FACTORS AFFECTING FINANCIAL PERFORMANCE OF PENSION SCHEMES IN KENYA

OYOO JAMES ONYANGO

MASTER OF SCIENCE IN COMMERCE (FINANCE AND INVESTMENT)

KCA UNIVERSITY

2020

FACTORS AFFECTING FINANCIAL PERFORMANCE OF PENSION SCHEMES IN KENYA

OYOO JAMES ONYANGO

A DISSERTATION SUBMITTED TO THE SCHOOL OF BUSINESS AND PUBLIC MANAGEMENT IN PARTIAL FULFILLMENT FOR THE AWARD OF DEGREE IN MASTER OF SCIENCE IN COMMERCE (FINANCE AND INVESTMENT) AT THE SCHOOL OF BUSINESS OF KCA UNIVERSITY

SEPTEMBER 2020

DECLARATION

Student Declaration

This dissertationis my original work and has not been presented for research for degree award in any other university.

Signature……Date……

James Oyoo

ADM: 12/02286

Supervisor Declaration

This dissertation has been submitted for examination with my approval as University.

Mackred Ochieng,

Lecture, KCA University

Signature……..... Date……

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

DEDICATION

This dissertation is dedicated to my family.

ABBREVIATION AND ACRONYMS

AMCs: Asset Management Corporations

CAD: Canadian Dollars

CLRM: Classical Linear Regression Model

CMA: Capital Markets Authority

CSPS: Civil Servants Pension Scheme

GDP: Gross Domestic Product

IRS: Individual Retirement Schemes

NSE: Nairobi Stock Exchange

NSSF: National Social Security Fund

OECD: Organisation for Economic Co-operation and Development

ORS: Occupational Retirement Schemes

RBA: Retirement Benefits Authority

UK: United Kingdom

ZAR: South African rand

DEFINATION OF TERMS

Financial Performance: A measure which aims into assessing an organization's usage of assets in the generation of revenues (Iswatia&Anshoria, 2017).

Firm size: A basis of competitive advantage in the sense that larger companies tend to be more efficient than their smaller counterparts and have better resources to survive economic downturns (Lemmon, Roberts &Zender, 2018). The study by Graham, Li and Qiu (2012).

Members Age: The cumulative age of the pension members in relation to the retirement or pension maturity period(Platanakis& Sutcliffe, 2016).

Pension fund: Pension funds are collective investment undertakings (UCITs) that manage employee savings and retirement. Their primary objective is to provide pensioners who have reached retirement age with income in the form of a lifetime pension or capital(RBA, 2018).

Risk management: The process which involves analysis, identification and either adoption or palliation of uncertainty is involved in decision-making of investment (Jin, Merton &Bodie, 2016).

Member contribution: The total annual contributions towards the pension scheme.The contributions vary from monthly, bi-monthly to annual contributions (Lauria&Consigli, 2017).

ABSTRACT

The major function of pension funds is to provide ways for individuals to build up financial savings during their effective or working life in preparation for the funding of the consumption requires when they retire from active employment. Pension funds are the major sources of retirement income for many individuals worldwide.Despite the pension sub-sector growing, the faster growth in pension liabilities relative to assets as well as increasing life expectancy has elevated funding risks. In the defined contribution schemes, unremitted contributions have increased due to poor economic performance and the insufficient funding of quasi government schemes. This study sought to analyze the factors affecting financial performance of pension schemes in Kenya. The study specific objectives includedrisk management, membership age, member contribution and firm size to determine their effect on the financial performance of the pension schemes.The Capital Asset Pricing Model, Agency Theory and Financial Intermediation Theory was used to inform the study. The literature review is categorized on risk management, membership age, member contribution and firm size on financial performance of pension schemes. This study used the use the 34 individual retirement benefits schemes registered with the Retirement Benefit Authority. The study used data for the period 2010-2019. The study conducted Normality test, Multicollinearity, Test for Fixed or Random Effects, Wooldridge Test for Serial Correlation and Heteroscedasticity. Descriptive statistics was presented in mean, median, standard deviation while the inferential statistics included diagnostics tests and multiple linear regression model. The hypotheses was tested at 5% significance level. The results revealed that there was a positive and significant relationship between risk management and financial performance of pension schemes in Kenya (β= 0.987, p=0.000). There was a negative and insignificant relationship between age of scheme members and financial performance of pension schemes in Kenya (β= -0.00058, p=0.912). Member contribution had a positive and significant relationship with financial performance of pension schemes in Kenya (β= 0.0209, p=0.000). Lastly, firm size revealed a positive and significant relationship with financial performance of pension schemes in Kenya (β= 0.018, p=0.003). The null hypothesis on risk management, Member contribution and firm size were rejected while that of age of the scheme members was not rejected. Based on the study findings the study concluded that there is a strong correlation between risk management, age of scheme members, member contributions and firm size on financial performance of pension funds. The study recommended that pension funds should use the increasing value of their funds to generate returns for the pensioners. In addition, there is need to utilize assets to generate income for the pension funds and include the needs of the different age brackets in the management of the pension schemes.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

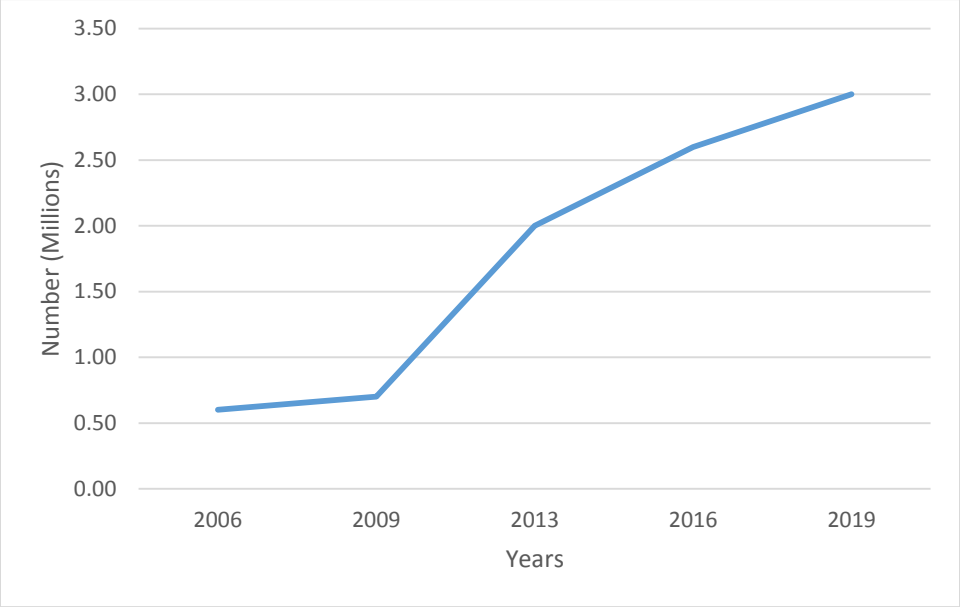
Pension funds are the principal sources of retirement income for millions of people in the world. According to a definition by Drucker (2017),a pension fund is a pool of resources contributed by the employees to have enough resources to cater to their needs after retirement. The pension fund needs to be invested to meet the aim of the contributors. The main purpose of pension funds is to supply means for people to accumulate savings during their productive or working life in preparation for the financing of the consumption needs when they retire from active employment(Consigli, Moriggia&Uristani, 2018). Pension funds make payments to beneficiaries either using a lump sum or by the provision of an annuity, while also supplying funds to end-users such as corporations, other households through secured loans or governments for investment or consumption (Chohan, 2017).

Retirement income accounts for 68% of the total income of retirees in Kenya (RBA, 2019), 45% in Australia, 44% in Austria and 80% in France while in South Africa 75% of the elderly population rely on pension income (Alliance Global Investors, 2018). In the United States of America 82% of retirees depend on pension income (EBRI, 2018).

Global indices indicate that pension assets are important to any economy. According to Alliance Global Investors (2018), pension assets in Australia amount to AU$ 1trillion (equivalent to 20% of the GDP), while in Belgium pension assets amounted to 140 billion Euro in 2017. In 2018, the pension assets of Canada were worth CAD 1.3 trillion (30% of the GDP), while in China pension assets amounted to RMB 714 billion (24% of GDP) for same year. The contribution of pension

assets to the GDP of the United Kingdom reached 14% (GDP 1.9 trillion) in 2013, while in the United States of America, the pension assets had a value of US$ 14.5 trillion (37.7% of all household financial assets). In Kenya and South Africa, the pension assets had a value of KSH 130 billion in 2017, which accounted for 30% of the GDP (RBA, 2018) and ZAR 1098 billion in 2014 (Alliance Global Investors, 2018) respectively. Pension funds are therefore important contributors to the GDPs of countries and should consequently be managed effectively.

In Kenya, only 20% of its workers are enrolled in pension schemes. This is attributed to pension services that are designed for workers in the formal workplace who are less than 20% of the working population. More than 80% of Kenyan employees work in the informal sector where they lack proper channels for contributing to retirement schemes. According to the FinAccess (2019) household survey, the pace of enrolling in pension schemes picked up in 2010 as shown in Figure 1.1.



Source: 2019 FinAccess Household Survey

Figure 1.1: Pension Coverage in Kenya

The efficiency of pension plan funds is for that reason crucial since they play a really significant role in the economic situation of any nation. There is a requirement for pension funds to engage in the appropriate monitoring of the sources handed over to them. According to Mutula and Kagiri (2018), pension funds need to gauge their financial performance versus long-term optimal benchmarks.

1.1.1 Determinants in Pension Funds

According to Andonov, Bauer and Cremers (2017); Alserda, Bikker and Van Der Lecq (2018);some of the parameters that may be important in measuring the financial performance include the risk management,economic growth, age of members, member contributions, pension firm size, the income from public retirement schemes; the rate of contributions.

Risk management is the process which involves analysis, identification and either adoption or palliation of uncertainty is involved in decision-making of investment(Jin, Merton &Bodie, 2016). Risk management happens any time a capitalist or fund manager examines and efforts to quantify the possibility for deprivation in an investment then carries the precise action or inaction which given their investment targets and risk margin(Cantor, Hood & Power, 2018).An inadequate risk management may effect in severe results for different companies and individuals as well(Stewart, Despalins&Remizova, 2017).

The age of the members determines the pension promises that employers will make to them since younger employees have a longer time horizon toinvest compared with the older members, which in turn influences the type of pension fund design on which to anchor the pension fund(Jothi, Ramakrishnan&Selvaraj, 2016). Moreover, according to the lifecycle theorem of Chen (2017), pension funds with younger members are less robust in their operations due to

lower financial resources in the pension fund. It is assumed that the opposite holds true for pension funds with older members, as the latter require more benefits payouts.

The member contribution are the total annual contributions towards the pension scheme. The contributions vary from monthly, bi-monthly to annual contributions(Lauria&Consigli, 2017). In a defined-contribution plan, the employers makes specific plan contributions for the worker, usually matching to varying degrees the contributions made by the employees. The final benefit received by the employees depends on the plan's investment performance(Kigen, 2016).

Firm size is a basis of competitive advantage in the sense that larger companies tend to be more efficient than their smaller counterparts and have better resources to survive economic downturns(Lemmon, Roberts &Zender, 2018). The study by Graham, Li and Qiu (2012) finds that smaller pension funds are more financially efficient than larger ones owing to the bigger ones sitting on large sums of money and inefficiently investing them. Smaller pension funds have smaller financial resources which they have to invest more judiciously. Furthermore, larger pension funds with huge investments in the stock market are exposed to more risk compared with smaller funds(Lemmon, Roberts &Zender, 2018). Smaller pension funds might be more financially efficient than larger ones, but financial efficiency does not necessarily translate into profitability.This study used total assets as measures of firm size. Log total asset is the most popular firm size proxy in empirical corporate finance research. Some of the studies which have used total assets include Pervan, &Višić, (2012); Vijayakumar&Tamizhselvan (2010); Linck, Netter, & Yang (2018).

1.1.2 Performance of Pension Funds

Measuring financial performance of an organization is very important since it determines whether the organization has been able to achieve its financial objectives or not. According to

Komen (2011), an institution financial performance can be evaluated on the level of percentage change as influenced by several parameters of interest. There are a variety of measures that organizations can use or adopt in measuring their financial performance.

Several profitability measurement ratios have been used in financial statement analysis. One of the most popular measurement ratio of financial performance is Return on investment (ROI). ROI ratio is computed by dividing net income by the cost of investment and measures the gain or loss generated on an investment relative to the amount of money invested. On the other hand, many scholars consider Return on assets (ROA) to be the most useful ratio due to its accuracy when it comes to measuring performance. Computation of ROA ratio is achieved by subdivision of Net income by total assets and measures how well a fund is doing. ROA also indicates how well the fund's assets have been invested used to generate optimal return (Kamwaro, 2013).

The Sharpe ratio by William Sharpe (1964) is an investment measurement that is used to calculate the average return beyond the risk free rate of volatility per unit. It's a calculation that measures the actual return of an investment adjusted for the riskiness of the investment(Lemmon, Roberts &Zender, 2018).Profitability ratios are a class of financial metrics that are used to assess a business's ability to generate earnings relative to its revenue (Zeitun& Tian, 2017; Onaolapo&Kajola, 2018).

1.1.3 Pension Funds in Kenya

Pension fund systems in Kenya were first put in place after independence in 1963. The first message independent pension plan fund body, the National Social Security Fund (NSSF), was established in 1965 (RBA, 2018). Before reforms, the pension fund system offered advantages as soon as an employee retired on obtaining the required retirement age of 55 (RBA, 2018). The guarantee was fixed as the employee's complete standard wage throughout his life or that of the

widow as the regulation did not imagine a situation where the spouse would certainly sustain the other half. This law was personified in the NSSF Act and also the Pensions Act (Cap 189).

The pension plan fund system in Kenya has been supervised by the independent Retired life Benefits Authority (RBA) because 2000, which looks after the 1997 RBA Act that caused framework, defense and law to the pension plan fund industry. The RBA proceeds functioning to establish the sector and suggest the federal government on pension policy reforms. Kenya's pension plan fund system accepts 4 elements particularly the NSSF, Civil Servants Pension Plan (CSPS), Occupational Retirement Schemes (ORS) and Individual Retirement Schemes. Generally, the system is estimated to cover 15% of the workforce and also to have actually gathered properties of 18% of the GDP (Kakwani*et al*. 2016). The pension fund system covers an approximated 2 million employees leaving an approximated 5 million workers without insurance under any kind of retirement plan, of which a minimum of 10% are at or near the retirement age (Kakwani*et al.* 2016).

