal to; the risk free rate, Plus a premium for the stocks as a whole that is higher than the risk free rate, Multiplied by the risk factor for the individual company. The CAPM is associated with a set of important implications which are often the basis of establishing the volatility of the model. These are; Investors calculating the required rate of return of a share will only consider systematic risk to be relevant, Share that exhibit high level of systematic risk are expected to yield a higher rate of return, and on average, there is a

linear relationship between systematic risk and return, securities that are correctly priced should plot on the SML (Messer and Yormark, 1979).

According to the supporters of this theory, generally it is accepted that validity of a theory depends on the empirical accuracy of its predictions rather than on the realism of its assumptions. CAPM assumes that all investors; aim to maximize economic utilities, are rational and risk averse, are broadly diversified across a range of investments, are price takers (i.e. they cannot influence prices), can lend and borrow unlimited amount under the risk free rate of interest, trade without transactions or taxation cost, deal with securities that are all highly divisible into small parcels, assume all information is available at the same time to all investors (Gordon, 1991).

### **2.3 Determinants of Pension Funds Asset Growth**

Pension schemes in Kenya invest based on the investment policy statement statements which are guided by the investment guidelines which are set by the RBA act. The five determinants of pension funds growth are immovable property or real estate, fixed deposits, time deposits and Certificates of Deposits, Equities may include quoted equities, unquoted equities and Government Securities and bonds i.e. may also include corporate bonds, commercial papers, mortgage bonds and infrastructure bonds (Chiang et al., 2008).

#### **2.3.1 Immovable Property and Pension Funds Asset Growth**

There are two ways in which a pension scheme investment its money in order to grow the pension funds. Segregated and guaranteed. Segregated is where money is invested in different asset classes for example immovable property. Guaranteed is where the

insurance company receives the money and invests in a pooled fund and guarantees them a return (Yonder, 2013).

As a result, these institutions have grown tremendously to become the largest class of investors in many markets and, given their size, the allocation of their assets has important implications for the relative prices of financial assets. Motivated by a sharper focus on growth of assets pension schemes have invested heavily in immovable property in order to grow the portfolio. This move has seen pension funds grow globally as a result of deliberate investment in immovable property. This change has been in train for some time, but it has recently been given added impetus by accounting and regulatory changes and the experience of funding gaps in corporate pension funds (Panle and Parag, 2011).

### **2.3.2 Bonds and Pension Funds Asset Growth**

Pension funds have become the largest class of investors in many markets and, given their size, the allocation of their assets has important implications for the relative prices of financial assets. There may be a trend shift of private (defined benefit) pension fund asset allocation strategies away from equity to bonds, especially to government bonds, given their limited credit risk (Chun et al., 2000).

The potential demand for such bonds could, in principle, be very substantial, sufficient in fact to result in a scarcity of such bonds in circulation. Pension fund asset allocations have important implications for the relative prices of financial assets. Ageing populations in OECD countries and the need for savings to fund retirement

incomes have led to tremendous growth of assets held by pension funds (Cici, Corgel, and Gibson, 2011).

### **2.3.3 Quoted Equities and Pension Funds Asset Growth**

Pension funds are important to shareholders of listed and private companies. They are especially important to the stock market where large institutional investors dominate. Real Estate Investment Trusts (REITs) are a special type of stocks that own commercial and residential real estate such as apartments, malls, hotels, and hospitals. REITs tend not to move in step with other stocks and tend to hold up well during inflationary times. These attributes make REITs an attractive asset class to help diversify an investment portfolio (Hill and Andersen, 2001).

Levitt & Syverson (2005) notes that to generate cash for investors, strong markets offer the opportunities to sell companies by private by equity firms backed by pension money. A balance between cash from private equity investments and investments of pension funds should be maintained to achieve steady flow of incomes in order to accumulate sufficient incomes to pay the retirees. Some firms prefer to double their profitable assets class to push for more capital to private equity firms rather than risking on their targets.

### **2.3.4 Fixed Income and Time Deposits and Pension Fund Asset Growth**

According to Gordon, (1991), as many investors continue to search for ways to complement their fixed income portfolios in a challenging, low-yield environment, there's a compelling case to be made for incorporating in property investment. Pension schemes tend to be more risk averse than other investors as they invest a higher proportion of assets into fixed-income securities and face a lower exposure to

equities than investment funds. They depend primarily on business-to-business relationships, and so are influenced heavily by growth in the institutional client segment of the market, which has continued to grow at a faster pace than the other segment of the market. Fixed income asset allocation continued to fall in most pension schemes across the world with the European average reducing to 55% from 56%. This comes as money market instruments fell on the back of low short-term interest rates, an improved economic outlook and intense competition from banking investments (Levinrad, 2010)

### **2.3.5 Commercial Paper and Corporate Bonds Pension Funds Assets Growth**

Commercial paper and corporate bonds accounts for a large and growing fraction of property investment by pension schemes in the United States (Collett, 2000). Despite its growing importance for property investment and despite the attention paid by macroeconomists to commercial paper and corporate bonds as a leading economic indicators, there has been virtually no econometric analysis of the characteristics of commercial paper and corporate bonds issuers or the circumstances under which they rises or falls. This is a surprising omission, given that commercial paper and corporate bonds are the form of publicly traded debt placed by corporations.

