EFFECT OF SERVICE PROVIDER COSTS ON FINANCIAL PERFORMANCE OF DEFINED CONTRIBUTION PENSION SCHEMES IN KENYA

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN FINANCE, FACULTY OF BUSINESS AND MANAGEMENT SCIENCES, UNIVERSITY OF NAIROBI

NOVEMBER, 2022

DECLARATION

I, the undersigned, declare that this research project is my original work and has not been presented to any institution or University other than the University of Nairobi for examination.

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D63/71733/2014

This research project has been submitted for examination with my approval as University Supervisor.

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ACKNOWLEDGEMENT

I am foremost most grateful to the Almighty God for seeing me through this research project. Without His provision of sound mind and resources I would not have come this far.

A special acknowledgment goes to my Supervisor **Dr. Winnie Nyamute** for her patience with my absence, guidance, and relentless support during this entire research project. I am indebted to her for her mentorship in ensuring that this research project met the required standards.

In addition, thanks to my colleagues and friends for their encouragement and support during this entire period. This final document is a result of your assistance and input.

Finally, my gratitude goes to Dr. Shem Ouma of RBA for availing the necessary data which was vital for this study and ensuring that I got assistance from his research team.

DEDICATION

This research project is dedicated to my family with special recognition of my mother; Lucy Wairimu, my husband; Thomas Malinda, my children and siblings for their patience, constant support and encouragement during the study. Their prayers and support have been my pillar.

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LIST OF ACRONYMS AND ABBREVIATIONS

DC	Defined Contribution Pension Scheme
DB	Defined Benefit Pension Scheme
RBA	Retirement Benefits Authority
GDP	Gross Domestic Product
NGO	Non Governmental Organization
VIF	Variance Inflation Factor
ANOVA	Analysis of Variance

ABSTRACT

Service provider costs are those costs associated with the provision of retirement benefits. Some of these costs include administration fees, investment fees, and custodian fees. There is little to no research on the impact of service provider costs on the performance of defined contribution pension schemes in Kenya. Therefore, this study sought to understand the impact of service provider costs on the financial performance of defined contribution schemes in Kenya. The study sampled 93 out of the 933 registered defined contribution schemes by the RBA and retrieved net investment income, administration fees, investment fees, and custodian fees from 2015 to 2021. The study used a multiple regression model to determine the effect of administration fees, investment fees, and custodian fees on the financial performance of defined contributions pension schemes in Kenya. The study found a significant relationship between financial performance and service provider costs. The multiple regression model found a multiple R squared of 0.432, which means that 48.2% of investment costs could be predicted using the model. The regression model also found significant coeficients for the independent variabes. Administration fees, investment fees, and custodian fees had a positive relationship with the financial performance of defined contribution schemes with regression coeficients of 0.262 ($p = 0.000$), 0.168 ($p= 0.004$), and 0.333 ($p=0.000$) respectively. Service provider costs increase with an increase in financial performance but without a direct negative effect on the financial performance of DC schemes.. The main challenge of the study was the failure of large-size defined contribution schemes (schemes above 1 billion in fund value) to respect the regression assumption, and as such, they were dropped from the analysis. More research can be carried out on the effect of service provider fees on large defined contribution schemes' financial.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The operational efficiency of pension schemes as reflected by operational costs is significant since it leads to higher investment returns and, as a result, higher pension payouts for retirees (Bateman & Mitchell, 2004). Studies showing the relationship between service provider costs and pension schemes' financial performance have been done. Some of the findings reveal that the higher the costs the poor the performance and the lower the costs the better the performance. Service provider costs reduce the rate of return which might otherwise be realized and are usually expressed as a proportion of total assets managed. Regulations mandate that defined contribution schemes outsource both advisory and delegated functions in investment consulting, asset custody and scheme administration (Mukoba, 2013). This exposes them to the agency problem, in which the agent's interests may diverge from those of the scheme and in most cases, it is associated with increased costs for the scheme and this affects performance (Fields & Tirtiroglu, 1991).

Company managers do not consistently act in the shareholders' best interest when running and managing the activities of a company. The principal-agent connection is a crucial predictor of scheme performance, according to the agency theory, which was created out of this discovery (Jensen & Meckling, 1976). The agency hypothesis tries to explain why principals and agents disagree on priorities. Because pension plans, with few exceptions, lack the capacity to manage all of its activities in-house, trustees (principals) engage service providers (agents) in both advisory and delegated positions. The agency problem is linked to operational costs, such as those associated with forming, overseeing, and bonding a number of contracts among agents

having competing interests. The value of output lost because the expenses of thorough enforcement of contracts exceeds the gain is included in agency costs. In order to manage the pension funds, the scheme's trustees need to evaluate how service provider costs affect its return on investment as liabilities may become higher and the scheme end up liquidating. According to Pfeuti (2015), operational costs are critical to financial performance because they have the potential to erode the wealth accumulated for retirement. In his study, he states that pension scheme agency costs can be assessed by evaluating the amounts spent on administrative, custodial and investment costs.

People are more motivated, according to the expectation theory, when they know what they need to do to earn a reward, anticipate being able to get the reward, and believe that the reward will be worthwhile. As a result, their input in administering the scheme and investing scheme funds will be determined by their anticipation. (Klumpes & Whittington, 2003). The approach focuses on the motivation process more than what constitutes individual goals (Wanjohi et al., 2012). People's efforts are oriented toward a reward and the chance of obtaining it, according to this viewpoint. Service providers usually anticipate the type of compensation that will result from their actions. If retirement benefit schemes do not adequately motivate their service providers with adequate fees compensation, there can be a breakdown in motivation.

Pension funds and the resulting expenditures have been on the rise globally. The pension scheme funds have grown to account for different percentages in the countries' GDP, with Korea's NPF, Luxembourg's FDC, Japan's GPIF, and Sweden's Ap funds assets under management constituting 43.3%, 33.6%, 33.0%, and 31.8% of their countries GDPs, respectively (OECD, 2021). With a projected increase in the amount of assets under management for various pension

funds across the globe, cost optimization and improvement of efficiency have been among the critical issues that need to be addressed (Deloitte, 2022). According to Committee on worker's capital (2018), some of these costs globally have been grouped into three categories: pension management costs (administrative fees), investment management costs (performance and management fees), and transactional costs (fees from buying and selling assets). Schemes should strive to reduce these costs, to increase the benefits payments to their members. Fee systems governing pension schemes vary by country.

According to OECD (2021), most countries cap the amount that pension service providers can charge their members based on the assets under management. With a fee cap of 5% of net value of assets, Armenia has one of the highest fee caps in the world while Croatia has the lowest caps, at 0.3% of assets under management. Some countries such as Denmark, Estonia, Ireland, Italy, Portugal, and United States do not have caps on fees charged based on the amount of assets under management. Fees structures in different countries may cap the fees on salaries, contributions, returns, and other associated fees, such as entry fees, changing or exiting various pension schemes. OECD (2021) argues that it is hard to compare fees across countries due to their heterogeneity. However, some of the countries with the highest fees on assets under management include Pakistan (1.4%), Albania (2.4%), and Siberia (1.4%), while countries with the lowest fees include Bulgaria, Romania, Costa Rica, Estonia, and Croatia. The study examined the impact of service provider costs on the financial performance of Kenyan defined contribution pension schemes over a seven-year period, analyzing the impact of these expenses on net investment returns.