1.2 Statement of the Problem

The Retirement Benefit Authority report (2018) indicated that despite the pension sub-sector growing, the faster growth in pension liabilities relative to assets as well as increasing life expectancy has elevated funding risks. In the defined contribution schemes, unremitted contributions have increased due to poor economic performance and the insufficient funding of quasi government schemes.Reports from Retirement Benefits Authority (2018) show the overall returns from pension industry have been inconsistent. The pension industry return was for the years 2016, 2017 and 2018 reported returns of negative 20%, 0% and 3 respectively, wiping out all the gains which were reported earlier (RBA, 2019). The total assets growth from 2017 to

2019averaged 3% implying poor investment decisions and also higher expenses for managing the funds (RBA, 2019).

The problem is further aggravated by bad investment decisions characterized by lack of diversification, for instance, a pension fund such as NSSF with an overwhelming 72% of total assets was in real estate(Ngugi, Njuguna&Wambalaba, 2018). Additionally, 7% of the fund was invested in bank deposits with 16 financial banking institutions of which 10 have collapsed, thus leading up to 4.6% of the total fund assets (Mwangi, 2018).In addition, trustees who are the top managers of the employer and others are political appointees who misuse employer contributions, which has resulted in cases of poor pension investments, delays and denials in payments of dues to members, misuse and outright embezzlement of the scheme funds by the same trustees who are entrusted to guard the funds to the ultimate loss to the beneficiaries (Namusonge, Sakwa&Gathogo, 2017). It is, therefore, evident that there is a challenge with the pension funds investment management leading to poor performance. This therefore calls for the need for better and more specific measures to protect the interests of stakeholders.

Despite the studies carried out on performance of organizations and pension funds, there are no studies that have attempted to examine the determining factors in financial performance of pension funds. Pension funds are a unique type of organizations because they hold long term liabilities which belong to beneficiaries. This study sought to establish the determinants of performance of pension funds in Kenya in order to bridge this gap.

1.3 Objective of the Study

The main objective of this study was to analyze the factors affecting financial performance of pension schemes in Kenya.

1.3.1Specify Objectives of the study

The study was guided by the following specific objectives:

i. To determine the impact of risk managementon the financial performance of pension schemes in Kenya.

ii. To determine the impact of membershipage densityon the financial performance of pension schemes in Kenya.

iii. To examine the effect of member contributionon the financial performance of the pension schemes in Kenya.

iv. To determine the impact of firm size onfinancial performance of pension schemes in Kenya.

1.4 Research Hypotheses

The study was guided by the following research hypotheses:

i. Risk management has no significant effect on the financial performance of pension schemes in Kenya.

ii. Membership age has no significant effect on the financial performance of pension schemes in Kenya.

iii. Member contributions have no significant effect on the financial performance of pension schemes in Kenya.

iv. Firm size has no significant effect on financial performance of pension schemes in Kenya.

1.5Justification of the Study

The study is necessary as it provide essential knowledge to the following sectors;

1.5.1 Policy Makers

Policymakers who work for pension funds in Kenya will certainly get a clear understanding of the aspects that influence the monetary efficiency of pension schemes. This was a form of criteria for finest method that will certainly allow them ahead up with plans that can improve the efficiency of their plans.

1.5.2 Contributors

The findings can also aid the federal government of Kenya to recognize the elements that impact the financial efficiency of pension schemes. This will certainly allow the government to put in place any type of ideal regulations to endure the performance and enhance of pension plan systems. The federal government would certainly therefore want recognizing just how well the field is doing financially as this has effects on the overall efficiency of the economic climate. If the findings for of the study validate the efforts and also the resources placed into controlling the sector, RBA as well as the government would certainly be interested to understand.

1.5.3 Researchers and Scholars

The contributors of funds would want recognizing just how well their funds are expanding since this suggests returns they obtain at retired life. The findings for of this study will certainly be a significant contribution to the existing literature on the economic performance of pension plan schemes. Given that this is a location that has wonderful possible for additional growth as well as will attract more scholastic research, the findings will certainly help in giving recommendation products for future scientists.

1.6 Scope of the Study

The objective scope determined the effect of risk management, membership age, member contribution and firm size on financial performance of financial performance of pension schemes in Kenya.This study utilized secondary data from the individual pension firms and the Retirement Benefits Authority. The study used data for the period 2010-2019. This study used the 34 individual retirement benefits schemes registered with the Retirement Benefit Authority as at 2018 (Appendix II).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discussed theories relevant to the study. The concept of the study was developed under the conceptual framework section and finally reviews of empirical studies that have previously been conducted on the area of financial performance of pension schemes.

2.2 Theoretical Review

The theoretical framework is the structure that can hold or support a theory of a research study. It introduced and describes the theory which explains why the research problem under study exists. The Capital Asset Pricing Model, Agency Theory and Financial Intermediation Theory was used to inform the study. The anchoring theory wasCapital Asset Pricing Model Theory.

2.2.1 Capital Asset Pricing Model Theory

The Capital Asset Pricing Model Theory was developed by Sharpe (1964) and refined by Black (1972). This model explains that investors must diversify their portfolios and that they must possess a given fraction of the financial institution‘s market portfolio. Investors without special investment knowledge are advised to hold diversified portfolios (Pagliardi, Poncet&Zenios, 2019). All investors need high levels of assurance of expected returns so as to invest in highly risky ventures. However, it should be known that in the presence of informational asymmetries and contract enforcement problems, financial institutions will not always commit their resources to businesses with high returns (Kuehn,Simutin& Wang, 2017). Making of corrections on estimation errors can greatly improve investment performance; this statement is supported by empirical evidence based on simulation analysis, mean-variance portfolio selection and sample

portfolio performance. According to this model, investors always try to avoid risks and they only look at the variance and mean on their return on investment during a single period when choosing portfolios (Rossi, 2016). Since portfolios reduce the variance of portfolio return, given expected profits, and increase expected returns, given variance; investors always choose mean-variance-efficient portfolios.

The theory is relevant as it informs the variables of asset quality and capital adequacy. This model assumes that the qualities of assets or loans are key items in any given financial institutions portfolio since a financial institution‘s portfolio comprises of both assets and liabilities. It therefore is the prerogative of bank management bodies to come up with portfolios that will give the highest returns a reduced risks and costs. This model is relevant to this study because it is used in estimating of cost of capital for pension schemes and in evaluation of performance appraisals of financial instrument portfolios. The theory reveals the relationship between yields and risks.

2.2.2 Agency Theory

Agency theory was developed by Jensen and Meckling (1976) and argues for a clear separation of the responsibilities of the principals and the agents. They argued that there is an increase in the gap between ownership and the control of large organizations that is precipitated by a decrease in equity ownership (Roshan, 2016). This situation provided an opportunity for the managers to pursue their own interests rather than maximizing returns to the shareholders. The top managers make decisions that increase the value of the firms because they often own shares in the firm in which they are working. Additionally, the managers are hired and retained by the board of directors who are elected by stockholders (Berk&DeMarzo, 2017).

In situations where the company has leverage, conflict of interest arises because investment interests have different consequences for the value of equity and the value of debt. This conflict is best depicted in situations where the company is experiencing financial distress. In such situations, managers make decisions that protect the shareholders but disadvantage the creditors (Jensen &Meckling, 2016). Agency theory posits that optimal capital structure may result from minimizing the costs generated by the conflicts of interest between the firm's various stakeholders. On the other hand, pecking order theory suggests that no optimal financial performance exists; proponents of the theory argue that firms resort to debt financing only when earnings are unsatisfactory and only as a last resort do they opt for risky external financing. This theory is relevant to the study as it suggests that there are other factors such as the actions of the management in financing decisions that can affect the financial performance of pension schemes.

2.2.3 Financial Intermediation Theory

The theory of financial intermediation was developed starting with the 60's and can be traced to the work of Gurley and Shaw (1960). The financial intermediation theory is based on the theory of informational asymmetry and the agency theory. In principle, the theory state that institutions exists to reduce information and transaction costs that arise from an information asymmetry between borrowers and lenders. In a financial context, the phrase 'financial intermediary' refers to an individual, institution or a company firm that conducts intermediation between two entities or more and pension fund been one of them (Buckle & Thompson, 2016).

Pension Funds receives larger flows of savings in comparison to other institutional savingbecause many beneficiaries regard it highly. Fiscal provisions of such a nature tend to increase the demand for saving through the channel of pension funds(Greenbaum, Thakor&

Boot, 2019). Furthermore, the pension funds' growth usually depends on the liberality of corporate social security pensions especially for particular benefit funds. There are additional aspects of the association between the fund and public sponsor that motivates firms to establish pension funds. Based on the perception of corporate finance, liabilities of defined benefit pension fund are considered as corporate debt that members can claim from the firm like other creditors. Fund investments, according to this perception are corporate assets that make the pension obligation collateral (Molnár, 2018).

Based on the theory of financial intermediation that primarily focuses on banks, activities such as deposit taking and loan issuance define the role of financial intermediary. The expansion of the financial intermediation theory to activities of pension funds activities by Davis (2010) considers pension funds as types of institutional investor, that pool, save and invest money contributed by beneficiaries and sponsors to cater for the beneficiaries' pension entitlements in the future (Robu&Sandu, 2011).

Thus, the theory of financial intermediation is relevant as it will contribute to the study byproviding an understanding to the role of fund size in financial performance of Pension Funds in Kenya. The financial intermediary role is met by pension funds through investment of accumulated money into various financial assets such as government bonds, deposits, corporate equities, foreign instruments, corporate debt, and real estate. As financial investors, pension funds could offer several advantages including improved risk trade-off of, better return as a result of diversification and reduced costs of transaction following the large volumes of trade (economies of scale). Characteristics such as costs of transaction and asymmetric information in the real-world market enable pension funds to benefit from fixed costs of assets evaluation, technological advances and decreasing average trading costs.

2.3 Empirical Review

This section reviews studies previously done on factors affecting financial performance of pension schemes.The literature review was categorized on risk management, membership age, member contribution and firm sizeon financial performance of pension schemes.

2.3.1 Risk Management and Financial Performance of Pension Schemes

Gordon, Loeb and Tseng (2019) studied 112 US companies in 2015 to examine the impact of risk management on performance using linear regression. Enterprise risk management was measured using enterprise risk management index created by the author and performance was measured using excess stock market return. The results showed a significant positive relation between enterprise risk management and firm performance. The study also revealed that this was contingent upon proper match between a firm's enterprise risk management system and five firm specific factors.

Pagach and Warr (2010) examined 106 US companies in a bid to determine the impact of risk management on financial performance using logit and matched sample model. Risk management was measured using risk managersindicatorsas proxies and financial performance was measured using several financial variables. The results showed a significant decrease in stock price volatility after introducing risk management.

According to the OECD (2016) there should be appropriate controls in place toensure that all persons and entities with operational and oversight responsibilities act in accordance withthe objectives set out in the pension entity's by-laws, statutes, contract, or trust instrument, or in documentsassociated with any of these, and that they comply with the law. Such controls should cover all basicorganisational and administrative procedures; depending upon the scale and

complexity of the plan, thesecontrols will include performance assessment, compensation mechanisms, information systems andprocesses and risk management procedures.Such governance requirements are echoed in the licensingguidelines, which specifically mention codes of conduct, fit and proper requirements for members of thegoverning body and the functional separation between investment and settlement/bookkeeping roles.

According to Anton, Toader and Firtescu (2016), management oversight and a control culture are a vital part of a functioning risk-management framework. The governing board of the pension fund is responsible for defining, implementing and improving the pension fund's risk management strategy and systems, and for establishing a high ethical standard throughout the organisation. As well as setting up the risk-management framework, management needs to check that this is working on an on-going basis. The board should periodically discuss the effectiveness of risk-management. Identified weaknesses need to be alerted to the board as soon as possible and appropriate corrective action taken. This requires systems that allow the board to receive unfiltered, honest information.

A study by Hitchcox, *et al.* (2018) established that Australia, Denmark, and the Netherlands impose some requirements on risk management as part of licensing or initial registration procedures. This includes the elaboration of a risk management plan or risk management guidelines. These requirements are not very detailed, with the supervisors allowing for differences depending on the size of the institution. These countries do not seem to impose specific regulatory requirements on the internal risk management architecture, although Dutch funds must have an internal body reviewing long term risk management, as well as independent risk management functions.

Kimeu (2015) study sought to determine the effect of portfolio composition on financial performance of pension funds. The study adopted a descriptive survey design and covered a period from 2012 to 2014. The study findings revealed that portfolio composition affects the financial performance of pension funds listed in the Nairobi Securities Exchange. The study found that investment in bonds positively influences the financial performance of pension funds listed in the Nairobi Securities Exchange. The study also found that investment in real estate and equity by pension funds positively impacted on their financial performance. The study recommended that the management of pension funds to have solid organization structure and policy implementation which will influence their portfolio composition which affect their financial performance.

Njiru (2015) sought to examine how cooperatives manage their credit risks. The study was done among cooperatives in Embu District. The study was a survey of coffee co-operatives in the area. The results revealed that the methods of managing credit risk were similar to the ones commonly espoused in finance textbooks. Ngare (2018), credit risk management practices by commercial banks were sought. This was a survey of commercial banks in Kenya. The results revealed a combination of credit risk management methods used by commercial banks in Kenya.

Waweru and Kisaka (2012) examined the effect of ERM implementation on the value of 20 companies listed on the Nairobi Securities Exchange in 2011.A survey was carried out where ERM was measured using the level of implementation while firm value was measured using Tobin Q. The results showed that there was a positive relation between level of ERM implementation and firm value.Kipchirchir (2018) examined the practices of motor vehicle firms towards foreign exchange risk management. The study was a survey of the motor vehicle industry in Kenya. The results revealed that the most commonly used foreign exchange risk

management method was hedging.Kioko (2008) examined the credit risk management techniques used by commercial banks in Kenya to manage unsecured loans. The study was a survey of various commercial banks. The study revealed that the Banks used a combination of credit management methods for unsecured loans.

Gordon, Loeb and Tseng (2019) studied 112 US companies in 2015 to examine the impact of enterprise risk management on performance using linear regression. Enterprise risk management was measured using enterprise risk management index created by the author and performance was measured using excess stock market return. The results showed a significant positive relation between enterprise risk management and firm performance. The study also revealed that this was contingent upon proper match between a firm's enterprise risk management system and five firm specific factors. Tahir and Razali (2011) examined the impact of enterprise risk management on shareholder value of 528 Malaysian firms in 2007 using linear regression model. Enterpriserisk management was measured using secondary data from Osiris database and shareholder value was measured using Tobin's Q. The study found a positive but insignificant relation between enterprise risk management and shareholder value.

Omonyo (2018) observed that risk and return are the key considerations in investment practices of Pension Fund Managers in Kenya. Current income is not their fund objective; however, the most predominant objective will be capital preservation. Pension schemes also differ from collective investment schemes as they have a minimum funding requirement and they are established to invest funds to meet pension liabilities. That is they are invested with the expectation that they will be sufficient to pay pension entitlements when these are due.