Survey evidence by Levinrad, (2010) indicates that market timing by pension schemes is a motivation in debt issuance decisions. The study found evidence that pension schemes employ more short-term debt in the capital structure when the term spread, measured by the difference in yields between long-term and short-term. They argue that pension schemes attempt to time market conditions by issuing more short-term debt when financing costs are low relative to long-term debt.

## **2.4 Empirical Studies**

A study was carried out by Bruin & Flint-Hartle (1999) in New Zealand to examine what motivated investors to invest in property; he found that economic reasons motivating the property investment decision included expected return on investment, wealth accumulation through long-term capital gain/growth and attitude to risk. It was found that wealth accumulation and long-term capital gain was the most important consideration in the property investment decision. A total of 43 per cent of respondents ranked this as their first most important reason for engaging in rental investment. A further 17 per cent indicated it as their second most important reason.

Munyi (2013) carried out a descriptive survey research design in Free Area estate. The study sought to investigate the factors influencing volatility of financial returns in the real estate investment in Free Area estate of Nakuru Municipality. The researcher found out that volatility of returns in real estate investment in Free Area estate is affected by duration of holding real property, cost of funds, type of property, and the volume of units.

Amos et al., (2011) did a survey to find out the determinants of pension governance using a sample of 362 trustees of occupational pension plans in Kenya. The results indicate that pension regulations are significantly positively related to pension governance ( $r = 0.199$ ,  $p < 0.01$ ) and leadership ( $r = 0.240$ ,  $p < 0.01$ ) thus confirming hypothesis 1 and 5. These influences are however very small: 6% in the variance of pension governance ( $R^2 = 0.064$ ) and almost 10% in the case of pension plan leadership ( $R^2 = 0.096$ ). These results show that pension regulations influence the

way pension plans are governed and led. The empirical results further reveal a positive relationship between pension governance and leadership (0.32,  $p < 0.05$ ). It was concluded that the two variables are related due to their association with the optimal allocation of resources, staffing; framing of delegated responsibilities; showing sensitivity to pension plan mission statements, setting investment targets, attending to the culture of the organization; and issues of accountability and performance measurement.

To determine the factors influencing pension managers investment decisions, Rono (2009) did an evaluation of factors influencing pension managers' investment decisions in Kenya through conducting a descriptive survey on the fund manager's opinions on the extent to which returns on investment, trends of interest rates, decision making preference, guaranteed returns affect their choice of investment vehicles. The study found that returns on investments affect choice of investment vehicles to a very large extent (82%) and to a large extent (18%). A strong positive relationship was revealed between return on investment and investment decision. In relation to interest rates trends, he found out that the trends of interest rates affect choice of investment vehicles to a very large extent and decision Making Preferences. The study also tested the relationship between guaranteed returns and the choice of investment vehicles, the study concluded that overall guaranteed returns affects choice of investment vehicle to some extent tending to a small extent.

A study by Njuguna and Otsola (2011) investigated on the link between the predictors of pension finance literacy on the occupation schemes in Kenya. The sample of the study consisted of 2395 (response rate 65%) individuals drawn from 648 occupational

retirement schemes. A binary measure of pension finance literacy was constructed and one way ANOVA and post hoc tests using the Tukey approach were conducted to determine the bases on which pension finance literacy levels differ. The study concludes that pension finance literacy differs significantly on the basis of age, education level, gender, job experience, management level, income, pension plan design, participation in previous pension finance literacy program, area of specialization and membership in a pension plan board but does not differ on the basis of the marital status of the individuals.

Andonov, Eichholtz and Kok (2012) conducted an examination of pension fund investments in real estate in U.S, Canadian, European, and Australian/New Zealand pension funds which invest in direct real estate and real estate investment trusts (REITs) over the period 1990-2009. The pension funds had a combined asset under management of \$4.6trillion in 2009. The study observed that the costs and performance of pension funds' real investments were driven three main variables: size, the choice to invest internally or externally, and geography. They found out that larger pension funds were more likely to invest in real estate internally have lower costs and higher net returns. The small funds on other hand were more likely to invest in direct real estate through external managers and funds-of-funds, but largely ignored REITs. The additional investment layers significantly increased their costs and disproportionately reduced their returns.

Yunus (2007) applied time series techniques to evaluate the degree of long run integration and short run dynamics among the major public property markets (in terms of market capitalization) in the US over the period 2000-2006. The study also

examined the long run and the short run interactions among the corresponding major international equity markets to compare and contrast diversification benefits from exploitation of international property markets. The results showed that US investors could attain substantial diversification benefits from investing in many of the international property markets in the long-run as well as in the short-run. The short run results showed that there were relatively fewer lead-lag relationships between the US and the international property markets indicating that due to the underdeveloped state of the securitized property sector (relative to equity markets) and due to the real estate nature of these markets, the securitized property sector is less impacted by the US property market in the short run than the corresponding equity markets.