1.1.1 Service Provider Costs

Service Provider costs are those costs associated with the provision of services by a firm in its day to day running. Mitchell (1998) asserts that service provider costs in pension schemes are those costs incurred in the provision of retirement benefits. In the case of Pension schemes, the administrator, custodian, and investment manager fees are among the associated costs. Administrator costs are associated with all operational responsibilities of professional asset management, such as keeping records, communication with people involved, policymaking, and supervisory and regulatory compliance. Rents, salaries, and third-party fees charged by actuaries, accountants, and lawyers are included in the costs. Custodial costs are charged as professional fees for the safe custody of scheme assets by a custodial bank. Investment costs, on the other hand, are professional expenses related to trading, investment analysis, portfolio managers' and analysts' wages, commissions for utilizing trading platforms, and risk management (Kanuri et al., 2017).

Trustees use service providers in both advisory and delegated positions because of differences in aims or risk aversion, and since, with few exceptions, pension schemes lack the resources to manage all of their activities in-house. Due to an information asymmetry between the trustees as principals and the service providers as agents, the service providers have the opportunity to pursue their interests rather than those of the scheme. Investment managers, custodians and administrators are engaged as agents on behalf of the scheme by the Trustees and are given delegated responsibility for the scheme assets. Trustees bond certain incentive measures on service providers by way of fee compensation. According to Brigham et al. (2006), agency cost refers to all expenditures incurred by shareholders and are designed to encourage managers to

operate in the best interests of the shareholders rather than their own. The Kenyan pensions market, according to Mutuku (2006), faces a number of issues, including expensive service provider fees, poor yields, the inability to meet pension guarantee terms, and the need for reputable asset manager performance. The effectiveness of pension schemes depends in part on the operating costs charged by service providers. The cost of retirement security can be significantly increased by administrative and investment charges (Bateman & Mitchell, 2004). High administrative costs for defined contribution pension schemes erode net income thus generating lower net returns to its members, who directly bear the investment risk, during their work life. This illustrates that the process of saving for retirement is one of the most important elements impacting the ultimate value of pension payments.

According to Batra & Innovations (2017), service provider costs are hard to measure and compute going by different determinants such as the type of pension scheme and region. In an ideal setting, the expenses would be normalized by a direct measure of the service provided, which is the management of social security. However, there is no easy way to measure this. Secondary data is extracted from audited financial statements of sampling pension systems for studies on pension scheme operating costs. Bikker & De Dreu (2009) investigated the operating costs of pension plans. The impact of various expenses, such as outsourcing decisions, fund size, scheme design, and governance structure, was investigated using data from all Dutch pension funds between 1992 and 2004, yielding approximately 10,000 observations. The relationship between agency costs and the financial performance of Kenyan pension systems was studied by A. G. Njuguna (2010). The study's population consisted of RBA-registered pension schemes,

with a sample size of 40. The audited financial accounts of the sampled pension systems were used to extract data over five years.

1.1.2 Financial Performance of Pension Schemes

Financial performance is a comprehensive indicator of a company's overall financial health over time that may be used to compare organisations in the same industry, as well as across industries and sectors. In the framework of financial management practices, organizations' financial performance can be measured using accounting data or stock market values. Further, Financial performance is also defined as the process of evaluating the monetary consequences of a company's policies and operations. Chumba (2019) considers pension performance as a scheme members' earnings in form of interest after their contributions have been invested. In an age of greater regulation, pension funds are under pressure to be more transparent about their costs. The issue is particularly important for defined contribution (DC) schemes as costs directly affect members' accounts. Retirement benefit funds would be considered competent if they were successful in improving financial outcomes by utilizing financial resources efficiently as inputs (Chansarn, 2005).

The change in an organization's financial position, or the financial ramifications of management decisions and their execution by the company employees, is referred to as organizational performance. Cheong (2007) in defining financial performance states it as a subjective indicator of a company's success on the growth spectrum. Financial statements consumers, as well as workers and retirees of that company, rely on pension scheme financial reports for critical financial performance information (Brady, 2009). Furthermore, when calculating net income and measuring the firm's financial risk, financial performance is critical. Therefore, the financial

health of a large number of people during their retirement years is influenced by the pension scheme's financial situation.

The performance measurements chosen are determined by the situation of the organization being monitored. The outcomes attained, whether good or bad, are represented by the measures chosen. Bowling and Kirkendall (2012) state that in order for an organization to measure its performance, it must first decide or identify various performance metrics that should be employed. There are several methods for assessing the financial success of pension plans. According to Tetteh (2019), the most widely acknowledged metric is current profitability, which is determined using either return on equity or assets. However, when investments underperform in the future, this metric alone can be misleading, and it is also a poor predictor of financial institution development or decline, either individually or collectively. Asset growth, measurements dependent on the size of returns on investments, lowering administrative expenses, or any combination of these factors should be examined alongside profitability. Size of investment return provides a reasonable indicator of a scheme's current performance.

Return on Investment (ROI) is a widely used financial metric for assessing the financial outcomes of individual investments. According to Blome et al. (2008), among the pensions income sources are returns on contributions invested. Owinyo (2017) backed up this claim, claiming that revenue is an important factor in defining the financial performance of pension funds and in measuring the scheme's financial risk. When it comes to return on investment, pension schemes plan to assess the size and timing of gains to the size and timing of costs. The size of investment return also provides a reasonable indicator of a scheme's current performance providing a basis for trend analysis though it is not a sufficient indicator of long-term

performance and prospects. An increase in returns combined with lower running costs will result in a rise in the fund value of a scheme. Schemes with strong financial performance can generally secure and develop members' funds, allowing them to meet their financial obligations to retirees. Financial performance for this study focused on net investment income and sought to identify the relationship and the unit change sensitivity of net investment income to investment management expenses and administrative expenses over seven years 2015 to 2021.

1.1.3 Service Provider Costs and Financial Performance of Pension Schemes

The Retirement Benefits Authority does not dictate which assets the plan should invest in; rather, it makes recommendations for asset classes to consider. The pension scheme has the freedom to choose the assets that, based on the scheme's fundamentals, they believe would deliver the best overall return. Unless a plan opts to invest in a pooled fund or guaranteed fund (deposit administration), investment of pension scheme assets must be regulated by a specified percentage limit for each asset class, according to Retirement Benefits regulations. Pension schemes are also required to rebalance their investment portfolio within ninety days incase of breach (RBA, 2000).

There has been little local study on the impact of administrative and investment management costs on pension program success. Muriithi (2017) found a substantial adverse association between financial performance and both investment management and administrative costs in a study on the influence of operating costs on pension systems. In her study to determine the determinants of pension fund performance in Kenya, Oluoch (2013) discovered that there was a minimal positive correlation between yields and fund value, as well as a weak positive

relationship between contributions and assets, indicating that assets, fund values, and contributions were not leveraged to generate revenue for Kenyan pension funds. Muriithi (2017) found a substantial negative correlation between financial success and investment management as well as administrative costs in his study on the influence of operating costs on pensions.

The majority of past research has focused on the factors of financial performance and the cost impact of legislative changes in the Pension sector, and the literature, while useful, has not addressed the cost impact of outsourcing service providers. International research has focused on pension scheme operating costs, with several concentrating on cross-country comparisons but none focusing specifically on the financial effect of service provider on DC pension schemes. As a result, the goal of this research was to determine the effect of service provider expenses on the financial performance of Kenyan DC pension systems.