Mugo (2017) observed that factors identified in finance literature are considered in investment decision by institutional investors at the NSE. However, the relevance of the factors is different

as insurance companies and fund management companies consider company factors more important while Retirement Benefits Schemes consider industry factors more relevant. However institutional investors should not be looked at as homogeneous and therefore these findings cannot be generalized for Collective Investment Schemes.

Nguthu (2019) in his research to establish how much asset allocation policy contributed to the returns level retirement benefit fund in Kenya found that the variation in returns over time for pension schemes is explained up to 62.4% by investment policy adopted by the trustees of the scheme. Other factors such as securities selection, timing of investments and managers' selection explained the remainder. The study was done on 40 segregated occupational schemes in Kenya and returns analyzed using regression analysis and descriptive statistics. In a study carried out on the relationship between asset allocation and financial performance of pension funds (Omondi, 2013), made the following conclusions: Asset allocation explains 28% of the variability of fund returns. The study also established that of all the asset classes permitted by the Retirement Benefits Authority (RBA), investments in equities was relatively more important than investments in fixed deposits in determining the overall performance of the pension funds.

Blake, Lehmann and Timmermann (2019) examined the asset allocation decisions of 364 individual, UK company pension schemes using data that spanned the period from 2006 to 2017. The criterion they used in identifying the sample was that each fund should have been managed by the same manager over this period, and that this manager should also have been responsible for the asset allocation of the fund over this uninterrupted period, in other words these were balanced mandates. Using this sample Blake et al found little variation in the performance of these schemes, or in the strategic asset allocation decisions that they made over time. In addition they found that the vast majority of time variation in returns was due to the strategic asset

allocation decisions, very little of the variation was due to stock selection. They concluded that the empirical regularities that they observed were most likely due to the legal and economic environments under which these managers operated.

Njuguna (2012) assessed the influence of risk factor as of great concern especially in the bearish financial times. The study recognized three dimensions of Pension funds risks; namely default risks from the employers, market price volatility, Operational risks and liquidity risks. The Post-Modern portfolio theory indicates that the prices of financial asset move together either in a certain way or in the opposite way. These prices of assets were either positively or negatively correlated. For better financial Returns, the theory recommended investment in a number of financial categories that have negative relationship (co-variance) between the securities. Ideally, the choice of investments should be on the basis of how they interact with one another rather than how they perform in isolation. The Post-Modern Portfolio Theory asserts that Asset prices react differently in relation to the market performance. Such a reaction is called the sensitivity of asset prices. According to this theory, there is a linear relationship between returns and the risks associated with those returns. Thus a higher demand for returns requires taking higher risks. Occupational Pension scheme managers will react differently in such cases depending on their attitude towards risks, thus affecting the financial performances of those schemes.

Osano (2013) study sought to identify investment strategies adopted by investment funds in Kenya and their effect on financial performance of the funds. The study concluded that investment funds in Kenya take an active investment strategy. Ngetich (2012) investigated the factors influencing the growth of individual pension schemes in Kenya. The study findings revealed that fund regulation exerts a significant relationship on the growth of individual pension schemes. Kamwaro (2013), sought to determine the impact of investment portfolio choice on

financial performance of investment companies. The study revealed that investment portfolio choice affects the financial performance of investment companies listed in the Nairobi Securities Exchange.

Mirchell and Hsin (2017) argue that a possible explanation as to why the investment portfolios of U.S. public pension plans yield consistently lower rates of return than portfolios of the private sector pension fund is that the two sets of funds operate under different rules. Private sector funds are managed by professional and qualified governors, with a clear economic mandate, while public pension funds are managed by staff responding to economic as well as political pressures. It is thus hypothesized that the better performance of private pension fund results from professional nature of their governing fiduciaries. Mitchell and Hsin (2017) then tested the hypothesis on relationship between presence of active employees and retired beneficiaries in Board and performance. They found that the presence of retired beneficiaries on the governing body is associated with lower returns and conclude that either the type or the inappropriate selection of governors negatively affects performance consequently.

Cyrus *et al.* (2015) in their study on the effect of corporate governance practices on earnings management of companies stated that there was need for effective corporate governance practices at senior managerial level of companies in Kenya to contribute to improvement on actual firm liquidity and avert possible collapse of public organizations in Kenya. According to Ogoye (2012), the increasing number of corporate failures and financial scandals had been caused by incompetence, fraud and abuse of office by the agents running the corporations in Kenya. The study conclude that that a unit increase in ownership concentration will cause a decrease in earnings management, a unit increase in board size will lead to a decrease in earnings management, a unit increase in board independence will lead to a decrease in earnings

management, a unit increase in board activity will lead to an increase in earnings management and a unit increase in CEO duality will further lead to an increase in earnings management.

Kaboyo (2014) in their research on the effect of corporate governance on earnings management of listed companies looked at the factors motivating earnings management and the relationship between macro-economic variables and earnings management for listed firms at the NSE. Unlike most corporate governance studies, this study focused on the control aspect of corporate governance rather than the performance enhancing aspect. The study focused on a period when managers in Kenya had an incentive to manage earnings due to the effect of macroeconomic factors in the country. Sicily and Gladys (2017) in their study on the Influence of Corporate Governance on the performance of public organization in Kenya posits that the relevance of corporate governance cannot be over-emphasized since it constitutes the organizational climate for the internal activities of a company.

Njuguna (2012) examined the relationship between the financial returns of Pension Schemes and the agency costs. The study argued that agency costs comprise the costs paid to service providers as well as the Trustees allowance. The paper sampled and analyzed, using Data Envelopment Analysis (DEA) approach, 749 pension schemes which were in operation between 2001 up to 2008. The study concluded that there is a significant influence of agency cost on Operational costs and thus on the financial returns of the Pension Schemes. In the absence of operational efficiency, money meant to benefit members goes to other unintended beneficiaries.

Miriti (2014) studied the relationship between Retirement benefits Authority guidelines and financial returns of Pension Schemes in Kenya. The paper observed that fixing quantitative restriction is a global phenomenon. Countries, all over the world, have set up regulatory bodies to offer guidelines on the management of Pension Funds as well as controlling their financial

activities. Some regulatory Authorities offer excessive controls while others such as USA, apply the prudent man rule where Pension Funds have no set regulations on the investments. The study found that there was a positive relationship between investment guidelines by RBA and the financial performance.

Mutula (2018) did a study on the determinants influencing pension fund investment performance in Kenya. The study concluded that diversification decisions, management competency, investment strategies, and regulation compliance have a positive and significant association with the investment performance of pension funds. Based on the findings, the study recommended that pension funds management should be composed of people with high managerial competence. Further, the study recommended that pension funds should incorporate investment literacy and capability programs in their organizations. Additionally, the study recommended that pension funds should continue adhering to the set regulations. The study had very strong and comprehensiverecommendations on investment management matters for pension funds but did not investigate the influence of other financial management practices on sustainability of pension funds administrators.

Kiplagat (2014) researched the impact of asset allocation on the financial performance of pension funds in Kenya. The study revealed that there is a linear correlation between fund performance and the weights of asset classes with the strongest correlation being between fund performance and asset weights of cash deposits, quoted shares, Government securities, and property. His study further established that 58% of the variability among fund performance is due to policy differences in the asset allocation of the various funds. The balance of about 42% is due to other factors such as the manager's selection, the timing of investments and securities selection within an assetclass and whether the manager adopts an active style of management of

the fund. However, this was a case study as opposed to the whole industry analysis which did not look at the factors contributing to profitability and therefore sustainability.

Sau and Njeru (2018), did a study on determinants of financial growth of occupational retirement benefits scheme in Kenya. The study found out that investment strategy, members' contribution, and regulatory framework were key determinants of financial growth of occupational retirement schemes in Kenya. The three determinants were found to have a positive and significant relationship with the financial growth of occupational retirement schemes. The study concluded that investment strategies employed by the schemes have the potential to enhance financial efficiency and generate high returns in the pension fund. Members' contributions were also a found to be a major determinant of financial growth of retirement benefits. The study recommended that assets and members' contributions should be invested more productively to generate returns for the pensioners but failed to demonstrate how investment management practice influenced the sustainability of funds administrators.

Osano (2013) study sought to identify investment strategies adopted by investment funds in Kenya and their effect on financial performance of the funds. Descriptive analysis which aims at finding out type of investment strategy was used and classified them either active investment strategy or passive investment strategy. The study concluded that investment funds in Kenya take an active investment strategy. Further, the study concluded that investment strategies have a positive influence on investment funds performance.

2.3.2Age of Scheme Members and Financial Performance of Pension Schemes

Oluoch (2013) established the determinants of performance of pension schemes in Kenya. The research study was done on Kenyan pension plan schemes at accumulated level using annual data on fund value, assets, age, returns and contributions. The information was from in between

2000 through 2012. Time collection regression analysis was made use of to identify the connection in between returns as the reliant variable and fund worth, assets, age as well as the contributions of pensioners as the independent variables. The study established a solid positive partnership between age of the financiers gauged by nationwide life expectancy of Kenya suggesting that a longer life assumption positively impacted returns. Weak positive partnerships between returns as well as fund worth, assets as well as payments of pensioners was weak which showed that fund values, possessions, as well as payments were not used in the generation of earnings for the pension plan plans in Kenya.

Nyangeri (2014) studied the effect of membership age, fund size, fund design and density of contribution on the financial performance of pension schemes in Kenya. The study was conducted through the use of a descriptive survey design. The data to be representative enough, the study reviewed secondary data for a five year period, preferable latest, that is, 2009-2013. There were strong, significant and positive correlations between ROI and: Density of contributions, Fund value, fund size, and fund returns. Weaker, significant and positive correlations were established between ROI and Fund design and Age.

Defau and De Moor (2018) did a research on pension plan funds possession allowance and also participant age: a test of the life process version. They found out that pension plan funds take the standard of their member's age into account. However, the ordinary age of their youthful individuals has been incorporated a lot more highly in the financial investment practices than the typical ages of retired as well as dormant participants Indicating that, more rate of interest is revealed to the active individuals than retired as well as dormant individuals.

Ngugi, Njuguna and Wabalaba (2018) examined the influence of pension plan maturation on investment techniques of pension funds in Kenya. The study results problems the life process

theory by stating that plan maturation does not affect the investment strategies of occupational systems in Kenya. This study differs in that it has financial investment techniques as independent variables whereas DCs economic performance is the dependent variable.

Augusztinovics (2012) states that the ageing of the population is a process that is cyclical rather than continuous. The current ageing crisis in the country is attributed to three major factors: the number of births in the 1950s; the “baby boom”; and its echo in the late 1970s. These factors have resulted in oscillations in the world's population age structure and forced policymakers to address age demographics in an attempt to improve efficiency of pension funds (Augusztinovics 2012).

Whelan (2015) assert that prolonged life expectancies and also lower fertility rates required pension plan schemes to reassess their financial investment plans. While pension schemes with younger participants are inclined to invest much more in equities and more dangerous assets, funds with older members have a tendency to spend extra in guaranteed funds and also dealt with return protections (Whelan, 2015). As a result, the age of pension plan system participants affects the scheme's financial investment plan as well as levels of performance. In addition, young members in a pension plan take into consideration saving for retirement a long-term endeavor, thus the do not take it seriously.

According to Hagemann and Nicoletti (2019), future workers was greatly affected by the significant decline in fertility and by extension decline in population growth rate as well as pay-as-you-go financing. Accordingly, the contribution rates of future workers must be increased in order to keep the same rate of retirement benefits to current wages.

Kifmann and Schindler (2017) argue that when growth declines, the contribution for earlier generations must be increased and the contribution rate should be generation specific. In

addition, they investigated how to smooth the implicit taxes when there is an increase in life expectancy. Furthermore, Kifmann and Schindler (2017) observe that an increase in life expectancy increases the contribution rate and thus calls for an adjustment in the replacement rate. It was also noted that when a policy holds a fixed contribution rate, they will not be able to smooth implicit taxes. Additionally, Kifmann and Schindler (2017) note that when no funding elements are employed, the implicit tax rate can be smoothed, but the contribution rate fluctuate and will possibly not converge to a steady level. Moreover, when introducing a partial funding element the implicit tax rate can be smoothed with a stable contribution rate and replacement rate.

Rabikauskaitė and Novickytė (2015) performed a research to assess the effect of fund size on government pension schemes over twenty years, with retirement age used as control variable. The study focused on analyzing the second column pension fund efficiency and also how fund differences are influenced by the departure age of pensioners. It was found that fund return was located to have actually decreased for pension systems with very early departure age. Thus the study concluded that retirement age has a considerable control result on pension fund performance, with difference been reduced or as high for private as well as public pension plan funds by 30%.

Petraki (2012) conducted a study in one of the leading pension industries in the world to investigate the performance of personal pension funds in the UK. The research identified two significant factors that are usually overlooked in the related literature: fund's age and management outsourcing. The outcome demonstrated that risk-adjusted returns are statistically insignificantly different from zero but funds significantly outperform their benchmarks. The study observed that performance changes with fund's age as a control variable. However, the

relationship was shown to be more complex with the effect varying for both private and public pension funds. Risk-adjusted returns of the internally managed and the outsourced funds were both indifferent from zero but the outsourced funds are better at outperforming their benchmarks.

Alestalo and Puttonen (2016) taken a look at possession appropriation by 44 Finnish pension plans. The research utilized members' age as the independent variable and actual possession allocation for equity as well as set income as the dependent variables. Pearson correlation and also regression analysis were made use of to check the research theories. The outcomes of the research study suggested that the less mature pension systems invested more in equity than the mature schemes. The last spending a lot more in set earnings tools according to life cycle theory. A boost of one year in the average age of pension plan scheme members caused a rise of 2.3% in the amount purchased set income safety and securities as well as a reduction of 1.7% in equity investment.

Lucas and Zeldes (2019) performed a study of the impact of strategy maturity on investment in equity for 109 States and also 87 Local Authorities pension in the United States. The ratio of active participants to total system membership was made use of as a proxy for the age or maturation of the pension plan. System maturation was the independent variable while the percentage of the overall system asset allotted to equity was the reliant variable. Several regression evaluation was utilized to test the research study hypotheses. The results indicated no statistically considerable relationship between scheme maturation and also investment in equity.

Briere and Rigot (2017) explored the impact of qualities of pension plans on allocation to risky assets of 600 strategies in the USA, Canada and the Netherlands. The independent variable was the portion of retired pension participants, the greater the portion the elder the strategy. The

dependent variables were percentage of the overall pension plan possessions purchased equities, high-risk set revenue as well as options. Regression evaluation results found a statistically significant relationship between pension scheme maturity as well as financial investment in dangerous possessions. An increase of 10% in retired members led to a 0.1% reduction in amounts purchased equities.