Bocchialini (2013) analyzed Italian pension funds to determine time evolution of sample's features in terms of asset allocation, real estate investments characteristics, profitability of the real estate portfolio and the similarities and differences between two different sample (first one composed of funds investing in real estate market, second one composed of funds not investing in real estate market), especially in terms of total asset and asset allocation. A trend of seven years was used from 2005 to 2011. The results showed that total asset averagely increased by 3.17%, this average value was negatively affected by a negative trend between 2007 and 2008 (5.57% decrease). On 2007-2008, pension funds decreased to 5.4%. It was also found that investments in Italian government bonds increased and investment in Irish, Greek and Portuguese bonds have been divested.

## **2.5 Summary of Literature Review**

The empirical studies reveal that most pension schemes achieve high diversification by investing in real estate. This is supported by Munyi (2013) and Njuguna and Otsola (2011) lends a lot of credence on the argument that volatility of returns in real estate investment in Free Area estate is affected by duration of holding real property, cost of funds, type of property, and the volume of units. The weakness of this study is that it was too broad and thus do not address the research question what are the effects of property investment in pension funds asset growth in Kenya.

Based on the objective of this study which is to determine the effects of property investment in pension funds asset growth, Rono (2009) in his study found that returns on investments affect choice of investment vehicles to a very large extent (82%) and to a large extent (18%). A strong positive relationship was revealed between return on investment and investment decision. This study was too narrow and failed to address the problem of this study which is to find out the effects of property investment on asset growth of pension funds in Kenya.

In reference to the empirical evidence, studies have been carried out on property investment and asset growth. To date, no study known to the researcher has investigated the effects of property investment on asset growth of pension funds in Kenya. Therefore, there is a compelling need to address this gap and find out whether there is any effect of property investment in pension funds asset growth in Kenya.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter gives the methodology that will be used to accomplish the already established research objective. Here the research design, target population, sampling design, sample size, data collection and analysis, are discussed.

#### **3.2 Research Design**

This study will use a descriptive survey of the pension funds registered by the Retirement Benefits Authority in Kenya. Mugenda and Mugenda (1999) define a descriptive survey as a form of research design that describes the characteristics of elements in a certain population. A research design is a systematic plan on how data is to be collected, what instruments will be employed, how the instruments will be used and the intended means for analyzing data collected.

#### **3.3 Population of the Study**

According to the Retirement Benefits Authority (RBA) (2013) there are 1216 registered pension funds in Kenya. The target population will consist of all registered pension schemes which have invested in property as per attached appendix I. According to Cooper and Schindler (2001), a population is the total collection of elements which the researcher wishes to make inferences.

#### **3.4 Sample Size and Sampling Procedures**

All 40 schemes which have invested in property investment out of 1216 registered schemes. According to Baridam (1987), sampling is the process of selecting units

(e.g., people, organizations) from a population of interest so that by studying the sample we may fairly generalize our results back to the population from which they were chosen. The objective is to draw conclusions about populations from samples, the study adopted inferential statistics which enabled us to determine a population's characteristics by directly observing only a portion (or sample) of the population.

### **3.5 Data Collection**

The study will use secondary sources of data since the nature of the data is quantitative. Data will be collected from the annual financial statements of the pension funds. The Financial Statements usually in copies reside with the Fund Managers, Scheme Trustees, Scheme Administrators and RBA as filed returns. The study will review secondary data for a period of five years depending on data availability and access.

### **3.6 Data Analysis**

A multiple regression model will be used to analyze the data. The objective of the test is to further explain potential differences or similarities between samples by analyzing the following independent variables: Immovable property, Fixed Deposits, Equities (quoted and unquoted equities) and Government Securities. The four independent variables will be measured using return on investment by comparing the trend.

The independent variables will be measured by comparing the returns of each of the independent variable in five years. The dependent variable will be measured adding up the returns of the independent variables

### 3.6.1. The Analytical Model

The study will use a multiple regression model equation to determine the effect of property investment in pension funds asset growth in Kenya. A comparison in returns of the portfolio will be done on similar schemes in terms of fund value which have invested in property and the schemes which have not invested in property. The researcher will use a five year period trend. The researcher intends to adapt a multiple regression model as advanced by Wanjala in the year 2013.

$$G = a + b_1 P_1 + b_2 D_2 + b_3 E_3 + b_4 S_4 + b_5 C_5 + e$$

Where G= Assets Growth is the dependent variable which will be measured by

$$\frac{\text{Current year total fund value} - \text{previous total fund value}}{\text{current year total fund value}} * 100$$

$P_1$   $D_2$   $E_3$  and  $S_4$  =independent variables will be measured by the following formula

$$\frac{\text{Current year value of the asset} - \text{previous year value of the asset}}{\text{current year value of the asset}} * 100$$

Where,

$P_1$     Immovable properties

$D_2$     Government Securities

$E_3$     Quoted Equities

$S_4$     Fixed Income and time Deposits

$C_5$     Commercial paper and corporate

a, and b= regression constants affects the relationship between property investment and asset growth of pension funds in Kenya

### 3.6.2 Diagnostic Tests

The at T- tests at 95 % confidence level will be used to determine the statistical significance of the constant terms, a and the coefficient terms, b. The F-test will be

used to determine whether the regression is of statistical importance at 95% confidence level. The coefficient of determination,  $R^2$  and the Adjusted  $R^2$  will be used to determine how much variation in the dependent variables is explained by variation in the independent variables.