1.1.4 Defined Contribution Pension Schemes in Kenya

Kenya's pension system has undergone significant revision in the previous decade. While many governments across the world have been driven by the need to overcome the current cost deficits of pension liabilities, Kenya's main motivation for reforms was to improve the current pension system's governance, management, and efficacy. In 1997, the new Retirement Benefits Act was passed, and three years later, in 2000, a full set of regulations was put in place. At the same time, the Retirement Benefits Authority (the RBA) was founded to supervise, regulate, and promote Kenya's retirement benefits industry.

A defined contribution scheme is one in which the employer and the employee both make regular contributions to the employee's retirement account. Contributions are typically expressed as a percentage of compensation, though this does not have to be consistent across a career. Both

parties' contributions are tax-deductible, and investment income is tax-free. The accumulated value of the money in the retirement account determines the amount of annuity or lumpsum payment received by the employee at retirement. Defined contribution (DC) plans are currently the principal retirement savings vehicle for many Kenyan employees, and the DC design is becoming increasingly popular. For example, DC plans accounted for 84 percent of all occupational plans in 2001, but by 2015, that figure had climbed to 92 percent (Tari et al., 2015). Unlike Defined Benefit (DB) plans, however, DC plans offer no guarantees about pension size and pose no risk to the employers, with scheme members carrying the whole risk. As a result, a DC plans should be built on a design that would provide sufficient advantages to participants.

In summary, in the literature, the impact of service provider costs on the success of Kenyan DC pension systems has gotten little consideration. Muli & Jagongo (2019) conducted a theoretical analysis of how investment methods and fund size affect DC scheme performance in Kenya. According to Muli & Jagongo (2019), there is a substantial link between fiscal performance and investing strategy, as well as fund size. Similarly, Oyoo (2020) examined the elements that influence the performance of Kenyan pension programs. The research discovered a substantial link between the scheme's financial performance and fund size, adequate risk management, scheme members' age, and member contributions. However, most studies do not address the impact of service provider costs on the DC schemes' financial performance. Service provider costs for DC schemes in Kenya have been rising as shown by (Mwangi, 2020). Mwangi (2020) evaluated the trends in DC pension schemes in Kenya from 2011 to 2019. The study found that the assets under management, administrative expenses, contributions received, and investment income have been generally rising for the study period. However, some factors, such as level of

return on investments, new member registration, and benefits payable were shown to have fluctuations between the years. The study by Mwangi (2020) failed to show correlations between the variables. As a result, the current research aimed at learning more about the impact of service provider expenses on the financial performance of Kenyan DC pension systems.

1.2 Research Problem

Regulations mandate that defined contribution plans outsource both advisory and delegated functions in asset custody and scheme administration (Mukoba, 2013). This makes them vulnerable to the agency problem in which the interests of service providers may differ from those of the fund, and in most circumstances, this is associated with higher scheme costs, which impact performance (Fields & Tirtiroglu, 1991). Pension scheme operational efficiency, according to Bateman and Mitchell (2004), is measured by operational expenses, is critical since it leads to higher returns on investment and, as a result, higher retirement benefits for retirees. High operational costs are mostly borne by plan members, putting pension disbursements at risk and potentially eroding retirement wealth, or, conversely, increasing the costs of retirement security.

The Retirement Benefits Act of 1997 governs the industry's legal framework. The government has attempted to regulate the pension business over the last decade by enacting legislation aimed at preventing mismanagement and theft of pension scheme funds (RBA news, 2019), ensuring that members' interests are protected. Furthermore, DC pension plans have become the principal retirement savings vehicle for many Kenyan employees, and the DC design is becoming increasingly important. There are few studies that establish a link between service provider costs and pension scheme financial performance, but those that have been done suggest that the higher

the prices, the worse the performance, and the lower the expenses, the better the performance. According to Mutuku (2006), the pension business in Kenya faces a number of issues, including high service provider expenses, insufficient returns, the ability to meet pension promise standards, and the need for reliable fund manager performance. Service provider costs are usually expressed as a percentage of assets under management and reduce the rate of return which might otherwise be realized. Trustees' fees, audit fees, administrative costs, investment charges, and custodian's fees are examples of service provider prices that, if large, could jeopardize pension disbursements and potentially erode retirement wealth or raise retirement security expenditures. Additionally, schemes must also publish audited financial statements on a yearly basis. All these exercises have a cost implication to the scheme and are majorly taxed upon the members subscribed to the scheme. According to Bateman & Mitchell (2004), the cost of retirement security is substantially increased by administrative and investment costs by eroding net income thus generating lower net returns affecting benefits accumulation at retirement.

Tapia & Yermo (2008) focused their cross-country comparison of fees charged in Individual Account Pension Systems to costs charged to participants in mandated, defined contribution pension systems. The study linked the introduction of privatized systems to high fees to asset ratios in various Latin American and Central and Eastern European countries. The report claimed that the low costs witnessed in Sweden and Bolivia at the onset of their respective systems were attributable in part to a decision to establish a clearing house or a central agency to foster cost competition amongst providers. Some studies have addressed various aspects of pension funds According to Mitchell (1998), examining administrative costs in Mexico's pension system

looked at evidence of administrative costs incurred during the start-up phase, the interactions between program expenses and program design, and the likely advancement that could affect administrative costs over time. According to the analysis, the Mexican pension system's administrative costs would most likely change in the next years. They could go down if the system grew quickly enough to generate scale economies and amortize start-up costs quickly, but they could go up if services and reporting requirements were expanded. The study's policy suggestions focused on cost-cutting, but not at the sacrifice of pension plan performance.

Broeders et al. (2019) conducted a study evaluating whether Dutch pension schemes that paid performance fees performed better than those that did not pay performance fees. The study evaluated 218 Dutch pension schemes' performance fees and respective investment returns from 2012 to 2017. The authors found no statistical evidence that paying performance fees produced better investment returns. Furthermore, the study found that pension funds with a big amount of assets under administration paid lower performance fees due to stronger negotiating leverage, which might be linked to their size or competence. According to Bikker & Meringa (2022), performance fees are paid in particular for complicated assets that are typically held by large pension funds and can help them save money. However, investing in large pension fund schemes does not necessarily yield better returns due to reduced performance fees. It should also be noted there are concerns about pension funds' performance reports. Ennis (2021) discovered that a sample of 24 US pension funds that underperformed passive investments by 1.4 percent per year stated that they had beaten their own benchmarks by a margin of +0.3 percent. This raises questions on the importance of investment returns reporting, as investment returns are variables

in the evaluation of the effectiveness of measures implemented by pension schemes management to improve benefits paid to members.

High service provider costs, insufficient returns, the need for credible fund manager performance, and ability to meet pension promise requirements, are among the problems faced by the Kenyan pension industry, according to a study conducted locally by Mutuku (2006) on the trends and challenges of pension schemes. Nyakundi (2009), in his study on Kenyan NGOs also pointed out that the problem facing Kenya's pension scheme is the fees paid to the service providers. This is because the efficacy of pension schemes depends in part on the operating costs that are charged by the service providers. Because the expenses are paid from the pension funds, high administrative costs may result in lower retirement income and a low annual rate of return, especially in defined contribution systems. In an analysis of the effect of operating costs on the financial performance of occupational pension schemes in Kenya, Muriithi (2017) discovered a significant inverse correlation between financial performance and admin costs as well as investment management costs, recommending that authorities/trustees monitor and govern the operating expenses incurred by pension schemes. Although studies have been done focusing on pension schemes and costs in Kenya, there is little to no literature regarding service provider costs and their effects on the financial performance of defined contribution pension schemes. The goal of this study was to examine the impact of service provider charges on the financial performance of Kenyan DC pension schemes in this context. The study sought to answer the question, what is the effect of service provider costs on the financial performance of the defined contribution pension schemes in Kenya?