According to Lungu (2019) the age of a contributor to a pension fund is very significant in determining its performance. If a pension fund has majority young contributors who have not attained retirement age, it implies that they will have more financial resources that can be channelled into investment activities thus earning more income. On the other hand if most of the contributors are old and almost attaining retirement, the fund has to spend more funds to service retirement packages for the contributors and this implies there will be less funds available for investments. Ngugi, Njuguna and Wambalaba (2018) evaluated the influence of pension plan maturity on investment strategies of pension funds in Kenya. The research made use of second information from 206 work retired life advantages plans in Kenya. The arise from the regression versions indicate that plan maturation does not influence the investment approaches of occupation plans in Kenya contrary to life cycle theory."

Bodie et al, (2019) argued that the density of contributions that pension funds receive from the contributors is also a very important determinant of their performance. If a fund has many contributors who are capable of channeling huge funds to the scheme, then there will be enough funds to invest and this will assist the fund to earn better revenues. The reverse is also likely to happen if the amount of contributions received from the contributors are not large enough to enable the fund to enter into any meaningful asset investment. Bodie, Detemple, and Rindisbacher, (2019) further argue that there is need to recognize that pension fund assets have

important differences compared with other forms of collective investments. This difference stems from the fact that pension funds have the objective of providing income replacement in retirement, whereas the other forms of collective investments are primarily concerned with short-term wealth maximization of individuals. This definite difference in objectives leads to different time frames over which performance should be considered and different attitudes to risk. However, despite these clear distinctions between pension schemes and other collective investments, there is no difference in the performance measures that are applied to evaluate the performance the pension funds and other types of investments.

The results of the research showed that the less fully grown pension systems spent more in equity than the mature plans. The proportion of active members to overall plan subscription was made use of as a proxy for the age or maturation of the pension plan scheme. System maturity was the independent variable while the percent of the overall scheme asset allotted to equity was the dependent variable.

2.3.3Member Contributions and Financial Performance of the Pension Schemes

The funds of payments that pension plan funds get from the contributors is also a really crucial factor of their efficiency. If a fund has several factors that are capable of channeling big funds to the scheme, then there was enough funds to invest and also this will assist the fund to make better incomes (Bodie et al., 2019). The reverse is likewise most likely to take place if the amounts of payments gotten from the factors are not large sufficient to allow the fund to become part of any purposeful possession financial investment. The average amount of contribution during the year was used as the measurement (Bodie et al., 2019).

In a study by Fortez*a et al*(2014) in South America it was established that density of contributions are particularly low at early ages with the average densities ranging between 20 to 39 in Chile,

Uruguay and Argentina. As expected, densities increase as workers mature with mature workers contributing twice as early workers to their pension plan schemes. The study also established that density of contribution negatively correlate with income levels, with the study proving that low contributions are related with low income earners and high contributions with high income earners.

In another study carried out in Jordan Forteza and Mussio (2012) it was established that workers contribute on average about one third of their working life., with the study finding out that there is no gender difference between men and women. The densities of contribution in Jordan were established to be considerably smaller than densities reported in the Latin American countries for which similar analysis have been conducted (Argentina, Chile and Uruguay). Similarly the study found out that low contribution corresponds to those with low income levels and having no incomes.

Simbabrashe*et al* (2013) conducted an empirical study on the efficiency of pension schemes in Zimbabwe in the post multicurrency era from 2010 to 2013. The research was based on quantitative data such as portfolio returns of pension funds and their asset sizes. The research sample was 20 standalone pension funds and 9 fund administered pension funds using a cluster sample. Based on the data presented on Zimbabwean pension fund, the analysis demonstrated that there was no relationship between the density of contribution and its investment performance. Therefore, the study established that density of contribution alone does not determine the performance of a pension.

Kigen (2016) did a study on the impact of fund size on the monetary performance of pensions in Kenya by taking on density of contribution, cumulative properties, retirement age, dimension and also cost of subscription as actions of fund dimension. The research study found out that

pension plan contribution, costs and gathered fund properties substantially impacted pension plan fund performance. Smits (2011) taken a look at perish pension plan fund size matter for better performance and established no significant connections between the pension plan fund size and the outright performance, the loved one efficiency, and also the funding ratios.

Kigen (2016) did a study on the result of fund dimension on the financial efficiency of pension plans in Kenya by embracing density of contribution, collective possessions, old age, dimension and cost of membership as actions of fund dimension. The research study figured out that pension plan contribution, prices and built up fund assets substantially influenced pension plan fund efficiency. This study makes use of fund size as a moderating variable as well as not an independent variable.

Dyck and Pomiorski (2011) concentrated on direct contributions, as well as the research learnt that, biggest pension plans outshine smaller ones by 45-50 basis factors annually on a threat adjusted-basis. Bikker (2013) specifies that there is no a one dimension fits all for pension plan fund investment plans.

Njoronge (2014) did a study on results of company dimension on monetary performance of pension plan schemes in Kenya. The study concludes that there has been substantial market volatility as evident from the NSE index, Treasury bill price activity as well as overseas indices. Vasileand Maria (2011) spoke to a study on analysis of the connection in between dimension and efficiency of private pension funds in Romanian exclusive pension plan environment. The research study found out that pension plan fund dimension wears down efficiency.

Smits (2011) taken a look at perish pension plan fund dimension issue for far better performance and also established no substantial connections between the pension plan fund dimension and also the absolute performance, the loved one performance, and also the funding

ratios. Funding ratios are considerably affected by pension plan fund efficiency, as well as reveal a positive connection. The remainder of the efficiency is influenced other variables like longevity risk and inflation threat.

NgugiandNjuguna (2018) did a study on Nexus in between pension plan fund financial investment, design and size method: a testimonial of occupational retirement perks schemes in Kenya. Their study discovered that bigger schemes adopted a riskier investment methods contrasted to their smaller sized counterparts. Nevertheless, the investment techniques are not notified by the fund styles. Trustees of retired life advantage schemes are therefore advised to concentrate their financial investment methods to stay clear of revealing the residual plaintiffs to too much danger.

Franzoni (2019) argues that mandatory contributions should have no impact on firm value in a frictionless world as such payments are nothing but the conversion of cash into assets in the pension plan, which is effectively a fully owned subsidiary of the firm. But he finds that investors react negatively to required pension contributions under direct benefit plans, more significantly so if the sponsors are financially constrained.

Mitchell and Mulherin (2019) report a positive stock price reaction around the date defined benefit plan terminations are filed. In our context, we would expect a negative marginal effect of required contributions on long-term abnormal stock returns of financially constrained firms prior to the freeze based on the findings of Franzoni (2019). However, the pension freeze is associated with several counteracting value effects. A shift from a benefit plans to a direct contribution plan can help firms save pension costs and allow the sponsor the flexibility to scale direct contributionup or down as dictated by exogenous shocks to its financial condition. In the presence of market frictions and the resulting costly external finance, the improved liquidity and

flexibility resulting from a shift in pension regimes is likely to allow financially constrained firms to undertake positive NPV projects, which they would have otherwise forgone, thus enhancing firm value.

Antolin, Payet and Yermo (2010) studied dynamic performance effect on direct contributionsusing replacement rate as a measure of direct contributionsfinancial performance. This research work will use replacement rate, return on investment and contribution magnitude. Researches by Kigen (2016), Kigen (2016), Dyck and Pomiorski (2010) have adopted fund size as an independent variable as opposed to this work where it was adopted as a moderating variable. In addition, the study findings have conflicting results.

2.3.4 Firm Size and Financial Performance of Pension Schemes

Njuguna (2010) evaluated approaches to enhance pension fund effectiveness in Kenya. The findings from the research study suggest that fund size is as a significant component of the economic performance of pension plan plans. Empirical results additionally developed that those smaller sized schemes are regarded to be more financially effective than bigger ones. It was nonetheless clear that the size of the pension fund did not have any kind of significant impact on the operational efficiency of pension systems. It was likewise obvious that fund laws influence just how systems are governed and also led. Adherence to the identified fund policies were revealed to improve fund governance as well as management.

According to Mahon and Donohoe (2016), considerable economic situations of range exist in pension fund management. They suggest that smaller sized pension funds birth excessive operating costs per participant considering that much of their costs are taken care of. The most vital variable affecting pension fund costs as a result is dimension determined on the basis of the number of participants in the pension funds. Acknowledging the remarkable impacts that pension

plan fund size can carry efficiency, the Irish Funds Industry Organization (2019), pointed out in Mahon andDonohoe (2016), prompts small pension funds to pool their properties. According to the organization, pension merging would certainly allow pension funds to pool assets into a single investment car that would certainly buy assets, such as worldwide equities, bonds and money on behalf of the spending pension funds. This mean that the larger the pension plan fund size the lower the costs that it's most likely to sustain thus raising pension plan fund returns.

The argument that pension fund sizes lowers costs has been championed in Nigeria where small pension funds were merged together to form larger pension funds, with the results been improved pension performance in Nigeria (Ahmad, 2019). The smaller sized funds videotaped management costs equal to 0.78% of their possession values whilst the larger funds taped management expenses of 0.44% of the asset value (Ardon, 2016). The research concentrated on evaluating the yearly financial investment yields (yearly prices of return) of both personal pension funds versus fund size over a period of 10 years wrapped up that there was no substantial connection in between the fund's mean asset dimension and also its financial investment return. Thereby ending that fund dimension cannot be made use of to anticipate the financial returns of pension plan funds.

In his research on aspects determining performance of pension plan funds in Kenya, Oluoch, (2013) keeps in mind that the connection between fund worth and returns among pension plan funds in Kenya is not very solid. Throughmerging, big pension plan funds were developed which caused reduced typical deal prices as well as custodial charges for the investors. Vittas et al. (2018), observed that large pension funds enjoy the benefit of reduced operating expense due to the fact that they prevent large marketing costs. These economies might nonetheless be deteriorated by bad investment efficiency.

Ardon (2016) in a research accomplished in Massachusetts established that smaller pension systems had greater expenses connected with their management as well as management. The smaller sized funds recorded management costs equal to 0.78% of their possession values whilst the bigger funds tape-recorded administrative costs of 0.44% of the possession values (Ardon, 2016). Extremely tiny pension funds are as a result uneconomical to operate as well as will lead to reduced levels of performance. Faktum (2019) located that Danish pension business are the lowest cost drivers in the OECD nations because the pension plan funds run at optimal sizes not also huge, not too tiny.

On the other hand researches in South African by Butler, Reddy and also Silva (2015) concluded that a fund's dimension had no result on its performance. The research focused on evaluating the yearly investment returns (annual rates of return) of both personal pension plan funds versus fund size over a period of 10 years concluded that there was no considerable connection between the fund's mean property dimension as well as its investment return. Cook, Kluever, Mabenaand Limburg (2017) likewise investigated the result of size on the risk-adjusted efficiency of system trusts. Through using funding property pricing model evaluation he inferred that there is no statistically significant relationship existed between the fund's return price and the fund dimension. Therefore wrapping up that fund size cannot be utilized to predict the monetary returns of pension plan funds.

In his research on factors identifying performance of pension funds in Kenya, Oluoch, (2013) keeps in mind that the connection in between fund worth and also returns amongst pension plan funds in Kenya is not really solid. Consequently, boosting the value of pension funds cannot be used as leverage for higher success. In addition, renovation of fund value does not always equate into greater returns. Moreover, Oluoch (2013) observes that the partnership between returns and

also possessions is weak, thus the properties obtained by the pension systems do not translate right into higher returns. Nonetheless, a strong connection in between returns and also assets would suggest that the possessions readily available in the pension funds are used to create revenue for the benefit of the contributors.

Gupta (2012) in a research study checking out various sections of the taken care of funds, looked for to establish if there is any type of considerable difference on just how assets are allocated into various possession categories as well as if financiers make their financial investment choices based upon the past efficiency of the fund. The research study made use of a panel regression model to evaluate the partnership in between circulations and also past excess returns. The research study developed that there is a considerable distinction in property allotment in between the wholesale as well as retail and also section. Retail financiers choose investments that are less dangerous contrasted to wholesale financiers and they have lower choice spending overseas. The outcomes revealed that previous efficiency of funds affect financial investment decisions, with the retail section showing a greater degree of impact as compared to the wholesale sector. Additionally, the results show statistically the partnership in between the fund dimension and the web capital is adverse. Gupta (2012) specifies that the cause of this negative connection is that when funds grow, they do not increase the amount of assets in the portfolio as well as this may result in less than optimum allowance of funds. The result implies that investors, specifically retail capitalists, should be considering the size of the fund as a variable when they select a fund.

Bicker *et al,* (2019) in a study that examined the effect of fund asset allocation on pension fund performance in Netherland. The study focused on both private and public pension funds in Netherlands and used exit age as a control for to test the effect of fund asset allocation on fund performance. The study found out that an increase in exit age of members contributed to pension

fund performance for private pension funds while reducing the fund performance for private pension funds.The size of pension schemes affects investment costs in different ways.

Novy-Marx and Rauh (2010) found that potential existence of scale-related inefficiencies in pension plans is a significant issue. The assets in defined benefit plans are substantial on their own, accounting for $14 trillion globally. In the US for example, these plans control $5.4 trillion or 65% of total pension assets tied to employers, and in many other countries they are the sole source for pension payments. Poor asset management of pension plans has immediate social consequences, reducing the welfare of beneficiaries, organizations, or society more generally, depending on which group bears the costs of inefficient management.

Ambachtsheer, Capelle and Scheibelhut (2018) investigated 80 US and Canadian pension plans and found that large plan size is an important driver for good pension performance, measured by risk-adjusted net value added by asset mix decision and implementation. Reasons are that large size brings economy of scale in operating cost and enables plans to support a full-time professional management team. Huang (2010) tested whether pension plan size is relevant for explaining the different performance across Dutch pension plans by performing a regression of the time-average z-score on the plan's size. Size alone explains almost 28% of the variation in a plan's average z-score. The larger plans have a higher average z-score than the smaller plans. This finding says that asset managers selected by the larger plans can implement the investment better than those selected by the smaller plans.

Dyck and Pomorski (2011) found that for defined-benefit pension funds, funds react to changes in size by shifting towards asset classes for which scale and negotiating power matters and in particular, by increasing their allocations to alternative investments such as private equity and real estate. They find this shift in allocation is associated with large positive economies of scale

both in costs and in gross returns. Larger funds are likely to be able to negotiate more favourable fee schedules when investing in these asset classes. There may also be economies of scale in gross returns if larger funds are able to retain more skillful managers or can negotiate better contractual protections.

Hirtle and Metli (2014) in a study on banking organizations with mid-sized branch networks found that there is no systematic relationship between branch network size and overall firm performance. However, their study was focused on banking institutions while the current study is concentrating on pension schemes.According to Altman (2018), in a study of 66 corporations, it was found that a relatively young firm, will probably show a low retained earnings to total assets ratio because it has not had time to build up its cumulative profits. Earnings before interest and tax to total assets ratio is calculated by dividing the total assets of a firm into its earnings before interest and tax reductions. In essence, it is a measure of the true productivity of the firm's assets, abstracting from any tax or leverage factors.