## CHAPTER FOUR

### DATA ANALYSIS, RESULTS AND DISCUSSION

#### 4.1 Introduction

The current chapter presents the outcome of data analysis and findings in line with the objectives of the Study. The data were analyzed using the Statistical Program for Social Sciences (SPSS) version 18, by use of both descriptive and inferential statistics. Descriptive statistics such as mean, median, maximum, minimum, standard deviation, Skewness and Kurtosis were used.

#### 4.2 Descriptive Statistics

Table 4.2 gives the summary statistics of the main variables that have been included in the model including: minimum, maximum, mean, skewness, and kurtosis . The case summaries are attached in appendix 2

**Table 4.2: Descriptive Statistics Results (2009-2013)**

|           | Assets Growth (Ksh billions) | Immovable properties (Ksh billions) | Government Securities (Ksh billions) | Quoted Equities (Ksh billions) | Fixed Income and time Deposits (Ksh billions) | Commercial paper and corporate (Ksh billions) |
|-----------|------------------------------|-------------------------------------|--------------------------------------|--------------------------------|-----------------------------------------------|-----------------------------------------------|
| Mean      | 22.99                        | 11.57                               | 51.45                                | 68.54                          | 94.26                                         | 10.02                                         |
| Median    | 40.12                        | 21.22                               | 39.00                                | 90.913                         | 120.646                                       | 21.213                                        |
| Maximum   | 71.75                        | 31.04                               | 541.09                               | 321.08                         | 223.29                                        | 55.90                                         |
| Minimum   | 0.00                         | 0.00                                | 0.00                                 | 0.00                           | 0.00                                          | 0.00                                          |
| Std. Dev. | 10.12                        | 11.07                               | 12.62                                | 10.331                         | 10.078                                        | 10.238                                        |

This table reports summary statistics for the sample. The results showed that assets growth had a mean of 22.99 with a minimum of 0.00, a maximum of 71.75, standard deviation of 10.12, skewness 0.045 and kurtosis of +2.034. Further immovable properties had a mean of 11.57, minimum of 0.00, maximum of 31.04. Government

securities had a mean of 51.45, minimum of 0.000, maximum of 541.09, and Quoted Equities had a mean of 68.54, minimum of 0.000, maximum of 321.08, Furthermore fixed income and time deposits had a mean of 94.26, minimum of 0.000 and maximum of 223.29. Finally commercial paper and corporate had a mean of 10.02, minimum of 0.000, maximum of 55.90. The larger the standard deviation is, the more spread out the observations are. From the observation above the standard deviations for all the variables are not spread out. The minimum and maximum implies that there are no outliers and the data is normally distributed.

#### **4.3 Pearson's Correlation Coefficient Analysis For Property Investment and Growth of Pension Funds In Kenya**

Correlation analysis was used to measure the degree of association between different variables under consideration. In this section, the study measured the degree of association between the property investment variables and growth of pension funds in Kenya i.e. if the property investment proxies (Immovable properties, Government Securities, Quoted Equities, Fixed Income and time Deposits, Commercial paper and corporate) and growth of pension funds in Kenya. From the a priori stated in the previous chapter, a positive relationship is expected between the measures of property investment and growth of pension funds. Table 4.3 presents the correlation coefficients for all the variables considered in this study.

**Table 4.3: Correlation Analysis Results**

|   |                                | 1         | 2         | 3        | 4        | 5        | 6 |
|---|--------------------------------|-----------|-----------|----------|----------|----------|---|
| 1 | Immovable properties           | 1         |           |          |          |          |   |
| 2 | Government Securities          | .624(**)  | 1         |          |          |          |   |
| 3 | Quoted Equities                | -.447(**) | .409(**)  | 1        |          |          |   |
| 4 | Fixed Income and time Deposits | .528(**)  | -.496(**) | -.225    | 1        |          |   |
| 5 | Commercial paper and corporate | .369(**)  | .452(**)  | .235(**) | .466(**) | 1        |   |
| 6 | Assets Growth                  | .769(**)  | .557(**)  | .632(**) | .653(**) | .552(**) | 1 |

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

From the correlation result for the study model in table 4.3, immovable properties has a strong positive correlation with Assets growth (.769,  $p=0.000$ ), the study further indicated that government securities has also a strong and positive relationship with assets growth (.557,  $p=0.000$ ). The study also indicated that quoted equities has a strong and significant relationship with assets growth (.632,  $p=0.32$ ).