1.3 Research Objective

To evaluate how service provider costs affect the financial performance of Kenyan defined contribution pension schemes.

1.4 Value of the Study

Understanding the impact of service provider costs has overall implications on the performance of the economy as pension schemes are financial market intermediaries. This study will be important in helping the government stimulate the growth of the industry through the Retirement Benefits Authority as the industry policy makers in guiding them on policy formulation related to the regulation of fees charged by service providers.

This study will be important to trustees of DC schemes as an aid to better understand the influence of service provider costs on scheme performance enabling them to better negotiate contractual fees which are currently not regulated by any legislation and also enforce their legislation through the fund statutes, plan rules and service level agreements with the service providers.

Contributors to funds would like to know how well the funds in their schemes are performing because this affects the benefits they will receive when they retire. This study will aid the contributors in assessing whether the resources put into service provision are justifiably commensurate to the net returns they receive year on year by evaluating the service provider costs as a variable. The outcomes of this study will aid academics considerably because the findings will contribute to the improvement of existing research and contribute to advancing academic research.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

For the fund to generate appropriate returns and sustain itself in order to provide promised retirement benefits, schemes' contributions must be invested wisely. This chapter reviews the theories relating to service provider charges in general and pension systems in particular, as well as how they influence the financial performance of the schemes. An empirical evaluation of the studies on the impact of service provider charges on the performance of pension systems is presented. Finally, there is a discussion of the research gap.

2.2 Theoretical Literature Review

Pension schemes aim to provide retirement benefits to members hence members' interests should supersede all other stakeholder interests. Studies describing the correlation between service provider costs and the financial performance of pension schemes have been documented. The examination of the effects of scheme costs on scheme performance is a test of the scheme's efficiency. This section explained several theories that underline the engagement of service providers. These theories included modern portfolio theory, agency theory, and expectation theory.

2.2.1 Agency Theory

Berle and Means proposed the agency theory in 1932, arguing that when large companies' equity ownership diminishes, control and ownership become increasingly separated (Panda & Leepsa, 2017). Jensen & Meckling (1976) added to the idea by pointing out that managers do not always run their companies to maximize shareholder wealth. They established their agency theory as a result of this discovery, which included the principal-agent relationship as a crucial predictor of

scheme performance. The agency hypothesis tries to explain why principals and agents disagree on priorities. It is assumed that the interests of the principal and the agent are not always in sync. It primarily resolves disputes that emerge in two areas: A difference in objectives or aversion to risk.

The goal of agency theory is to find the most efficient contract for aligning an agent's interests with those of the principal (Fama & Jensen, 1983). According to Eisenhardt (1989), critics, on the other hand, argue that the theory's simplicity is also its Achilles' heel, claiming that the theory's limited predictive validity is due to its rudimentary assumptions and limited emphasis. For example, Fehr & Falk (2002) argue that as originally conceived, agency theory's negative preconceptions characterizing human nature as opportunistic would appear to hinder collaboration and trust between the principal and agent. That is, despite incentives and supervision, the theory argues that opportunism would triumph because economic agents may conceal, lie, distort, or manipulate the contractual party in economic exchange, resulting in moral hazard and adverse selection issues. Donaldson & Davis (1991) criticizes this depiction of agents has been criticised for being overly negative and possibly self-fulfilling. Davis et al. (1997) propose that instead, these opponents contend that building a foundation of trust and treating agents as stewards of the firm who are obligated to perform correctly will result in better outcomes for both parties. Others have argued that agency theory ignores the broader context in which the principal-agent contract exists, and how that context may affect both principals' and agents' interests and mechanisms for aligning their interests and that it makes oversimplified suppositions about individual risk preferences (Gomez-Mejia & Wiseman, 2007). In conclusion,

opponents argue that economists' formal vision may be too limited, and that applying a behavioural viewpoint to broaden the agency idea could be extremely beneficial.

Trustees (principals) use service providers (agents) in both advisory and delegated positions because pension schemes, with few exceptions, lack the resources to manage all of their activities in-house. The Trustees appoint custodians, investment managers, and administrators to act as agents for the scheme and assign responsibility for the scheme's assets. The likelihood of a conflict emerges if the agent and the principle are both money seekers, as is expected of all rational persons. The agent can and will take actions to increase his wealth, which may or may not be in his principal's best interests.

Imperfect information and ownership and control separation are at the foundation of agency theory. Due to knowledge asymmetry between the trustees and members as principals and they as agents, the service providers have the ability to pursue their own interests rather than those of the scheme. The challenge of information asymmetry cannot be averted because the agency relationship is based on the very concept that causes such inequality. This is the ownership and control separation (Nisbet, 2013). As a result, no contractual clause will always fix the issue. To minimize information asymmetry trustees can bond certain incentive measures on service providers by way of fee compensation. The financial implications have a negative impact on the owners' wealth, and as a result, the expenses of engaging agents have been significant. According to Brigham et al. (2006), the term agency cost refers to all expenses spent by shareholders to persuade, encourage, or convince the pension schemes' management to act in the best interests of shareholders rather than their own.

Positive agency theory proposes aligning agents' and principles' interests by tying a portion of the agent's remuneration to the achievement of principal-relevant outcomes (Fama & Jensen, 1983). Therefore, the study was carried out on the premise that service provider costs follow the agency cost theory and therefore may impact the fund's performance as agents pursue their interests. Compensation based on the agent's capacity to meet the principal's goals should align the agent's and principal's goals, maximising their utility functions.

2.2.2 Expectation Theory

Victor Vroom proposed the expectation theory in 1964, which states that the level of anticipation that the performance will be followed by a specific outcome, as well as the appeal of the outcome to the individual, determines the intensity of the performance (Estes & Polnick, 2012). The amount of desire for a reward (valence), the probability that the effort will result in expected performance (expectancy), and the perception that the performance will result in a reward (instrumentality) are all factors in the Expectancy Theory. Expectancy is the belief that exerting more effort will yield better outcomes. Expectancy is governed by factors such as having the requisite skills for the job, having access to critical information, having the appropriate resources, and having the necessary support to complete the task.

One of Expectation theory's primary subdivisions, status characteristics theory, has been one of the most active study projects within sociological social psychology in recent years (Knottnerus, 1988). Unfortunately, insufficient attention has been paid to the theoretical assumptions that underpin these systems, as well as how social cognition and status generalisation are depicted. Expectation states/status features theory has been influenced significantly by structural-functionalist theory and the information processing perspective, particularly attribution theory.

As a result, distinct conceptualizations of cognition, generalisation, and status stereotypes have emerged, influenced by mechanical and, in some cases, rationalistic assumptions about how actors absorb information. Examining other methods of thinking about these difficulties reveals certain flaws in the theory's formulations.