According to Bikker and De Dreu (2019), some investment-related costs increase less proportionally with the pension fund's size. For instance, research and risk management costs may not increase with the increase in pension funds' size. Instead, large pension funds can benefit from economies of scale by spreading these costs over a bigger asset base. In addition, large pension schemes are likely to be charged lesser fees for investment mandates because they have a greater bargaining power (Andonov et al., 2011). Moreover, Dyck and Pomorski (2011) suggest that large pension schemes have greater capability of replacing expensive external asset management with less costly internal management.

2.4Conceptual Framework

Conceptual framework helps the reader see proposed relationships between the variables in the study and shows the interaction of variables diagrammatically (Kothari, 2013). In general, the research is looking at risk management, membership age, member contribution and firm size (independent variables) and their influence on financial performance of pension schemes in Kenya(Dependent variable). The variables together with their indicators/measures are shown on Figure 2.1.

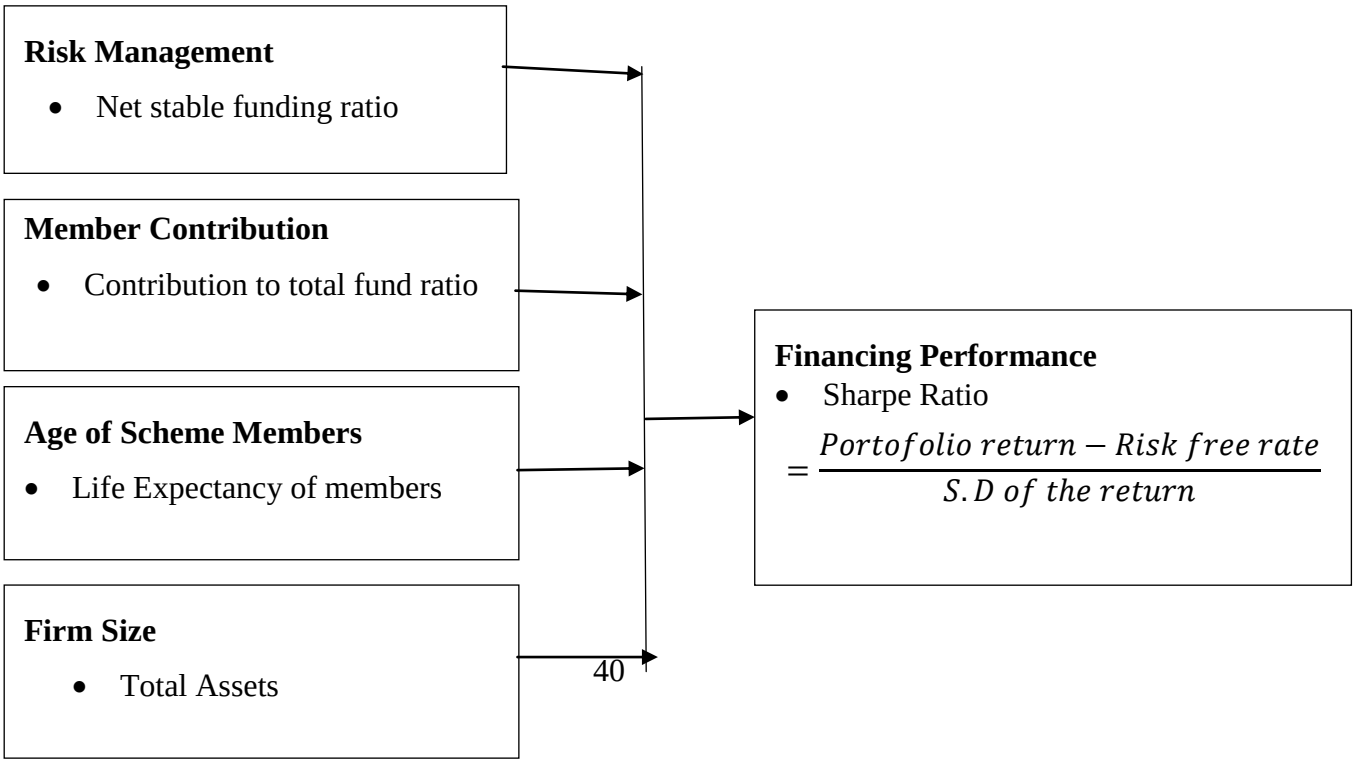


Figure 2.1: Conceptual Framework

Risk management involves analysis, identification and either adoption or palliation of uncertainty is involved in decision-making of investment(Jin, Merton &Bodie, 2016).The age of the members determines the pension promises that employers will make to them since younger employees have a longer time horizon toinvest compared with the older members, which in turn influences the type of pension fund design on which to anchor the pension fund(Jothi, Ramakrishnan&Selvaraj, 2016). The member contribution are the total annual contributions towards the pension scheme. The contributions vary from monthly, bi-monthly to annual contributions(Lauria&Consigli, 2017). Firm size is a basis of competitive advantage in the sense that larger companies tend to be more efficient than their smaller counterparts and have better resources to survive economic downturns(Lemmon, Roberts &Zender, 2018).

2.5 Operationalization of Variables

The independent and dependent variables are operationalized as shown in Table 2.1.

Table 2.1: Operationalization of Variables

Variables	**Definition**	**Measurement**	**Measurement scale**
Y	Financial Performance	• Sharpe Ratio $= \frac{Portofolio\ return - Risk\ free\ rate}{S.D\ of\ the\ return}$	Ratio
X_1	Risk Management	• Net Stable Funding ratio	Ratio

		$= \frac{Available\ Stable\ Funding}{Liabilities\ due\ to\ holders}$	
X_2	Age of Scheme Members	• Life expectancy of the members	Ratio
X_3	Member Contribution	• Contribution to total fund ratio	Ratio
X_4	Firm Size	• Log Total Assets	Ordinal

2.6Research Gap

From the reviewed empirical literature, it was established that factors contributing to financial performance of pension schemes are multifaceted and depends on the operating environment of the specific economy. Despite this, the review shows gaps owing to few studies directed to addressing the unique pension schemessituation in Kenya. Moreover, the studies evaluated just a handful of factors. Their studies are quite general and failed to address financial performance factors for pension schemes. In Kenya, thus, there is paucity of empirical studies on the drivers of financial performance of pension schemes. This study therefore sought to establish the determinants of financial performance of pension schemes, but within the trading pension funds. The findings of this study contributed to existing knowledge from other studies and may be useful in relevant policy formulation.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section examined the research design, target study group, data gathering instrument, data gathering procedure, data analysis and processing, and measurement of study variables. It further analysed the various processes and approaches to be used when gathering and processing data.

3.2 Research design

Orodho (2012) explains that a research design is the plan, scheme, or outline for formulating answers to issues under study.The study employed a descriptive research design. A descriptive

research design wasused at it enables the researcher to describe the characteristics of the variables of interest.

3.3 Target Population

The study targetedall the34individual retirement benefits schemes registered with the Retirement Benefit Authority as at 2018. The list is attached in Appendix II.The period covered the years2010-2019.

3.4 Sampling Procedure

A sample is a subset of a population (Kothari, 2004).The study conducted a census of all the 34pension schemes that registered with the Retirement Benefit Authority as at 2019. The justification here is on the basis that there were only a few firms. The years covered was from 2010-2019. The 10-year period provides a substantive duration and is representative.

3.5 DataCollection

This study utilized secondary data from the individual pension firms and the Retirement Benefits Authority. Regarding growth of pension fund, the study compared pension funds' assets for the period 2010-2019 from the Retirement Benefits Authority annual reports.The secondary data was collected using a data collection sheet (AppendixI). The researcher wrote to the trading regulators through email requesting for necessary data. The researcher also visited the regulator's registry and collect the relevant data and information as required by the study.

3.6 Data Processing and Analysis

The study employed a dynamic panel data regression model using STATA software. Panel data contain observations of multiple phenomena obtained over multiple time periods for the same firms or individuals (Hsiao, 2003). The descriptive statistics was presented in mean, median,

standard deviation and proportions while the inferential statistics includes diagnostics tests, Pearson correlation and multiple linear regression model. The multiple linear regression models were used to measure the relationship between the independent variables and the dependent variable that are explained in the model. The study used the following regression equation shown below;

$FP_{it} = \beta_o + \beta_1 RM_{1it} + \beta_2 AG_{2it} + \beta_3 MC_{3it} + \beta_4 FS_{4it} + \varepsilon_{it}$

Where;

$_{FPit}$= Financial Performance of Pension Schemes*i* at time *t*

RM_{1it}=Risk Management ofPension Schemes *i* at time *t*

AG_{2it}=Age of Scheme Members ofPension Schemes *i* at time *t*

MC_{3it}= Member ContributionsofPension Schemes i at time t

FS_{4it} = Firm Size ofPension Schemes i at time t

t = time period 2010 - 2019

β_o– Is a constant; the concept explaining the Pension schemes financial performance given and it's theFP value when all the predictor values are zero.

β_1, β_2, β_3, and β_4, – Are constants regression coefficients representing the condition of the independent variables to the dependent variables.

ε_{it}= Error term where ***i***is cross sectional and ***t*** is time identifier (to cater for residual or nuisance variables)

3.7 Diagnostic test

The diagnostic tests was performed in order to assess the validity of the model (Everitt&Skrondal, 2015). This study conductedNormality test, Multicollinearity, Test for Fixed or Random Effects, Wooldridge Test for Serial Correlation and Heteroscedasticity.

3.7.1 Normality Tests

Normality tests was carried out in order to establish whether the data was generally dispersed and also to assess the level to which a random variable that underlies the data set was typically dispersed (Razali&Wah, 2016). To test for normality the study JaqueBera test method was adopted.

3.7.2 Multicollinearity

Multicollinearitydescribes the problem wherein two or even more of the explanatory variables in the multiple regression designs have a high level of linear relation, that is, one explanatory variable can forecast the others with a high level of accuracy (Gujarati, 2013). The Variance Inflation Factor and also resistance degrees was used to measure the degree of multicollinearity. In the VIF analysis, VIF levels of more than 1 however less than 5 indicate little or no collinearity, degrees of more than 5 yet less than 10 suggest moderate multicollinearity and also degrees over 10 shows high levels of relationship (Sosa-Escudero et al., 2017). Gujarati (2013) recommends that where multicollinearity exists, the information ought to be transformed right into the initial distinction.

3.7.3 Test for Fixed or Random Effects

To establish which of the random or fixedmethodswas appropriate, Hausman test was conducted. Hausman's requirements examination (1978) was used to identify whether repaired or random result were to be utilized. If the null hypothesis that is E (μi/ xit) = 0 is accepted, after that

random impact were a reliable estimator otherwise in case of rejection of null theory, set impact estimate gave far better or effective evaluation of betas. Consequently, decision was taken to utilize fixed effect version if Hausman examination rejected the null theory.

3.7.4Wooldridge Test for Serial Correlation

Since the data involved both cross section and time-series, it raised the possibility of the existence of serial correlation. The existence of serial connection indicates that the variables in the version breaches the presumptions of the regression (Anderson *et al.,* 2007). To cater for serial relationship, the Woodridge examination for autocorrelation was employed. Serial correlation is an usual problem experienced in panel data evaluation as well as needs to be made up in order to achieve the right design specification. The null theory of this examination was that the information has no serial correlation. If the serial correlation was found in the panel data, then the feasible Generalized Least Squares (FGLS) estimation would certainly be adopted.

3.7.5Heteroscedasticity

Since the data for this research is a cross-section of firms, this raises concerns about the existence of heteroscedasticity. The classic straight regression design (CLRM) presumes that the error term is homoskedastic, that is, it has continuous variance. There was heteroscedasticity in the information if the mistake difference is not continuous. Running a regression version without accounting for heteroscedasticity would result in unbiased parameter estimates. To check for heteroscedasticity, the Breusch-Pagan/Godfrey test was made use of. The null theory of this research study was that the mistake difference is not homoskedastic. This would certainly be accounted for by running a FGLS version if the null hypothesis is turned down and a final thought made that heteroscedasticity is present in the panel information.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.0 Introduction

This chapter presented the patterns of the results and their analyses as to their relevance to the objectives and hypotheses. The findings are presented in tables and narrations as per the specific objectives. The chapter presents descriptive statistics, the pre-estimation and post-estimation tests. The chapter further presents the results of the models that was adopted in order to achieve the study's objective.

4.1 Descriptive Statistics

Table 4.1 shows the mean, standard deviation, minimum and maximum values of the variablesfinancial performance (Sharpe ratio), risk management (Net Stable Funding ratio), age of scheme members(Life expectancy of the members), member contribution(Contribution to total fund ratio) and firm size (Log Total Assets)for the pension funds for the period 2010-2019.

Table 4.1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Net Stable Funding ratio	340	1.34479	0.23862	0.94	3.81
Life expectancy of the members	340	67.66768	2.328195	59.0	69.0
Contribution to total fund ratio	340	19.58147	5.226908	10.0	29.0
Log Total Assets	340	8.096618	2.058472	5.41	12.32
Sharpe Ratio	340	2.040559	0.5536321	0.81	3.01

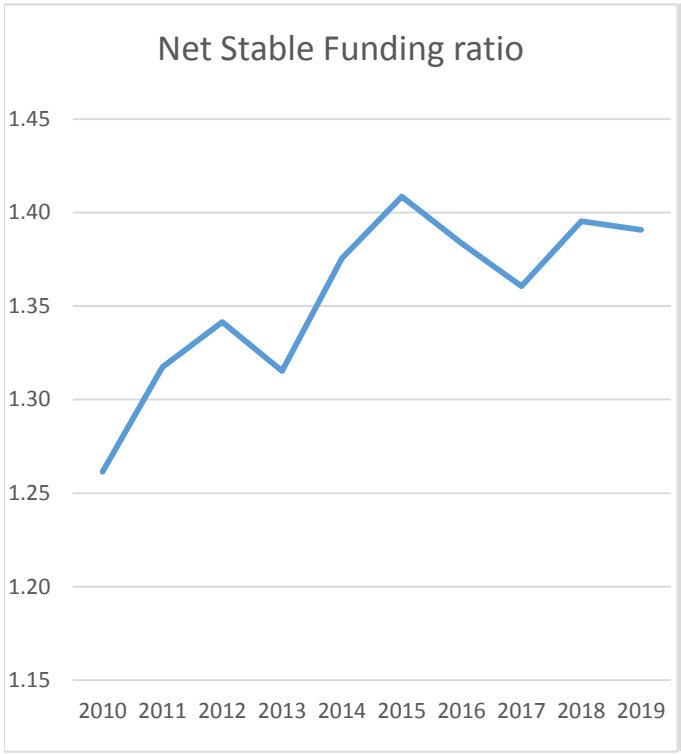
The net stable funding ratiohad a mean of 1.344794 and a standard deviation of 0.23862. The minimum ratio was0.94 and themaximumof 3.81. The minimum required ratio is usually at 1 and this implied that some of the pension funds had difficulties maintain it to 100%. The Life expectancy of the members had a mean of 67.66768 and a standard deviation of 2.328195. The minimum ratio was 59.0 and the maximumof 69.0. This implied that most of the pension members had a life expectancy close to the national record of 69 years old and the higher life expectancy is usually a liability to the pension funds.