Further the results indicates that fixed income and time deposits has a strong and significant relationship with assets growth (.653,  $p=0.21$ ). Also the study indicates that commercial paper and corporate has also a strong and positive relationship with assets growth (.552,  $p=0.000$ ). This implies that the proxies of property investment (Immovable properties, Government Securities, Quoted Equities, Fixed Income and time Deposits, Commercial paper and corporate) are very important in influencing the growth of pension funds in Kenya.

#### 4.4 Regression Analysis and Hypothesis Testing

Regression analysis was used to determine the effect of property investment on growth of pension funds in Kenya.

**Table 4.4: Regression Model Summary of Property Investment and Growth of Pension Funds In Kenya ( 2009-2013)**

| <b>Model Summary</b> |                    |          |                   |                            |
|----------------------|--------------------|----------|-------------------|----------------------------|
| <b>Model</b>         | R                  | R Square | Adjusted R Square | Std. Error of the Estimate |
| <b>1</b>             | 0.669 <sup>a</sup> | 0.456    | 0.375             | 0.7638                     |

The Multiple R for the relationship between the set of independent variables and the dependent variable is 0.669, which would be characterized as strong using the rule of thumb than a correlation less than or equal to 0.20 is characterized as very weak; greater than 0.20 and less than or equal to 0.40 is weak; greater than 0.40 and less than or equal to 0.60 is moderate; greater than 0.60 and less than or equal to 0.80 is strong; and greater than 0.80 is very strong.

Further the study carried out the hypothesis testing between property investment variables and growth of pension funds in Kenya. It assumed the null hypothesis that there is no relationship between property investment and growth of pension funds in Kenya. The study findings are as shown below.

| ANOVA <sup>a</sup> |            |                |    |             |       |                   |
|--------------------|------------|----------------|----|-------------|-------|-------------------|
| Model              |            | Sum of Squares | df | Mean Square | F     | Sig.              |
| 1                  | Regression | 1441.00        | 5  | 288.2       | 6.502 | .012 <sup>b</sup> |
|                    | Residual   | 2790.34        | 34 | 82.263      |       |                   |
|                    | Total      | 4912.75        | 39 |             |       |                   |

a. Dependent Variable: Fundvalue

Predictors: (Constant), Fixed and Time Deposits, Quoted Equity, Immovable Property, Kenya Government Securities

The probability of the F statistic for the overall regression relationship is <0.001, less than or equal to the level of significance of 0.05. The study reject the null hypothesis that there is no relationship set of independent variables and the asset the dependent variable.variable (R<sup>2</sup> = 0). The study supports the research hypothesis that there is a statistically significant relationship between the set of independent variables and the dependent variable.

**Table 4.5: Regression Coefficients of Property Investment and Growth of Pension Funds in Kenya**

| Coefficients <sup>a</sup> |                         |                             |            |                           |       |      |
|---------------------------|-------------------------|-----------------------------|------------|---------------------------|-------|------|
| Model                     |                         | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|                           |                         | B                           | Std. Error | Beta                      |       |      |
| 1                         | (Constant)              | 3.579                       | 2.128      |                           | 1.682 | .094 |
|                           | Property                | .225                        | .065       | .229                      | 3.439 | .001 |
|                           | Government Securities   | .173                        | .070       | .177                      | 2.479 | .014 |
|                           | QuotedEquity            | .138                        | .067       | .148                      | 2.071 | .040 |
|                           | Commercial paper        | .092                        | .052       | .125                      | 1.771 | .078 |
|                           | Fixed and time deposits | .028                        | .017       | .112                      | 1.706 | .090 |

a. Dependent Variable: FundValue

The regression model

$$G = a + b_1 P_1 + b_2 D_2 + b_3 E_3 + b_4 S_4 + b_5 C_5 + e$$

$$G = 3.579 + 0.225 P_1 + 0.173 D_2 + 0.138 E_3 + 0.092 S_4 + 0.028 C_5 + e$$

The findings reveal only three variables are significant hence the equation will be as follows,

$$G = 3.579 + 0.225 P_1 + 0.173 D_2 + 0.138 E_3 + e$$

Where G= Assets Growth

P<sub>1</sub> Immovable properties

D<sub>2</sub> Government Securities

E<sub>3</sub> Quoted Equities

S<sub>4</sub> Fixed Income and time Deposits

C<sub>5</sub> Commercial paper and corporate

a, and b= regression constants affects the relationship between property investment and asset growth of pension funds in Kenya

Commercial paper and Fixed Income and time Deposits are insignificant in the equation and have been dropped. According to the regression equation established, taking all factors into account (Immovable properties, Government Securities, Quoted Equities, Fixed Income and time Deposits, Commercial paper and corporate asset growth will be 3.579. The Standardized Beta Coefficients give a measure of the contribution of each variable to the model. A large value indicates that a unit change in this predictor variable has a large effect on the criterion variable.

The t and Sig (p) values give a rough indication of the impact of each predictor variable – a big absolute t value and small p value suggests that a predictor variable is

having a large impact on the criterion variable. At 5% level of significance and 95% level of confidence, immovable properties had an 0.225 which shows positive level of significance for the five years under consideration. Property investment has a highest level of significance than all other independent variables.