Individuals are more motivated when they know whatever they need to do to earn a reward, anticipate being able to get the reward, and expect the reward to be worthy, according to the expectation theory, so their input in administering the scheme and investing scheme funds will be determined by their anticipation (Klumpes & Whittington, 2003). This approach concentrates on the process of motivation rather than the content of specific goals (Wanjohi et al., 2012). People's efforts are focused toward a reward and the opportunity to acquire it, according to this viewpoint. Service providers frequently plan ahead of time what their actions will accomplish and what results they will have. There might be a breakdown in motivation if a corporation does not recognise its employees as they do their service providers' retirement benefits plans. The idea can alternatively be regarded as a process in which people determine if there is a link between effort and reward before calculating the likelihood of high performance.

The theory was relevant to this study as trustees engage service providers for compensation of periodic fees mainly charged as a percentage of the fund value (the instrumentality). The service providers are motivated to improve operational efficiency thus increasing the fund value which is partly driven by increasing net investment returns increasing the fund value and thereby increasing their fees (the expectancy) which in this case act as costs to the pension scheme.

2.2.3 Modern Portfolio Theory

Mean-variance portfolio analysis is the foundation of modern portfolio theory. Markowitz (1952) proposed this hypothesis in his study Portfolio Selection. A portfolio is a grouping of investments. Because most investment instruments have undetermined returns and are thus risky, one must decide which portfolio to hold. The portfolio selection problem is the name given to this phenomenon. Variable correlations between assets reduces portfolio risk or boost returns without increasing risk (Markowitz, 1952). In order to optimise the risk-to-reward ratio, Markowitz (1952) designed a model that takes into account the interactions and correlations between various investment opportunities.

Combining several types of assets can reduce risk, according to Markowitz (1952), if the investor chooses assets that move as independently as feasible. The optimum possible risk-to-reward ratio will be obtained once this requirement has been met. MPT emphasises how risk-averse investors can construct portfolios to maximise or optimise projected returns based on a given level of risk, emphasising that risk is an inescapable part of higher reward. According to the idea, a efficient frontier of optimal portfolios may be formed that yield the maximum possible expected return for a given level of risk.

The conclusion reached by Markowitz, which leads to asset allocation decisions, is that there is a rate of return and standard deviation configuration in which the investor is in equilibrium, and his subjective marginal rate of risk substitution for return equals the marginal rate of transformation between risk and return in financial markets. It's worth emphasising that there is no distinction between investment and lottery in the von Neumann-Morgenstern (and so Markowitz) paradigm (gambling). The language utilised in all research papers and textbooks is

exclusively gambling-related. Perhaps the most serious criticism is that market portfolio theory analyses portfolios based on variance rather than downside risk. Two portfolios with the same level of variance and returns are seen as equally acceptable under current portfolio theory. One portfolio may have that much volatility due to numerous minor losses. On the other hand, such variation could be caused by very spectacular losses. Because repeated little losses are easier to tolerate, most investors favour them. Post-modern portfolio theory improves contemporary portfolio theory by minimising downside risk rather than variance.

Investors should make portfolio decisions entirely on projected returns and standard deviations (Markowitz, 1952). Before choosing the optimal portfolio based on these two qualities, investors should evaluate the expected return and standard deviation of each one. The expected return can be thought of as a measure of the potential reward associated with any portfolio during the holding term, while the standard deviation can be thought of as a measure of the portfolio's risk (Reilly, 2006). This theory was crucial to the research since it is most likely the foundation on which fund managers allocate investment and expenditure decisions in pension systems. For investors aiming to develop diversified portfolios, market portfolio theory is a useful tool. The popularity of exchange-traded funds has boosted the applicability of the Market Portfolio Theory by making various asset classes more accessible to investors. Stock investors can reduce risk by investing a small portion of their portfolios in government bonds, according to market portfolio theory. The portfolio's variance would be considerably decreased because government bonds have a negative correlation with stocks. Due to this loss-reducing effect, adding a small amount of Treasuries to a stock portfolio would have no impact on expected returns.

2.3 Determinants of Financial Performance of Pension Schemes

The Retirement Benefits Authority does not prescribe which assets the scheme should invest in; rather, it provides suggestions on which asset classes the scheme should invest in. The pension scheme has the authority to choose the assets that they believe would provide the best overall return based on the scheme's fundamentals. Unless a plan opts to invest in a guaranteed fund (deposit administration) or pooled fund, investment of pension scheme assets must be regulated by a specified percentage limit for each asset class, according to Kenyan investment regulations. Pension funds must also rebalance their investment portfolios within ninety days after exceeding RBA-imposed limitations.

2.3.1 Service Provider Costs

Different types of operational costs are covered by service provider fees in pension plans. Many factors, including the size and maturity of the system, investment strategy, competition, market structure, and legislation, influence fees in distinct nations. (Lurie, 2018). Administrator, custodial and investment management costs need to be paid for the scheme to run. Administrator costs are significant because they cover expenditures such as record keeping, custodian bank charges, legal consultation fees, benefit calculation, audit fees, member communications, and regulatory compliance, as well as other professional costs permitted by the retirements benefit authority. Wages of analysts and portfolio managers, brokerage fees, and the cost of computerised trading facilities are all included in investment costs. All of these costs will affect the performance of pension schemes as high service provider costs erode the net income earned on investment thereby eroding the net income due to scheme members.

Pokornỳ & Hejduková (2021) conducted empirical and theoretical literature research to evaluate the effect of investment and administrative costs. The paper evaluated all published literature on pension schemes in four developed countries; the United States, Australia, Netherlands, and Canada, arguing their selection was based on their focus on pension schemes. The study found that investment and administrative costs increased as the assets under management increased due to diversification into assets such as stocks and real estate. The authors argued that a reduction in costs is a key determinant in the performance of pension scheme funds. Therefore, a reduction in these costs should be the primary goal of members as it would increase the benefits payable. Additionally, the study compared the investment and administrative costs between public sector employees and private sector employees and found that the fees were higher for members of the public sector when compared to those in the private sector. However, the authors reported that different legislations of pension schemes in different countries and varying development timelines limited the usefulness of comparison between pension schemes in different countries. The authors concluded that high investment and administrative costs eroded the benefits payable to pension scheme members.

Similarly, a study conducted by Muriithi (2017), evaluated the effects of operating costs on the performance of pension schemes in Kenya. The study evaluated audited financial reports of 164 pension schemes from 2007 to 2009. The study found that operating costs including investment costs and other administrative costs of the small, medium, and large pension schemes are inversely correlated with financial performance.

2.3.2 Pension Scheme Regulations

Restrictions on corporate governance, access to pension funds, fund investment, and scheme operating costs are all examples of regulatory controls on pension systems. The Retirement Benefits Act and its regulations has enabled structuring and organization in the management of pension schemes. However, the regulations have imposed some restrictions on pension system operations as well as an increase in compliance-related administrative expenditures. The financial health of a pension scheme and its ability to pay all benefits when they become due is determined by its financial performance. According to Kusewa (2007), the restrictions had a significant positive impact on the financial performance of occupational retirement benefit plans throughout the time they were in force. . Regulatory constraints, according to Kipkoech (2012), have a substantial impact on the growth of pension systems. This means that pension regulatory constraints help individual pension plans operate better financially and develop.