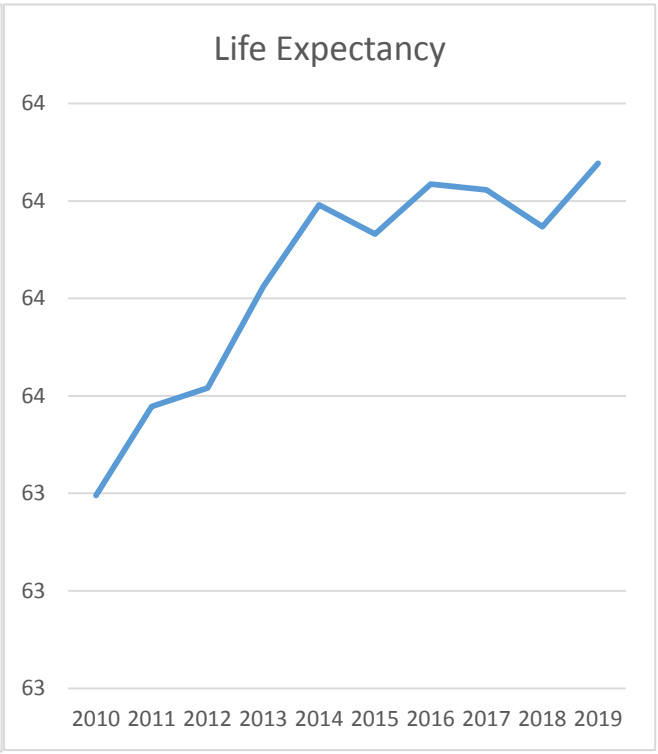
The Contribution to total fund ratio had a mean of 19.58147 and a standard deviation of 5.226908. The minimum ratio was 10.0 and the maximumof 29.0. This implied that while the Contribution to total fund ratio was high for some pension funds, others recorded low values of the Contribution to total fund ratio.The log total assets had a mean of 8.096618 and a standard deviation of 2.058472. The minimum ratio was 5.41 and the maximumof 12.32. The maximum

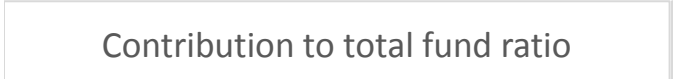
log of total assets at 12.32 was recorded by NSSF which is the largest pension fund in the country while the small and upcoming pension funds held lower sizes of assets.The Sharpe Ratio had a mean of 2.040559 and a standard deviation of 0.5536321. The minimum ratio was 0.81 and the maximumof 3.01. This implied that there were pension funds that were operating at low performance as the favorable Sharpe ratio should be above 100% for the pension funds.

4.3 Trend Analysis

This section presents the analysis of the trends of the variables. The study conducted a trend analysis to establish the movement of the variables overtime in the pension firms in for the period 2010-2019.







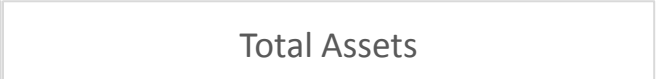


Figure 4.1: Trend Analysis

The trend line in Figure 4.1 shows that risk management as indicated by the net stable funding ratiofor the pension funds had an increasing trend from 2010 to 2012 where a slight drop was recorded. Thereafter was a sharp increase from 2013 to 2015 where another slight drop was recorded in 2017. A slight increase began in 2018 with another drop towards 2019.

The trend line for life expectancy for the pension fund members indicated significant general rise from 2010 towards 2018.A sharp increase is indicated from 2010 to 2018 with a slight drop in 2015. Overall the life expectancy of the members ranged between 63 years to 64 years.A higher life expectancy is usually a liability to the pension funds due to increase in claims at retirement.

The trend line for the members' contribution as derived from the contribution to total fund ratio for pension fund members indicated a stagnated trend. This is observed throughout from 2010 to

2019 with only slight increase in 20111 and 2018 and slight drops in 2012, 2017 and 2019. The trend line for the total assets indicated a general rise. However there were some slights drop in the year 2012 and 2018.

4.3 Diagnostics

The study conducted out different diagnostic tests to make sure that the postulations of Classical Linear Regression Model (CLRM) are not contravened. The pre-estimation tests conducted in this case are the Normality test, Multicollinearity, Test for Fixed or Random Effects, Wooldridge Test for Serial Correlation and HeteroscedasticityTest. The study performed these tests to avoid spurious regression results.

4.3.1 Test for Multicollinearity

Multicollinearity was assessed in this study using the variance inflation factors (VIF). According to Field (2009) VIF values in excess of 10 is an indication of the presence of Multicollinearity. As shown in Table 4.2, the results of Log Total Assets(2.7), Contribution to total fund ratio(2.6) Net Stable Funding ratio(2.3), Life expectancy of the members(1.1), revealed that there was no multicollinearity since all the values for VIF were less than 10.

Table 4.2: Multicollinearity

Variable	VIF	1/VIF
Log Total Assets	2.7	0.374208
Contribution to total fund ratio	2.6	0.388537
Net Stable Funding ratio	2.3	0.444173
Life expectancy of the members	1.1	0.915595

4.3.2 Test for Autocorrelation

The study employed the Wooldridge test for autocorrelation to detect the existence of autocorrelation in the data, that is, whether or not the residual are serially correlated over time. The null hypothesis of this test was that there is a first order serial/autocorrelation existed in the data.

Table 4.3: Serial Correlation Tests

Wooldridge test for autocorrelation in panel data
H_0: no first-order autocorrelation
F(1, 33) = 0.347
Prob> F = 0.5598

The results in Table 4.3 shows that the P-value of the F-test is 0.5598indicating that the F-test is not statistically significant at 5% level. Hence, the null hypothesis of no autocorrelation is supported and the study concludes that residuals are not auto correlated.

4.3.3 Normality Test

To test for normality the study JaqueBera testmethod was applied. The Jarque–Bera test is a goodness-of-fit test of whether sample data have the skewness and kurtosis matching a normal distribution. Normality was checked on the residuals of a model, because those assumptions apply to the unexplained variance of a model. The null hypothesis was that the data was not normally distributed. The results are as shown in Table 4.4.

Table 4.4: Normality Test

. jb residuals		
Jarque-Bera	normality test: 5.24 Chi(2)	0.0728

Jarque-Bera test for Ho: normality:

The results in Table 4.4 indicated that the Chisquare value was 5.24 and the P-value was 0.0728 which was larger than the 0.05. We thus rejected the null hypothesis and conclude that the data was normal.

4.3.4 Heteroskedasticity Test

Heteroscedasticity test was run in order to test whether the error terms are correlated across observation in the time series data. The error terms from a regression model must have a constant variance called Homoscedastic and to ensure whether the residuals meet this criterion of the study used the Modified Wald test for GroupWise heteroscedasticity where the null hypothesis under this test is that residuals are Homoscedastic. If the p-value is >0.05, there is constant variance. The null hypothesis was therefore not rejected at a critical p value of 0.05 since the reported value was 0.6326. Thus, the data did not suffer from statistically significant heteroscedasticity as shown in Table 4.5.

Table 4.5: Heteroskedasticity Test Results

Modified Wald test for Groupwise heteroscedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (34) = 0.23
Prob>chi2 = 0.6326

4.3.5HausmanSpecifications Test

When performing panel data analysis, one has to determine whether to run a random effects model or a fixed effects model (Baltagi, 2005). In order to make a decision on the most suitable

model to use, both random and fixed effects estimate coefficients. The study used the Hausman's specification test (1978) to choose between fixed and random effect models. Table 4.6 shows the results of Hausman test.

Table 4.6: Hausman Test

	(b) **fixed**	**(B)** **random**	**(b-B)** **Difference**
Risk Management	0.9869974	0.9511322	0.0358652
Age of Scheme Members	-0.0005833	-0.0016083	0.001025
Member Contribution	0.0209738	0.0216515	-0.0006777
Firm Size	0.0800608	0.08069	-0.0006292
chi2(3)	4.84		
Prob>chi2	0.304		

The null hypothesis of the Hausman test is that the random effects model is preferred to the fixed effects model.Hausman test revealed a chi-square of 4.84 with a p-value of 0.304indicating that at 5 percent level, the chi-square value obtained is statistically insignificant. Thus, the researcher did not reject the null hypothesis that random effects model is preferred to fixed effect model and random model was adopted.

4.4Correlation

The study conducted correlation analysis for the various variables that are Net stable funding ratio, life expectancy of the members, contribution to total fund ratio and log total assetsonfinancial performancein order to examine the nature of the statistical relationships between each pair of variables. Table 4.7 shows the correlation matrix of all the variables included in the study.

Table 4.7: Correlation Matrix

	Financial performance	Risk Management	Age of Scheme Members	Member Contribution	Firm Size
Financial performance	1.000				
Risk Management	0.7702 0.000	1.000			
Age of Scheme Members	-0.2237 0.000	0.2441 0.000	1.000		
Member Contribution	0.7131 0.000	0.6913 0.000	0.1982 0.000	1.000	
Firm Size	0.7409 0.000	0.6967 0.000	0.2791 0.000	0.7431 0.000	1.000

The results in Table 4.7 show that risk management (r=0.7702*,p-0.000) had a positive and significance relationship on financial performance of pension schemes in Kenya. Age of Scheme Members (r= -0.2237, 0.000) had a negative and significance relationship on financial performance of pension schemes in Kenya. Member contribution (r=0.7131, 0.000) had a positiveand significance relationship on financial performance of pension schemes in Kenya. Firm Size(r= 0.7409, 0.000) had a positive and significance relationship on financial performance of pension schemes in Kenya. This implies that an increase in risk management, member contribution and firm size led to an increase onfinancial performance of pension schemes in Kenya. However, the increase in the age of scheme members had a negative effect on the financial performance of pension schemes in Kenya as higher life expectancy is usually a liability to the pension funds.

4.5 Regression Analysis

The study sought to carry out regression analysis to establish the statistical significance relationship between risk management, age of scheme members, member contribution and firm

sizeon financial performance of pension schemes in Kenya. According to Chatterjee and Hadi (2015), regression analysis is a statistical process of estimating the relationship among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent and one or more independent variables. The results are presented in Table 4.8.

Table 4.8: Regression Analysis

Financial Performance	**Coef.**	**Std. Err.**	**z**	**P>|z|**
Risk Management	0.9869974	0.1060624	9.31	0.000
Age of Scheme Members	-0.0005833	0.0053044	-0.11	0.912
Member Contribution	0.0209738	0.0051665	4.06	0.000
Firm Size	0.0800608	0.0133983	5.98	0.000
_cons	0.3091169	0.3228381	0.96	0.338
chi2(4)=744.45				
Prob>chi2= 0.000				
Within = 0.6908				
Between = 0.6881				
Overall = 0.6895				

The regression equation was as shown below;

$FP_{it} = -0.3091169 + 0.9869974RM_{1it} - 0.0005833AG_{2it} + 0.0209738MC_{3it} + 0.0800608FS_{4it}$

RM_{1it}=Risk Management ofPension Schemes *i* at time *t*

AG_{2it}=Age of Scheme Members ofPension Schemes *i* at time *t*

MC_{3it}= Member ContributionsofPension Schemes i at time t

FS_{4it} = Firm Size ofPension Schemes i at time t

The overall R squared of 0.6895implied that the four variables namely risk management, age of scheme members, member contributions and firm size explained 68.95% on the variations on performance for the pension firms. The overall model was significant as indicated by the Prob>chi2 of 0.000 with a Wald chi2 (4) of 744.45. In addition, the constant of 0.309 showed that when risk management, age of scheme members, member contributions and firm sizeare held constant, performance will remain at 0.309 units.

The results revealed that there was a positive and significant relationship betweenrisk managementand financial performance of pension schemes in Kenya(β= 0.987, p=0.000). There was a negativeand insignificant relationship between age of scheme membersand financial performance of pension schemes in Kenya(β= -0.00058, p=0.912).Member contributionhad apositive and significant relationship withfinancial performance of pension schemes in Kenya(β= 0.0209, p=0.000). Lastly, firm size revealed a positive and significant relationship with financial performance of pension schemes in Kenya(β= 0.080, p=0.000).

This is consistent with Gordon, Loeb and Tseng (2019) whose results showed a significant positive relation between enterprise risk management and firm performance. The study also revealed that this was contingent upon proper match between a firm's risk management system and firm specific factors. However, the findings differ with Pagach and Warr (2010) whose results showed a significant decrease in stock price volatility after introducing risk management.

Under members' age, the findings are in line with Oluoch (2013) who established a significant positive relationship between ages of the financiers gauged by national life expectancy of Kenya suggesting that a longer life assumption positively impacted returns. Weak positive partnerships between returns as well as fund worth, assets as well as payments of pensioners was weak which

showed that fund values, possessions, as well as payments were not used in the generation of earnings for the pension plan plans in Kenya.Nyangeri (2014) also established a significant and positive correlations between financial performance and density of contributions, Fund value, fund size, and fund returns. Weaker, significant and positive correlations were established between financial performance and Fund design and Age.

4.6 Discussion of the Findings

The objective of this study was to analyze the factors affecting financial performance of pension schemes in Kenya. The variables of interest wererisk management, age of scheme members, member contribution and firm size onfinancial performance of pension schemes in Kenya. The pre-estimation tests conducted on Normality test, Multicollinearity, Test for Fixed or Random Effects, Wooldridge Test for Serial Correlation and Heteroscedasticityindicated that the underlying assumptions were fit for regression analysis.

The first objective of the study was to determine the impact of risk management on the financial performance of pension schemes in Kenya. Correlation results showed that risk management (r=0.7702, p-0.000) had a positive and significance relationship on financial performance of pension schemes in Kenya. Regression results revealed there was a positive and significant relationship between risk management and financial performance of pension schemes in Kenya (β= 0.987, p=0.000). This implies that a unitary improvement in risk management leads to an improvement in financial performance of pension schemes in Kenya by 0.987units holding other factors constant.