#### **4.5 Discussion of Research Findings**

The descriptive statistics of the variables used in the analysis of the sample was very crucial for the study. The study presents the descriptive statistics of the variables used in the analysis: Immovable properties, Government Securities, Quoted Equities, Fixed Income and time Deposits, Commercial paper and corporate on asset growth. The findings show that property investment is significantly associated with assets growth as indicated by the positive mean values and their respective standard deviations.

The study measured the degree of association between the property investment variables and growth of pension funds in Kenya i.e. if the property investment proxies (Immovable properties, Government Securities, Quoted Equities, Fixed Income and time Deposits, Commercial paper and corporate) and growth of pension funds in Kenya through correlation analysis. The study found that the proxies of property investment (Immovable properties, Government Securities, Quoted Equities, Fixed Income and time Deposits, Commercial paper and corporate) are very important in influencing the growth of pension funds in Kenya.

Further Regression analysis was used to determine the effect of property investment on growth of pension funds in Kenya. According to the regression equation established, taking all factors into account (Immovable properties, Government

Securities, Quoted Equities, Fixed Income and time Deposits, Commercial paper and corporate asset growth will be 3.579. The Standardized Beta Coefficients give a measure of the contribution of each variable to the model. A large value indicates that a unit change in this predictor variable has a large effect on the criterion variable. The t and Sig (p) values give a rough indication of the impact of each predictor variable – a big absolute t value and small p value suggests that a predictor variable is having a large impact on the criterion variable. At 5% level of significance all the property investment variables showed a significant influence on growth of assets.

The model further showed a goodness of fit as indicated by the coefficient of determination ( $R^2$ ) with a value of 0.456. This implies that the independent variables Immovable properties, Government Securities, Quoted Equities, Fixed Income and time Deposits, Commercial paper and corporate explain 45.6 percent of growth of pension funds in Kenya. The study therefore identifies these variables as critical factors for enhancing growth of pension funds in Kenya.

Further on carrying out the hypothesis testing between property investment variables and growth of pension funds in Kenya, it assumed the null hypothesis that there is no relationship between property investment and growth of pension funds in Kenya. A Pearson coefficient of 0.780 and p-value of 0.000 showed a strong, significant, positive relationship between property investment and growth of pension funds in Kenya. Therefore basing on these findings the study rejected the null hypothesis that there is no relationship between property investment and growth of pension funds in Kenya and accepted the alternative hypothesis that there exists a relationship between property investment and growth of pension funds in Kenya.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter summarizes the study and makes conclusion based on the results. The implications from the findings and areas for further research are also presented. This section presents the findings from the study in comparison to what other scholars have said as noted under literature review.

#### **5.2 Summary of the Findings**

The objective of this study was to determine the effect of property investment in pension funds asset growth in Kenya. This study employed a descriptive survey. The target population consisted of all registered pension schemes which have invested in property. The study used secondary sources of data since the nature of the data was quantitative. Data was collected from the annual financial statements of the pension funds. The Financial Statements usually in copies reside with the Fund Managers, Scheme Trustees, Scheme Administrators and RBA as filed returns. A multiple regression model was used to analyze the data.

The findings showed that property investment variables considered in the model are significantly associated with assets growth as indicated by the positive mean values and their respective standard deviations. The study rejected the null hypothesis that there is no relationship between property investment and growth of pension funds in Kenya and accepted the alternative hypothesis that there exists a relationship between property investment and growth of pension funds in Kenya.

The study implies that the independent variables explain 45.6 percent of growth of pension funds in Kenya. In addition Multiple R for the relationship between the set of independent variables and the dependent variable is 0.669 which implies that there exists a strong relationship. The model further showed a goodness of fit as indicated by the coefficient of determination ( $R^2$ ). This suggests that the independent variables explain growth of pension funds in Kenya. The study therefore identifies these variables as critical factors for enhancing growth of pension funds in Kenya.

### **5.3 Conclusion**

The analysis of the correlations results seemed to support the hypothesis that each independent variable in property investment has its own particular informative value in the ability to explain assets growth. The significance of the coefficients was calculated at the level of 95%. The study findings indicate that property investment variables i.e. Immovable properties, Government Securities, Quoted Equities, Fixed Income and time Deposits, Commercial paper and corporate are statistically significance to asset growth as indicated by the positive and strong Pearson correlation coefficients whereas.

According to the regression equation established, taking all factors into account (Immovable properties, Government Securities, Quoted Equities, Fixed Income and time Deposits, Commercial paper and corporate, asset growth measured by fund value will be 3.579. A Pearson coefficient measure showed a strong, significant, positive relationship between property investment and asset growth of pension schemes in Kenya. Therefore basing on these findings the study rejected the null hypothesis that there is no relationship between property investment and asset growth of pension

schemes in Kenya and accepted the alternative hypothesis that there exists a relationship between property investment and asset growth of pension schemes in Kenya.