According to Hiilamo et al. (2020), pension scheme regulation must concurrently pursue the twin goals of ensuring the security and profitability of the money invested while also producing financial gain. Regulations that exclusively encourage one of these goals would be ineffective. Professional investors who manage other people's money are required by prudential legislation to limit their investments to assets that would have been approved by a sensible investor. Another important rule is the quantitative asset restriction, which limits the maximum percentages that pension funds can invest in specific asset classes. If these requirements are followed, the pension funds will have more effective risk control procedures, better investor protection, more transparent information disclosure, and overall stability (OECD, 2018).

A study conducted by Njeru (2014) evaluated the effects of regulatory practices on the performance of pension funds in Kenya. The study evaluated changes in regulatory policies in Kenya between 2007 and 2013 and evaluated their effects on performance using multiple regression to determine the causation effect of the different regulations enacted in the study period. The study found that changes in policies, such as the enactment of the Retirement Benefits Authority Act, control of pension fund's expenses, implementation of the thirty-day repayment period, and access of half or full employee portion before retirement have boosted the financial performance of pension fund schemes in Kenya. The author argues that, unlike many other studies that argue that regulation stifles the financial performance of pension fund schemes, regulations are aimed at stimulating growth by ensuring efficiency in management and a reduction in vices such as corruption, thereby increasing members' payouts.

2.3.3 Pension Scheme Investment Practices

Investment risk is the most significant risk incurred by individual members of defined contribution schemes, especially if the pension provider provides no kind of guarantee, and so this risk is a primary concern for most supervisory bodies. The rate of return is the most important factor in determining how much money members' accounts will accrue and how much money they will utilise to pay for their retirement. Individuals may wind up retiring with an inadequate pension if the return is too low or even negative as a result of bad financial performance, therefore pension system investment methods must not be overlooked (Malhotra & McLeod, 2017).

Prudent investing necessitates a diversified portfolio that typically comprises a combination of equity investments, fixed-income securities (corporate or government), and cash deposits. In that

regard, asset allocation and portfolio mix practices come in handy. On the other hand, portfolio mix is an important aspect in the management and investment of pension funds in the capital market as it promotes diversification of risks. According to Scala (2013), the weight a portfolio manager gives to a particular security in a portfolio, as well as security selection and investment timing decisions, can have a considerable impact on investment returns and, as a result, financial success.

A study conducted by Otero-González et al. (2021) evaluated the effect of investment strategies of pension schemes in the Eurozone between 2000 - 2017 and their effect on the financial performance of the pension schemes. The authors argue that choosing pension schemes in the Eurozone would offer similarity of benchmarks, assets available, and investment currency. Active investing and value investing strategies are some of the strategies that were studied. The study found that active management of funds gave better results. Specifically, pension funds that invested in portfolios with a few assets achieved better results, especially when the assets were differentiated from index assets. The study reported that the number of assets and the returns had a significant effect on performance. In addition, the authors found out that investment strategies with a between price to free cash flow and quality as measured by return on investment returns the best performance, which supports the argument that value investing yields positive future performance on pension scheme funds. The authors concluded that careful selection of assets can greatly impact the performance of pension scheme funds.

2.3.4 Pension Scheme Characteristics

In the context of pension scheme financial performance, pension scheme characteristics are an explicit description of a scheme's main performance categories (Kigen, 2016). In this context, firm characteristics define those sustaining attributes that a scheme must exhibit well over time to accomplish its mission. Pension scheme characteristics include; Age of the pension scheme, Pension scheme design and density of contributions. The age of the pension system, or how long it has been in existence, might influence financial performance. The age of the pension scheme in this situation is the same as the age of the pension scheme administrators who manage the fund. It will take some time for pension funds to become profitable. This is due to the fact that they primarily engage in medium to long-term investments (Amaefule, 2021).

Pension plans, like many other businesses, can be thought of as open systems that take in inputs, convert them into outputs, and then give those outputs to stakeholders. Pension schemes take in inputs, such as investment funds and contributions, and convert them to outputs, such as retirement benefits and pension fund value. A pension fund might be considered efficient if it was able to maximise financial outputs through efficient financial resource management. The density of contributions entails the amount individual members contribute towards pension funds (Miller et al., 2019). It is also a crucial factor that has influenced pension performance in countries with large informal economies. Individuals with low contribution density are more likely to have few accumulated assets at retirement age, resulting in lower retirement income. Because the accumulating period is shorter in countries that allow people to retire earlier, individuals are likely to receive lower retirement income.

A study by Kipruto M (2019) evaluated the effects of the pension fund characteristics on the financial performance in Kenya between 2014 and 2018. The author evaluated variables such as the age of the pension fund members, density of the contributions, idle funds, and expenditure of the fund to determine their effect on the select pension fund in Kenya. The author used stratified sampling to select 24 pension fund schemes out of 1232 schemes that were registered by the Retirements Benefits Authority. The study also gathered financial reports from 29 businesses and used the information to conduct a quantitative descriptive correlation analysis to determine the effects of pension fund features on the plans. The study discovered that age was inversely associated to fund performance, while idle funds had no significant relationship with financial performance, and schemes expenditure and pension fund, as well as the contributions, had a favourable impact on the performance of Kenyan pension funds.

2.4 Empirical Studies

Studies on service provider costs and pension scheme performance have been conducted internationally, regionally, and locally. The findings demonstrated a favourable relationship between service provider costs and pension scheme financial success. Others found a negative correlation, while others were inconclusive.

A study by Bikker & De Dreu (2009) in the Netherlands on Operating costs of pension funds examined the impact of determinants of these costs, such as the size, governance, pension plan design and outsourcing decisions, using data on all Dutch pension funds from 1992 to 2004. Over 10,000 observations were made during the research. Both employees and employers care about the administration and investment costs of private pension systems because they might diminish the value of retirement assets or raise the costs of retirement security. The study

discovered a wide range of administrative and investment costs among Dutch pension funds, which was largely explained by their size. Other countries may see similar results. Other aspects of pension funds played a modest role. Industry funds are much more efficient than business funds and other types of pension funds, according to the report, although DC plans are slightly less expensive to run than their DB counterparts. Other components of pension funds only had a little impact. According to the analysis, industry funds are far more efficient than business funds and other forms of pension funds, albeit DC plans are significantly less expensive to operate than their DB equivalents. The analysis found that economies of scale were to blame for the wide disparity in administrative and investment costs among pension systems. Pension funds throughout the industry were much more efficient than business and other funds. The study looked at the impact of determinants of pension scheme operating costs, such as size, governance, pension plan design, and outsourcing decisions, which led to disparities in operating costs without considering the impact of these costs on financial performance, which determines a pension scheme's ability to meet its goal of providing pension at retirement.

Tapia & Yermo (2008) conducted a cross-country comparison study of Australia, Latin America, Sweden, and Central and Eastern Europe on the fees that are charged to participants in mandatory, defined contribution pension systems. The research looked at the evolution of a basic cost metric: the yearly charge to assets under management ratio. According to the report, some Latin American and Central and Eastern European countries' relatively high fees-to-assets ratios can be explained in part by their use of privatised systems. The article suggested that the low fees seen in Bolivia and Sweden at the start of their respective systems were due in significant part to a choice to force cost competition among providers through a central agency or clearinghouse.

The study solely looked at the relationship between service provider charges and the fund values of the defined contribution plans they were in charge of because if fees are charged as a proportion of the fund value, a high fees-to-assets ratio is predicted. The impact of these high fees on the financial performance of defined contribution plans was not examined in the study.