The null hypothesis was therefore rejected and the alternative hypothesis was adopted that risk management has a significant effect on the financial performance of pension schemes in Kenya.The findings agree with Gordon, Loeb and Tseng (2019) whose results showed a

significant positive relation between enterprise risk management and firm performance. The study also revealed that this was contingent upon proper match between a firm's risk management system and firm specific factors. The findings are in line Anton, Toader and Firtescu (2016), who asserted that the board should periodically discuss the effectiveness of risk-management. Identified weaknesses need to be informed to the board as soon as possible and appropriate corrective action taken.However, the findings differ with Pagach and Warr (2010) whose results showed a significant decrease in stock price volatility after introducing risk management.

The second objective of the study was to determine the impact of membership age density on the financial performance of pension schemes in Kenya.Correlation results showed thatage of scheme members (r= -0.2237, 0.000) had a negative and significance relationship on financial performance of pension schemes in Kenya. Regression results revealed there was a negative and insignificant relationship between age of scheme members and financial performance of pension schemes in Kenya (β= -0.00058, p=0.912).This implies that a unitary increase in age of the scheme members leads to a decrease in financial performance of pension schemes in Kenya by 0.00058units holding other factors constant though the effect was statistically insignificant.

Therefore, the null hypothesis was not rejected and that membership age density has a significant effect on the financial performance of pension schemes in Kenya. The findings are in line with Whelan (2015) who asserted that prolonged life expectancies rates required pension plan schemes to reassess their financial investment plans. While pension schemes with younger participants are inclined to invest much more in equities and more dangerous assets, funds with older members have a tendency to spend extra in guaranteed funds and dealt with return protections (Whelan, 2015). As a result, the age of pension plan system participants affects the

scheme's financial investment plan as well as levels of performance. The findings disagree withOluoch (2013) who established a significant positive relationship between age of the financiers gauged by life expectancy of Kenya suggesting that a longer life assumption positively impacted returns.

The third objective of the study was to examine the effect of member contribution on the financial performance of the pension schemes in Kenya.Correlation results showed thatmember contribution (r=0.7131, 0.000) had a positive and significance relationship on financial performance of pension schemes in Kenya. Regression results revealed there was a positive and significant relationship with financial performance of pension schemes in Kenya (β= 0.0209, p=0.000). This implies that a unitary improvement in member contribution led to an improvement in financial performance of pension schemes in Kenya by 0.0209units holding other factors constant.The null hypothesis was therefore rejected and the alternative hypothesis was adopted that member contribution has a significant effect on the financial performance of pension schemes in Kenya. The findings are consistent with Forteza and Mussio (2012) it was established that low contribution corresponds to those with low-income levels and having no incomes. Simbabrashe et al (2013) study established that density of contribution alone does not determine the performance of a pension.

The fourth objective of the study was to the impact of firm size on financial performance of pension schemes in Kenya. Correlation results showed thatfirm size(r= 0.7409, 0.000) had a positive and significance relationship on financial performance of pension schemes in Kenya.Regression results revealed there wasa positive and significant relationship with financial performance of pension schemes in Kenya(β= 0.018, p=0.003).This implies that a unitary improvement in Firm asset capacityled to an improvement in financial performance of pension

schemes in Kenya by 0.018units holding other factors constant. The null hypothesis was therefore rejected and the alternative hypothesis was adopted that firm size has a significant effect on the financial performance of pension schemes in Kenya.

The findings relay with those of Njuguna (2010) who found that fund size is as a significant component of the economic performance of pension plan. Further, Mahon and Donohoe (2016), considerable economies of scale exist in pension fund management. They suggest that smaller sized pension funds birth excessive operating costs per participant considering that much of their costs are taken care of. Ardon (2016) in a research established that smaller pension systems had greater expenses connected with their management as well as management. Faktum (2019) found that pension business are the lowest cost drivers in the OECD nations because the pension plan funds run at optimal sizes "not also huge, not too small.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the study findings, its conclusions and recommendations, presented in consideration to the study objectives used to analyze the factors affecting financial performance of pension schemes in Kenya.

5.2 Summary of Findings

5.2.1 Risk Management and Financial Performance of Pension funds

Risk management was found to be positively and significantly related to financial performance of pension schemes in Kenya. The null hypothesis was therefore rejected that risk management has no significant effect on the financial performance of pension schemes in Kenya.The funding ratios are important indicators of pension fund efficiency and the pension funds should maintain adequate asset values to cover their liabilities. Pension fund assets should exceed the pension fund liabilities estimated in present value terms to assure members that the pension fund is liquid and able to meet all its liabilities as and when they fall due. This ratio also affects the funds' investment strategy; in that well funded pension funds should be able to bear investment risks better compared to the under-funded plans.

5.2.2Age of Scheme Members and Financial Performance of Pension funds

Age of Scheme Members was found to be negatively and insignificantly related to financial performance of pension schemes in Kenya. The null hypothesis was therefore not rejected that Age of Scheme Members has no significant effect on the financial performance of pension schemes in Kenya. The age of the members determines the pension promises that employers will make to them since younger employees have a longer time horizon to invest compared with the older members, which in turn influences the type of pension fund design on which to anchor the pension fund. As members reach retirement age, pension funds record lower returns, because

they are then confronted with benefit payouts and consequent conservatism in investment strategy. The empirical results showed that membership age did not influence the financial efficiency of pension funds.

5.2.3Member Contributions and Financial Performance of Pension funds

Member Contributions was found to be positively and significantly related to financial performance of pension schemes in Kenya. The null hypothesis was therefore rejected that areMember Contributions has no significant effect on the financial performance of pension schemes in Kenya.Pension funds with more members are expected to have a higher value in contributions and assets compared to smaller ones. The funds therefore receive sizable contributions that may result in inefficiency in investments.Members are the most important constituents of any pension fund since the pension funds are formed to provide them with an income when they are no longer earning a regular income from their employment. The contributions account for a larger portion of total public pension fund revenues, by providing a consistent and predictable stream of revenue to pension funds, contributions from members to fill a vital role in financing pension benefits.

5.2.4Firm Size and Financial Performance of Pension funds

Firm size was found to be positively and significantly related to financial performance of pension schemes in Kenya. The null hypothesis was therefore rejected that firm size has no significant effect on the financial performance of pension schemes in Kenya.Thus, the larger pension funds have large sums of resources at their disposal that they tend to invest in as opposed to smaller pension funds with lesser financial resources that forces them to allocate the money judiciously to the less opportunities. Moreover, the larger pension funds with huge investments in the stock market are exposed to more risk as opposed to the smaller funds.

5.3 Conclusion

Based on the study findings the study concluded that there is a strong correlation between risk management, age of scheme members, member contributions and firm size on financial performance of pension funds.The relationship between members' contributions and performance of the pension fund was strong and statistically significant. This indicates that returns of the pension funds are responsive to the member's contributions of the pensioners.Risks expose pension funds to greater losses in the event of failure of the stock markets. Pension funds are therefore called upon to set strategies that enable them to achieve returns while carefully considering the risks that they expose members to using the favorable net stable funding ratios. Achievement of an acceptable balance between risk and returns in the investment strategy is therefore a distinguishing factor between performance and non-performance of pension funds.

The coefficient of age was not statistically significant indicating that general age of the contributors was not a contributor to the returns of the pension funds in Kenya. This indicates that variability of the age of the contributors was independent from the variability of the returns of the pension funds as opposed to the theoretical positions which claim a close relationship.

Fund size has been confirmed as a significant determinant of the financial efficiency of pension funds. The results revealed that smaller funds are perceived to be more financially efficient than bigger ones. Fund size however did not exert an influence on the operational efficiency of pension funds. In addition, the regression analysis was statistically insignificant indicating that there are other factors; other than those investigated in this research that seem to determine the behavior of the performance of the pension funds.

5.4 Recommendation

Based on the findings of this study, the following recommendations arise.

5.4.1 Risk Management and Financial Performance of Pension funds

The study recommends that the pension funds' risk management needs to pay particular attention to operational risks. An operational risk management framework should be drawn up, identifying a set of procedures, which include procedures to define, identify, assess, monitor and control operational risk. Further, the risk management system needs to be well integrated into the organizational structure and in the decision making process of the pension fund.

5.4.2 Age of Scheme Members and Financial Performance of Pension funds

The study recommends on inclusionon the needs of the different age brackets in the management ofthe pension schemes. While the older pensioners are satisfied with stable old ageincome, the younger want their funds to be used in more income generating activities.The fact that age did not seem to affect the returns of the pension funds indicates thatthe pension fund managers have equated the needs of all contributors to old ageincome needs. There is therefore no need of investing funds in more productiveinvestments.

5.4.3Member Contributions and Financial Performance of Pension funds

The study recommends that thepension funds should use the increasing value of their funds to generate returns for thepensioners. This is because relationship between fund value and returns amongpension funds in Kenya are is not strong indicating that this advantage is not utilized.Increase values of funds can be used as assets that can be a generator of furtherincome for the benefit of pensioners.

5.4.4Firm Size and Financial Performance of Pension funds

The study recommends that the pension fund need to utilize assets to generate income for the pension funds to enable them increase in asset growth that in turn increase their returns. Itappearedthat the assets acquired by the pension schemes were not properly used to generatehigher returns. If the assets were well utilized it would mean that the assets availablein the pension funds are used to generate income leading to a strong relationshipbetween asset values and returns.

5.5 Limitations of the Study

The study focused on Kenyan sector and results would bestronger and of higher utility if the study considered all the countries in the EastAfrican Community. Such a study would be more useful due to the higher relevanceof the results to countries outside Kenya but within the East African Community. Thiswould also improve the generalizability of the results.

The study does not provide a universal argument concerning the relationship betweenpension returns and the independent variables. Within the increasingly globalizedworld economy of the world, there is need to provide argument that stand the test ofglobal argument. In universal arguments the findings are usually applicable indifferent geographical contexts and different time contexts. The findings of this studyare applicable, mainly in Kenya and for the covered period. A study can be done tofind out how to generate universal arguments.

5.6 Suggestions for Further Research

The findings of this study can be improved if the study is expanded to cover a longerperiod. A future research can be carried out on the same topic, but using dataacross a longer period. This is with the assumption that the data for a longertime will provide results that are better than those

provided by the data used in thisstudy. The possible higher objectivity that arises based on the sample period may besettled covering a longer period.

In addition, given that Kenya is a key player in the East African community, the study can be expanded to cover other pension funds within the East African community in order to provide result that was useful in that context. A study can be done to cover all the pension funds in East Africa. Such a study would be used as a referential manuscript when coming up with strategic plans to professionalize the management of pension funds in a manner to improve their performance.

REFERENCES

Alestalo, N., &Puttonen, V. (2016). Asset allocation in Finnish pension funds. *Journal of Pension Economics & Finance*, *5*(1), 27-44.

Allerdice, F. B., & Farrar, D. E. (2017). Factors that affect mutual fund growth. *Journal of Financial and Quantitative Analysis*, *2*(4), 365-382.

Alliance Global Investor (2018). Global Pension Fund Statistics. http://www.pensionfundsonline.co.iik/pdfs/countryoverview.pdf.

Alserda, G. A., Bikker, J. A., & Van Der Lecq, F. S. (2018). X-efficiency and economies of scale in pension fund administration and investment. *Applied Economics*, *50*(48), 5164-5188.

Andonov, A., Bauer, R. M., &Cremers, K. J. (2017). Pension fund asset allocation and liability discount rates. *The Review of Financial Studies*, *30*(8), 2555-2595.

Antolin, P., Payet, S., &Yermo, J. (2010). Assessing default investment strategies in defined contribution pension plans. *OECD Journal: Financial Market Trends*, *2010*(1), 87-115.

Anton, S. G., Toader, E., &Firtescu, B. (2016). Does Risk Management Using Derivatives Improve the Financial Performance of Pension Funds? Empirical Evidence from Romania. *Transformations in Business & Economics*, *15*.

Ardon, K. (2016). *Leaving Money on the Talbe: The 106 Pension Systems of Massachusetts*. Pioneer Institute for Public Policy Research.

Augusztinovics, M., Gál, R., Máté, L., Simonovits, A., & Stahl, J. (2012). The Hungarian pension system before and after the 1998 reform. *Pension reform in Central and Eastern Europe. Vol. I.*, 25-93.

Bikker, J. A. (2013). *Is there an optimal pension fund size? A scale-economy analysis of administrative and investment costs* (No. 376). Working Paper.

Bikker, J. A., & De Dreu, J. (2019). Operating costs of pension funds: the impact of scale, governance, and plan design. *Journal of Pension Economics & Finance*, *8*(1), 63-89.

Blake, D., Lehmann, B. N., &Timmermann, A. (2019). Asset allocation dynamics and pension fund performance. *The Journal of Business*, *72*(4), 429-461.

Bodie, Z., Detemple, J., &Rindisbacher, M. (2019). Life-cycle finance and the design of pension plans. *Annu. Rev. Financ. Econ.*, *1*(1), 249-286.

Boon, L. N., Brière, M., & Rigot, S. (2017). Regulation and pension fund risk-taking. *Journal of international money and finance*, *84*, 23-41.

Brigham, E. F., &Gapenski, L. C. (1996). Intermediate finance management. *J. Harbour Drive, The Dryden Press,*.

Buckle, M., & Thompson, J. (2016). *The UK financial system: Theory and Practice*. Manchester University Press.

Butler, M. B. J., Reddy, T. L., & Da Silva, R. (2015). The process of ethical decision-making in South African retirement funds. *South African Actuarial Journal*, *15*(1), 171-208.

Cantor, D. R., Hood, F. M., & Power, M. L. (2018). An Analysis of Debt and Equity Market Reaction to Pension Risk Transfer Announcements: What Investors Need to Know.*The Journal of Investing*, *27*(supplement), 8-20.

Carton, B. (2014) Measuring Organizational Performance: An Exploratory Study. A Dissertation Submitted to the Graduate Faculty of The University of Georgia.

Chatterton, M. Smyth, E. and Darby, K. (2010) Pension scheme administration costs. Department for Work and Pensions Working Paper No 91

Chen, X. (2017). Old age pension and intergenerational living arrangements: a regression discontinuity design. *Review of Economics of the Household*, *15*(2), 455-476.

Chohan, U. W. (2017). Pension Fund Regulation and Governance. *Global Encyclopedia of Public Administration, Public Policy, and Governance*.

Cicotello, L., & Grant, M. R. (2016). Contemporary Strategy analysis.

Consigli, G., Moriggia, V. &Uristani, A. (2018). Optimal multistage defined-benefit pension fund management. In *Handbook of Recent Advances in Commodity and Financial Modeling* (pp. 267-296). Springer, Cham.

Cook, C., Kluever, H., Mabena, L., & Limburg, H. (2017). Rapid assessment of cataract at pension pay points in South Africa. *British journal of ophthalmology*, *91*(7), 867-868.

Crose, R.Kaminker, C. & Stewart, F. (2011) The Role of Pension Funds in Financing Green Growth Initiatives OECD Working Papers On Finance, Insurance And Private Pensions, No. 10.