#### **5.4 Recommendations**

From the results of the study, the researcher makes the following recommendations:

The issue of property investment in pension funds should be given more attention when investing funds by pension schemes. Literature has shown that there are benefits derived through property investments hence schemes should be encouraged to invest optimally in immovable assets.

The study further recommended that that additional investment instruments not currently available in Kenya such as derivatives be introduced in the capital and money markets to aid pension schemes investment in properties in an effort of boosting their asset growth.

#### **5.5 Limitations of the Study**

The findings of this study may not be generalized to all pension schemes but can be used as a reference to pension schemes in developing countries since they face almost the same challenges due to the same prevailing economic situations and under developed money and capital markets as opposed to pension schemes in developed countries. Each pension scheme invest based on the investment policy statement but within the RBA guidelines each pension schemes have different strategies for managing property investment issues hence results thus cannot be generalized to all pension schemes in Kenya.

Scheme trustees treat the issue of property investment as confidential often fails to disclose all the material facts to the auditors and hence the financial statements might not reflect the true value of the property investment. Other factors like valuation methodologies differ from place to place and this may greatly affects the value of the property investment.

The value of property investment keeps on changing from period to period depending on prevailing economic situations and stakeholders demand. The findings therefore may not reflect the true effect of property investment across the surveyed pension schemes for a period of 5 years since pension schemes invests in the long run and the five year period might not reflect the effect of property investment on pension funds assets growth.

### **5.6 Suggestions for Further Research**

The study suggests that more studies to be carried out taking in to account the prevailing macroeconomic variables as the control variables since they play major roles in decision making as far as property investment is concerned in pension schemes. More studies should also be considering other pension funds growth variables like employee contribution rate, employer contribution rate and taxation regimes as determinants of pension funds assets growth.

A similar study should also be carried out on effect of property investment on asset growth of pension schemes in Kenya incorporating more pension funds assets growth variables like private equities and offshore investment.

## REFERENCES

- Amos, G. N., & John, K. O. (2011). Predictors of pension finance literacy: A survey of members of occupational pension schemes in Kenya. *International Journal of Business and Management*, 6(9), 101-112.
- Andonov, A., Eichholtz, P., & Kok, N. (2012) *Value Added From Money Managers in Private market. An Examination of Pension Fund Investments in Real Estate*
- Anyanzwa, J. (2004). *Kenya Licenses Three More Real Estate Investment*;  
<http://www.standardmedia.co.ke/business/article/2000108940/kenya-licences-three-more-real-estate-investment-vehicles>
- Baridam, D. (1987). *Organizational behavior and human resources. Sample and sampling techniques*. University of port haggot, Nigeria
- Bocchialini, E. (2013). Pension funds and real estate investment: Evidence from a sample of Italian pension funds. *International Journal of Innovations in Business*, Maastricht University
- Bourassa, S., & de Bruin, J. (1998). Capital growth in housing versus other markets – a report to Harcourts Group Ltd, *Real Estate Research Unit, Department of Property*, University of Auckland, Auckland
- Brown, G. (1991), *Property Investment and the Capital Markets*, E. & F.N. Spon, London
- Bruin, A., & Flint-Hartle, S. (2003). A bounded rationality framework for property investment behavior, *Journal of Property Investment & Finance*, 21 : (3), 271-284
- Charles, J., Jacobus, Thomas, E., & Gillett R. (2007) *Georgia Real Estate: An Introduction to the Profession* Cengage Learning,

- Chiang, K., K. Kozhevnikov, Lee, L. & Wisen, C.(2008): Further evidence on the performance of real estate funds: The case of real estate mutual funds, *Real Estate Economics*, 36(1), 47-62
- Chun, G., B. Ciochetti, & Shilling, J. (2000): Pension-plan real estate investment in an asset liability framework, *Real Estate Economics*, 28(3), 467-491
- Cici, G., Corgel, & Gibson, S. (2011).Can fund managers select outperforming REITs Examining fund holdings and trades, *Real Estate Economics*, 39(3), 455-486
- Ciochetti, B.A., Craft, T.M & Shilling, J.D. (2002) Institutional Investors' Preferences for REIT Stocks, *Real Estate Economics*, 30:4,567-594
- Collett, A.P. (2000).Prospects for investment in the private rented sector, *Journal of Property Investment and Finance*, 18 : (4)507-16
- Connor, P. & Falzon, R. (2006) Volatility Differences between and the Public and Private Real Estate Market, *Briefings in Real Estate Finance*, 4 ,2,107-117
- Cooper, C.R., & Schindler, P.S. (2006). *Business research methods (10ed.)*. Boston: McGraw-Hill. Pauline's Publications
- Ennis, R & Burik, B. (1991).Pension fund real estate investment under a simple equilibrium pricing model, *Financial Analysts Journal* , 20-30.
- Findlay, M., Hamilton, C., Messer, S., & Yormark, J. (1979). Optimal real-estate portfolios", *AREUEA Journal*, 7:298-317.
- Friedman, H. (1970). Real-estate investment and portfolio theory, *Journal of Financial and Quantitative Analysis*, 861-74.
- Gordon, J. (1991). European real estate's place in a portfolio", *Baring Investment Property Bulletin*, 3 : (2),1-3
- Goslings, J., & Petri, V. (1991).The role of real estate in efficient investment portfolios, *Journal of Property Valuation & Investment*, 10,405-412