Wanjala (2013) looked into the relationship between pension fund assets and economic growth in Kenya, hoping to find a link between domestic debt, retirement pension assets, inflation, treasury bills, and equity turnover. Secondary data was acquired by consulting Retirement Benefit Authority publications, KIPPRA economic reports, KNBS figures, Ministry of Finance and Planning consumer price index data, and National Social Security Fund financial records. The association between retirement benefits assets and economic growth was demonstrated in the study using ratios and percentages. The data was collected from 2002 to 2011 and presented and analysed with SPSS, in percentages and frequency tables. The data revealed a positive association between Kenyan retirement pension assets and economic growth. The study did not consider, as a growth aspect to retirement pension assets, investment income that may be affected by service provider costs thereby also affecting the Economic growth in Kenya.

Rugut (2012) did a study in Kenya to evaluate the determinants of retirement benefits scheme financial performance through the use of a regression model that related the determinants and financial performance of retirement benefits schemes. Investors' professional skills in making investments, Fund size and returns, Portfolio management strategies (Actively vs Passively Managed Funds), Security Selectivity, Market Timing, scheme Capital Structure, and scheme Age all had a positive relationship with the schemes financial performance, according to the findings of the study. According to the findings, all criteria played a part in influencing the

financial performance of the schemes. The study suggested that returns were among the determinants of pension schemes' financial performance while relying heavily on aspects of the investment management service provided without taking into consideration the associated cost of this service to a scheme and its impact on the investment income generated and thus the financial performance.

Kikete (2013) in a study in Kenya aimed at finding out the effect of the regulatory control changes on the financial performance of pension schemes used a population sample of 1216 pension schemes registered with the RBA and a sample of 10 pension schemes from 2008 to 2013 was selected. Secondary data on pension scheme performance was gathered from industry reports compiled by the RBA. Ratio analysis and paired sample t-tests were used in MS Spreadsheets and SPSS for the analysis. The findings revealed that there was a considerable difference in the performance of the schemes once regulatory amendments were implemented. It was also discovered that shortening the benefits processing time, controlling service provider fees, and enabling members access to 50% of the employer's contribution had a positive impact on the financial performance and growth of individual pension plans in Kenya. The study indicated that regulatory changes had a substantial impact on the performance of Kenyan pension schemes, proposing that policymakers assess regulatory changes they propose to ensure that they support rather than inhibit expansion in the pension system. The study suggested that control of service provider fees had an impact on scheme performance as part of regulatory changes, but it did not analyse the impact of these expenses on pension scheme financial performance.

Onyango (2011) provides a study in Kenya on the relationship between investment practices and the financial performance of pension schemes. Sharpe's Ratio, Treynor's Index, and Jensen's

Index were used to investigate the relationship between investment decisions and financial performance. Insufficient regulatory capacity, inability to expand coverage, poor corporate governance, rash investment, macroeconomic instability, and design issues such as choosing between DB and DC schemes are among the five basic challenges identified by the study, which is based on a sample of 36 pension funds. However, empirical data show that smaller pension funds are believed to be more financially efficient, and pension funds with membership between the ages of 31 and 40 are perceived to be better managed than pension funds with membership of all ages. Overhauling and implementing a sufficient legal and institutional framework, integrating sound investment projects, reducing administrative costs by improving time and cost-effective processes in the organization, and integrating administrative and design actions to minimize contribution evasion are some of the major recommendations. Additionally, the government institutes measures to stabilize the macroeconomic environment. The study looked at one aspect of management of pension schemes, the relation of investment management to financial performance. The study while recommending the lowering of administrative costs does not look at the effect of these costs including custodial costs on the financial performance.

Njuguna (2010) conducted a survey in Kenya to investigate the drivers of pension plan governance and to offer strategies to improve it. The sample included 362 Kenyan pension plans. To examine the effect of the number of members in the pension plan, pension regulations, membership age, pension plan design, and plan leadership on pension governance, statistical tests were undertaken using Scheffé tests, Pearson correlations, Analysis of variance (ANOVA), and regressions. Leadership, pension legislation, and membership age all have an impact on pension governance, according to empirical findings. The design of the pension plan and the

number of participants have no bearing on how the pension plans are governed. This study focused on the drivers of pension plan governance than on the financial performance of pension plans, which indicates the efficiency of pension plan governance by its ability to maintain investment income production and scheme cost control.

Muriithi (2017) did an investigation in Kenya on the impact of running costs on pension programmes in Kenya, which included administrative and investment costs. The research relied heavily on secondary data from 164 pension systems' audited financial accounts from 2007 to 2009. The value of assets, investment costs, investment returns, and administrative costs were all studied. The target population of 329 pension schemes was divided into three groups (small, medium, and big) using a stratified sample technique obtained from the Kenyan Retirement Benefits Authority registration. To determine the change in financial performance as a function of operational costs, data was evaluated using Return on Assets as the key performance indicator. According to the findings of the regression analysis, there was a substantial adverse association between financial performance and investment management and administrative costs. Trustees/authorities should monitor and manage the running costs spent by pension systems, according to the report. The study looked at the impact of service expenses on the financial performance of Kenyan pension systems, however, it didn't look at defined contribution plans.

A. G. Njuguna (2010) studied the relationship between agency costs and the financial performance of pension schemes in Kenya. The study's population consisted of RBA-registered pension schemes, with a sample size of 40. The audited financial accounts of the sampled pension systems were used to extract data for five years. According to the findings, there is a direct correlation between agency charges and the financial success of Kenyan pension systems.

The research looked at all RBA-registered pension schemes rather than just registered defined contribution pension schemes in Kenya.

Ngetich (2012) did a study in Kenya looking into the elements that influence the growth of Kenyan individual pension systems. This study is focused on Kenyan pension funds. Pension income accounts for 68% of total income for retirees, while pension assets account for 30% of Kenya's GDP. It is vital that pension plans are properly administered in order for them to grow. The overarching purpose of the research was to investigate the factors that influence the expansion of individual pension systems in Kenya. The research investigated the impact of fund governance, legislation, investment strategy, and fund ethics on the expansion of pension systems in particular. A descriptive research approach was used to conduct the study. The study's target demographic consisted of 22 different Kenyan pension plans, all of which are privately held and compete for market share. The data was subsequently analysed with SPSS 17.0, a statistical tool for social sciences. The outcomes of the study showed that fund governance has a significant impact on pension plan growth. This suggests that improved pension fund governance leads to improved pension scheme growth. Reduced benefits processing time, relevant trustee education, an effective internal control system, clearly defined trustee roles, regular communication with members, controlling sponsor default risk, regulating service provider fees, and implementing investment strategies are all major factors that influence the growth of individual pension schemes, according to the findings. It was also shown that fund regulation has a major impact on the expansion of individual pension systems. This means that monitoring the performance of service providers, regulating compliance costs, limiting the size of the pension fund board, holding regulatory meetings, separating fund ownership from the sponsor's business,

and implementing investment policy all help to improve the performance of individual pension schemes. The study looked into the impact of investment strategy, rules, fund governance, and fund ethics on pension scheme growth, implying measures to enhance performance, such as the regulation of compliance costs, without relying on net investment income as a determinant of pension scheme growth.