Davis, E. (2017) Pension Funds, Financial Intermediation and the New Financial Landscape. The Pensions Institute, Discussion Paper No. P1-0010. Davis, E.P. (1995), "Pension Funds, Retirement-Income Security and Capital Markets, an International Perspective", Oxford University Press.

Defau, L., & De Moor, L. (2018). The impact of plan and sponsor characteristics on pension funds' asset allocation and currency diversification. *Journal of Asset Management*, *19*(1), 27-37.

Droms, W. G., & Walker, D. A. (2018). Investment performance of international mutual funds. *Journal of Financial Research*, *17*(1), 1-14.

Drucker, P. F. (2017). *The pension fund revolution*. Routledge.

Drucker, P. F. (2017). *The pension fund revolution*. Routledge.

Dyck, I. J., &Pomorski, L. (2011). Is bigger better? Size and performance in pension plan management. *Size and Performance in Pension Plan Management (June 1, 2011). Rotman School of Management Working Paper*, (1690724).

Employee Benefit Research Institute (EBRI, 2018). *Fundamentals of employee benefit programs*. Employee Benefit Research Inst.

Estrada, M. A. R., &Koutronas, E. (2019). The Evaluation of ASEAN-Members Pension Scheme Performance. *Global Social Welfare*, 1-12.

Forteza, A. (2014). Assessing redistribution within social insurance systems. The cases of Argentina, Brazil, Chile, Mexico and Uruguay. *Social Insurance, Informality, and Labor Markets: How to Protect Workers While Creating Good Jobs*, 264-290.

Fortin, R., & Michelson, S. (2015). Active international mutual fund management; can managers neat the index?.*Managerial Finance*.

Gordon, L. A., Loeb, M. P., & Tseng, C. Y. (2019). Enterprise risk management and firm performance: A contingency perspective. *Journal of accounting and public policy*, *28*(4), 301-327.

Greenbaum, S. I., Thakor, A. V., & Boot, A. W. (2019). *Contemporary financial intermediation*. Academic Press.

Grinblatt, M., & Titman, S. (2014). A study of monthly mutual fund returns and performance evaluation techniques. *Journal of financial and quantitative analysis*, *29*(3), 419-444.

Hagemann, R. P., &Nicoletti, G. (2019). Ageing populations: economic effects and implications for public finance.

Harper, J. T. (2018). Board of trustee composition and investment performance of US public pension plans, *International Centre for Pension Management.*

Hitchcox, A. N., Patel, C., Ramsey, C. J., Studd, E. L., Ma, L. T., Elliott, M. B., & Keogh, T. W. (2018). Integrated risk management for defined benefit pension schemes: a practical guide. *British Actuarial Journal*, *23*.

Huhmann, B. A., & Bhattacharyya, N. (2015). Does mutual fund advertising provide necessary investment information?.*International Journal of Bank Marketing*.

Jin, L., Merton, R. C., &Bodie, Z. (2016). Do a firm's equity returns reflect the risk of its pension plan?.*Journal of Financial Economics*, *81*(1), 1-26.

Jothi, S., Lakshminarayanan, S., Ramakrishnan, J., &Selvaraj, R. (2016). Beneficiary satisfaction regarding old age pension scheme and its utilization pattern in urban Puducherry: A mixed methods study. *Journal of clinical and diagnostic research: JCDR*, *10*(9), LC01.

Kasanen, E., &Trigeorgis, L. (2017). Real options, idiosyncratic skewness, and diversification. *Journal of Financial and Quantitative Analysis*, *52*(1), 215-241.

Kifmann, M., & Schindler, D. (2017). Smoothing the implicit tax rate in a pay-as-you-go pension system. *FinanzArchiv/Public Finance Analysis*, 261-283.

Kigen, A. K. (2016). *Effect of Fund Size on the financial performance of Pension Funds in Kenya* (Thesis dissertation, KCA University).

Kimeu, C., Anyango, W., &Rotich, G. (2015). Behavioural factors influencing investment decisions among individual investors in Nairobi Securities Exchange. *Strategic Journal of Business & Change Management*, *3*(4), 1244-1258.

Kioko, S. N. (2011). Why public financial management matters. *Journal of Public Administration Research and Theory*, *21*(suppl_1), i113-i124.

Kipchirchir, D. T. (2018). *Foreign exchange risk management practices: a survey of motor vehicle industry in Kenya* (Doctoral dissertation, University of Nairobi).

Kuehn, L. A., Simutin, M., & Wang, J. J. (2017). A labor capital asset pricing model. *The Journal of Finance*, *72*(5), 2131-2178.

Lauria, D., &Consigli, G. (2017). A Defined Benefit Pension Fund ALM Model through Multistage Stochastic Programming. *International Journal of Finance and Managerial Accounting*.

Lemmon, M. L., Roberts, M. R., &Zender, J. F. (2018). Back to the beginning: persistence and the cross- section of corporate capital structure. *The journal of finance*, *63*(4), 1575-1608.

Lucas, D. J., &Zeldes, S. P. (2019). Pensions and Health Care: Fiscal Challenges for State and Local Governments-How Should Public Pension Plans Invest?.*American Economic Review*, *99*(2), 527.

Lungu, F. (2009) An Assessment on the Viability of Occupational Pension Schemes in Zambia. An MBA thesis submitted to Copperbelt University, Zambia.

Mahon, A., &O'Donohoe, S. (2016). Economies of Scale in Irish Occupational Pension Plans.

Meng, A.andPfau, W. (2010) The Role of Pension Funds in Capital Market Development. GRIPS Discussion Paper 2017.

Modigliani, F., and M.H. Miller. 1958. The cost of capital, corporation finance and the theory of investment. *American Economic Review* 48: 261–97.

Molnár, J. (2018). What does financial intermediation theory tell us about fintechs?.*VEZETÉSTUDOMÁNY*, *49*(5), 38-46.

Mugo, R. K., Oluoch, W. O., &Mangwa, I. M. (2017). The relationship between portfolio selection and performance of large capitalization stocks in Kenya. *International Journal of Economics, Commerce and Management, 8*, 284-300.

Mutula, A. K., &Kagiri, A. (2018). Determinants Influencing Pension Fund Investment Performance in Kenya. *International Journal of Finance, 3*(1), 14-36.

Mwangi, S. C. (2018). *Effect of Asset Allocation on the Financial Performance of Individual Benefit Pension Schemes in Kenya*.

Namusonge, G. S., Sakwa, W. W., &Gathogo, G. M. (2017). Impact of Asset Mix on Financial Performance of Registered Occupational Pension Schemes.

Nathaphan, S., &Chunhachinda, P. (2012). Determinants of growth for Thai mutual fund industry. *International Research Journal of Finance and Economics*, *86*(12), 3.

Nazir, M. S., & Nawaz, M. M. (2010). The determinants of mutual fund growth in Pakistan. *International research journal of finance and economics*, *54*(10), 1051-1060.

Ngare, E. M. (2018). *A survey of credit risk management practices by Commercial Banks in Kenya* (Doctoral dissertation).

Ngetich, C. (2012) Determinants of the growth of individual pension schemes in Kenya. An MBA project submitted to the University of Nairobi.

Ngugi, W., Njuguna, A., &Wambalaba, F. (2018). The Influence of Pension Scheme Maturity on Investment Strategies of Pension Funds in Kenya. *International Journal of Business and Management*, *13*(10).

Ngugi, W., Njuguna, A., &Wambalaba, F. (2018). The Influence of Pension Scheme Maturity on Investment Strategies of Pension Funds in Kenya. *International Journal of Business and Management*, *13*(10).

Nguthu, J. (2019). *The effect of assets allocation on retirement Benefits fund performance in kenya* (Doctoral dissertation).

Njiru, A. (2015). Effect of Risk Management Practices On The Financial Growth Of Savings And Credit Cooperatives In Nakuru County, Kenya. *International Journal of Economics, Commerce and Management United Kingdom. III*, *11*.

Njuguna, A. (2010) Strategies to Improve Pension Fund Efficiency in Kenya. A Ph.D Thesis Submitted to Nelson Mandela Metropolitan University.

Njuguna, A. (2011) Determinants of Pension Governance: A Survey of Pension Plans in Kenya. International Journal of Business and Management, 6 (11)

Njuguna, R. W. (2012). *The impact of risk based supervision on the financial performance of pension funds in Kenya* (Doctoral dissertation).

Nyangeri, F. O. (2014). The Effect of Firm Characteristics on the Financial Performance of Pension Schemes in Kenya. *Masters Thesis, Nairobi: University of Nairobi*.

Oluoch, M. A. (2013). *The determinants of performance of pension funds in Kenya* (Doctoral dissertation, University of Nairobi).

Omonyo, A. B. (2018). *A survey of investment practices of pension fund managers in Kenya* (Doctoral dissertation).

Pagliardi, G., Poncet, P., &Zenios, S. A. (2019). A Political Capital Asset Pricing Model. *Available at SSRN 3351403*.

Petraki, A. (2012). *Performance of personal pension funds in the United Kingdom* (Doctoral dissertation, University of Bath).

Platanakis, E., & Sutcliffe, C. (2016). Pension scheme redesign and wealth redistribution between the members and sponsor: The USS rule change in October 2011. *Insurance: Mathematics and Economics*, *69*, 14-28.

Rabikauskaitė, V., &Novickytė, L. (2015). II pillar pension funds: how the selection of fund influences the size of the old-age pension. *Ekonomika*, *94*, 96-118.

Ramasamy, B., & Yeung, M. C. (2013). Evaluating mutual funds in an emerging market: factors that matter to financial advisors. *The International Journal of Bank Marketing*, *21*(3), 122-136.

RBA. (2018), Report on Retirees' and Pensioners' Survey.

Rossi, M. (2016). The capital asset pricing model: a critical literature review. *Global Business and Economics Review*, *18*(5), 604-617.

Schmitt, A. J., Sun, S. A., Snyder, L. V., & Shen, Z. J. M. (2015). Centralization versus decentralization: Risk pooling, risk diversification, and supply chain disruptions. *Omega*, *52*, 201-212.

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

Simbabrashe, M., Charity, M., & Lilian, N. (2014). Pension Fund Size (Asset Size) and Fund Investment Performance in Zimbabwe: Does Size Really Matter?.*The International Journal of Business & Management, 2*(9), 291.

Stewart, F., Despalins, R., &Remizova, I. (2017). *Pension funds, capital markets, and the power of diversification*. The World Bank.

Tahir, I. M., &Razali, A. R. (2011). The Relationship between enterprise risk management (ERM) and firm value: Evidence from Malaysian public listed companies. *International journal of economics and management sciences*, *1*(2), 32-41.

Waweru, N., &Kisaka, E. S. (2012, August). The effect of enterprise risk management implementation on the value of companies listed in the Nairobi stock exchange. AAA.

Were, F. O., AmuhayaIravo, M., &Wanjala, M. Y. (2017). Determinants of Financial Performance on Pension Schemes: A Case of Kenya Retirement Benefits Authority. *International Journal of Management and Commerce Innovations*, *5*(2), 161-166.

Whelan, S. (2015). Pension Provision in Ireland for 21st century. *Report prepared for the Irish Association of Pension Funds, Dublin*.

APPENDICES

Appendix I: Data Collection Template

Year	Firm	Net Stable Funding ratio	Life Expectancy	Contribution to total fund ratio	LogTotal Assets	Sharpe Ratio
2019	A					
2018	A					
2017	A					
2016	A					
2015	A					
2014	A					
2013	A					
2012	A					
2011	A					
2010	A					
2019	B					
2018	B					
2017	B					
2016	B					
2015	B					
2014	B					
2013	B					
2012	B					
2011	B					
2010	B					

Appendix II: List of Pension Schemes

No	Retirement Benefits Schemes
1.	National Social Security Fund (NSSF)
2.	Amana Personal Pension Plan
3.	Apollo Insurance Co. Ltd. Individual Pension Arrangement
4.	Blue MSMEs Jua Kali Individual Retirement Benefits Scheme (Mbao Pension Plan)
5.	British American Personal Pension Plan
6.	CFC Life Individual Pension Plan
7.	Chancery Personal Pension Plan
8.	CIC (Jipange Personal Pension Plan)
9.	Commercial Bank of Africa Individual Pension Plan
10.	CPF Individual Pension Scheme
11.	Dry Associates Personal Provident Plan
12.	Enwealth Diaspora & Expatriates Retirement Fund
13.	Enwealth Personal Pension Scheme
14.	GA Life Personal Provident Plan
15.	ICEA Lion Individual Retirement Benefits Scheme
16.	Jubilee Insurance Company Ltd Personal Pension Plan
17.	Kenindia Assurance Co. Ltd. Personal Pension Plan
18.	Kenyan Alliance Insurance Co. Ltd. Individual Retirement Benefits Scheme
19.	Liaison Personal Retirement Plan
20.	Madison Insurance Personal Pension Plan
21.	Mercantile Personal Provident Fund Scheme
22.	Minet Individual Pension Plan
23.	Mwavuli Individual Pension Plan
24.	The Heritage AII Company Ltd. Individual Retirement Benefits Scheme
25.	The Kenya Orient Individual Pension Plan
26.	The Monarch Personal Pension Plan
27.	Octagon Personal Pension Scheme
28.	Old Mutual Individual Retirement Benefits Scheme
29.	Pan Africa Life Personal Pension Plan
30.	Pioneer Assurance Individual Retirement Benefits Scheme
31.	Stanlib Individual Pension Plan
32.	UAP Life Assurance Individual Retirement Benefits Plan
33.	Zamara Vuna Pension Plan
34.	Zimele Personal Pension Plan

Source: Retirement Benefits Authority 2018: https://www.rba.go.ke/registered-schemes/

Appendix III: Authorization

Thika Road, Ruaraka
P.O. Box 56808-00200 Nairobi Kenya
Pilot Line: +254 20 8070408/9

Tel: +254 20 3537842
Fax: +254 20 8561077
Mobile: +254 734 888022, 710 888022
Email: kca@kca.ac.ke
Website: www.kca.ac.ke

KCAU/SGS/MSc/June.20/15 *June 16, 2020*

To whom it may concern,

Dear Sir/Madam,

RE: JAMES OYOO ONYANGO REG NO: 12/02286

It is my distinct pleasure to introduce to you Mr. James Oyoo Onyango who is a student in our institution pursuing a Master of Science in Commerce at the School of Business and Public Management.

James is conducting a research on a topic titled: "**Factors Affecting Financial Performance of Pension Schemes in Kenya**" which is part of the requirements of the program he is pursuing. The research as well as the data procured thereof shall be used for academic purposes only.

Any assistance accorded to him is highly appreciated.

In case of further inquiry, do not hesitate to contact the undersigned.

Yours faithfully,

Dr. Nyaribo Misuko
Dean, School of Graduate Studies & Research