- Hill, M. & Andersen. (2001).Corporate Real Estate: Its role in maximizing shareholder value, *Journal of Corporate Real Estate*,1(2),1-4
- Levitt, S., & C. Syverson. (2005) Market Distortions When Agents Are Better-informed The Value of Information in Real Estate.*NBER Working Paper No.* 11053.
- Levinrad, L. (2010).Investment in Foreclosures for Beginners. Distressed Real Estate Institute.
- James Karp, Elliot I. Klayman & Frank F. Gibson (2003) *Real Estate Law* .Dearborn Real Estate, *The International Business & Economics Research Journal*
- Markowitz, H.M. (1952) Portfolio Selection, *Journal of Finance*, 12:1,1-4
- Mugenda, O. M. & Mugenda, A. G. (1999).*Research Methods: Quantitative and Qualitative Approaches*. Nairobi: Acts Press.
- Munyi, N. (2013). Factors affecting volatility of returns in real estate investment in free area estate, Nakuru Municipality, Kenya, *Unpublished MBA Project*, Kenyatta University
- Mutero, J., Bishota, M., Kalema, W. & Kayiira, D., (2010) *Mobilising Pension Assets for Housing Finance needs in Africa* Experiences and Prospects in East Africa, Centre for Affordable Housing Finance in Africa
- Njuguna, A. G. & Otsola, J. K. (2011). Predictors of pension finance literacy: A survey of members of occupational pension schemes in Kenya, *International Journal of Business and Management*, 6(9), 101-112
- Panle, J. & Parag, P., (2011).*The Costs of Free Entry: Evidence from Real Estate Agents*, Boston, M.A
- Pastor, L & Stambaugh, R., (2002). Mutual fund performance and seemingly unrelated assets..*Journal of Financial Economics*, 63, 315–349

- Péñaranda, F & Sentana, E., (2004). Spanning tests in return and stochastic discount factor mean-variance frontiers: a unifying approach. *Working paper 0410*, CEMFI, Madrid
- Pensions Act (Cap 189). Accessed from <http://www.treasury.go.ke/index.php/departments/pensions>
- Peyton, M.S., Park, T. & Lotito, F. (2007) *REITs and Real Estate: A Perfect Pair*, TIAA-CREF Asset Management
- Reddy, W. (2001) Property Trust Investment for Fiji: Opportunities, Constraints and Viability, a paper presented during the *Pacific Rim Estate Society Annual Conference*
- Retirement Benefits Authority. (2013). Registered Fund Managers. Available at <http://www.rba.go.ke/service-providers/registered-fund-managers>. Accessed on 19.6.2014
- RBA (2014). Retirement Benefits Scheme, Accessed from [http://www.rba.go.ke/media/docs/schemes/registered\\_schemes\\_2014.pdf](http://www.rba.go.ke/media/docs/schemes/registered_schemes_2014.pdf)
- Retirement Benefit Authority (2014). Retirement Benefits Scheme, Pension Fund Scheme <http://www.rba.go.ke/retirement-benefits-schemes/registered-schemes>
- Roll, R., Ross, S., (1980). An empirical investigation of the arbitrage pricing theory. *Journal of Finance*, 35, 1073–103.
- Rono, L. J. (2009). An evaluation of factors influencing pension managers' investment decisions in Kenya. *The International Business & Economics Research Journal*, 8(10), 81-99.
- Rosenberg, B., Reid, K. & Lanstein, R. (1984). Persuasive evidence of market inefficiency. *Journal of Portfolio Management*: 11, 9–17

- Ross, S., (1976). The arbitrage theory of capital asset pricing. *Journal of Economic Theory*, 13, 341–60
- Shanken, J., 1985. A multi-beta CAPM or equilibrium APT a reply. *Journal of Finance*, 40, 1189–96
- Shanken, J., (1992). On the estimation of beta-Pricing models. *Review of Financial Studies*, 5, 1–33
- Tom, G. G., & Nolan, H. (1997). Does real estate have a place in the investment portfolio of tomorrow? *Review of Business*, 18(4), 19-24.
- Vančura, F (2012). *Role of Real Estate in Portfolio of Pension Funds*, Master Thesis, Charles University in Prague, Faculty of Social Sciences, Institute of Economic Studies
- Wanjala, M. (2013). The relationship between pension fund assets and economic growth in Kenya, *Unpublished MBA Project*, University of Nairobi
- Yonder, E. (2013) *REIT Investment Decision: Governance, Behavior and Sustainability*, PhD Thesis
- Yunus, M. (2007) *Diversification Benefits Of Real Estate .Assets And Equity Assets. In A Regional And Global Perspective*, Phd Thesis.