Oluoch (2013) investigated the factors that influence pension fund performance in Kenya. Annual data on fund value, assets, age, contributions, and returns were used in the study. The data was collected from 2000 to 2012. The link between returns as the dependent variable and fund value, assets, age, and pensioner contributions as the independent factors was determined using time-series regression analysis. The study discovered a strong positive association between the investors' age and Kenya's national life expectancy, showing that a higher life expectancy boosted returns. Positive connections between returns and fund value, assets, and pensioner contributions, on the other hand, were poor, implying that returns, fund values, assets, and contributions were not used to generate income for Kenyan pension funds. According to the report, pension funds should use the rising value of their assets to produce returns for retirees. Second, assets have to be used to create revenue for the pension funds. Furthermore, rather than simply keeping the assets secure for the pensioners, the contributions of retirees needed to be channelled into more productive ventures. The report advises pension funds to spend their returns and assets on productive investments without considering the costs and their influence on the fund's financial performance.

2.5 Summary of the Literature Review

The key goal for the board of trustees of any retirement benefits scheme is the well-being of the scheme (Ngugi et al., 2021) operationally and financially. Theories have been discussed to shed light on the incentives of service providers to follow the set regulations to ensure that their pension schemes offer attractive benefits to the members. Determinants of financial efficiencies that have been looked into through research range from service provider costs, pension scheme regulation, pension scheme investment practices and pension scheme characteristics. A review of studies that have been done on the financial performance of pension schemes has also been presented by various researchers. Few studies narrow down on operational costs as having an impact on a scheme's financial performance.

Bikker et al (2009) study discusses both investment and administrative costs as influences on pension scheme performance but does not address defined contribution pension schemes, and their focus was on the Netherlands, a first-world country, making it difficult to extrapolate findings to the Kenyan context. Tapia & Yermo (2008) focus on Latin America, South and Eastern Europe and Australia thus failing to focus on Africa and particularly Kenya. For studies done locally, most have concentrated on Pension scheme governance Njuguna (2010), Investment practices Onyango (2011), regulatory changes Kikete (2013) and those that have focused on operational costs are either outdated, do not focus on defined contribution schemes or only focus on the parameters independently. As a result, there is a lack in research on the impact of service provider charges on the financial success of Kenyan pension systems. This is the gap that this research aimed to close.

2.6 Conceptual Framework

A conceptual framework is a thorough explanation of events under investigation that includes a graphical or visual representation of the study's primary variables (Kagumba & George, 2013). The relationship between the independent variables and the dependent variable is depicted in the conceptual framework below. The research proposed a framework that included both independent and dependent factors.

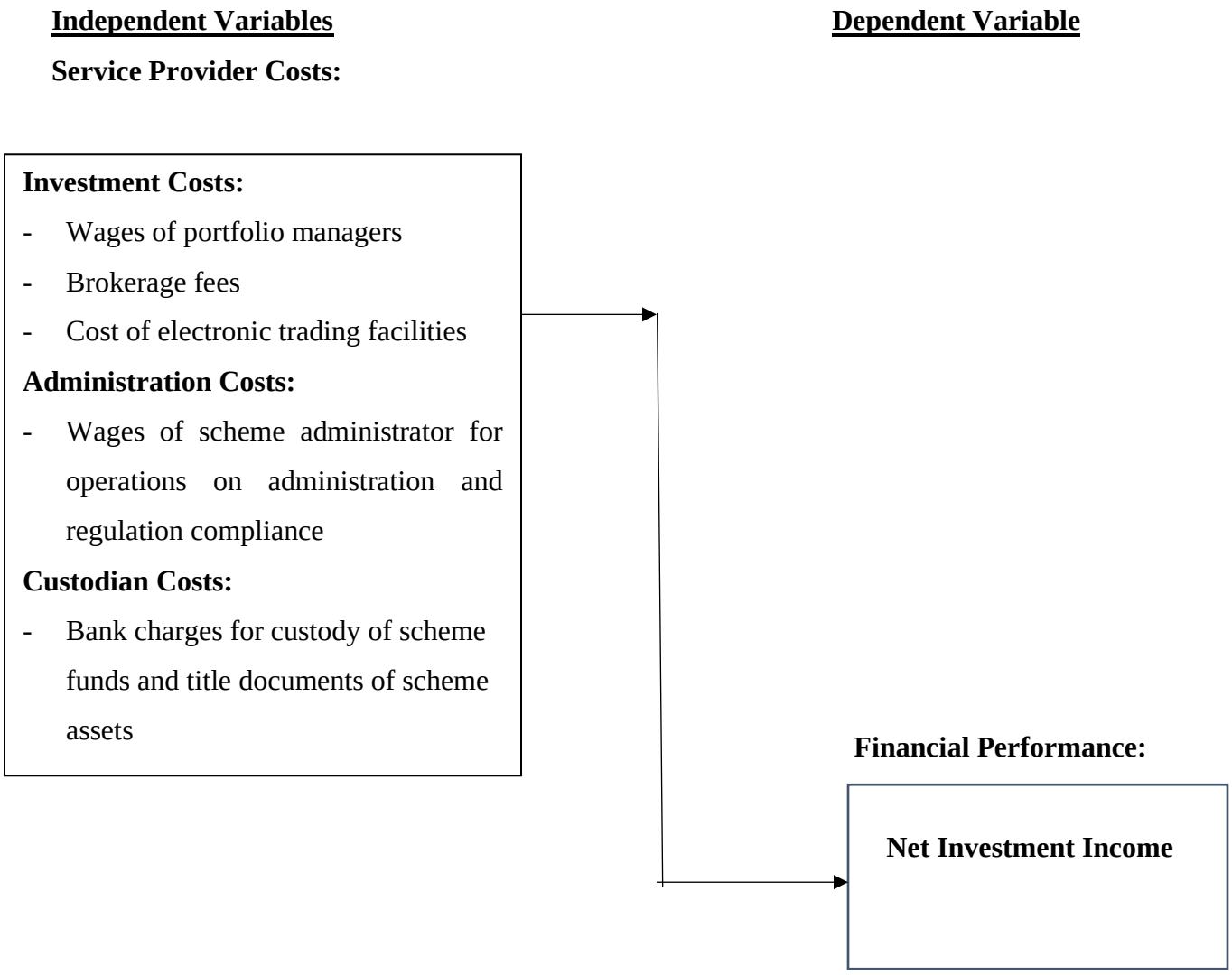

Figure 2.1 Conceptual Model - Source: Researcher (2021)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The research design, population, sampling strategies, and data collection methods are outlined in this chapter. It also explains the data analysis methods that were utilised to address the study question.

3.2 Research Design

A descriptive research approach was employed for the study. Descriptive research tries to establish a causal link between a set of dependent and independent variables (Sekaran, 2006). It provided an account of the current state of affairs and collects data to test hypotheses about the study subject's current situation (Thornhill, 2003). The design effectively presented and sufficiently defined the correlational relationship between the study variables offering insights into the research enquiry.

3.3 Population and Sample

There were 1236 fully registered pension schemes in Kenya as at 2021. Out of these 933 were DC pension schemes. The target population for the study consisted of all 933 DC pension schemes registered in Kenya by the RBA. The population data set was retrieved from the RBA.

A sample is a representation of the entire population in the form of a subset. Instead of studying the entire population, sampling is cost-effective in terms of both money and time (Greenwood, 2021). Stratified random sampling was used in the research. It was the ideal sampling approach for the study as it allowed a more accurate representation of the complete population being studied. A sample size of 93 pension schemes was then chosen, representing 10% of the target

population. A sample size of between 10% and 30%, according to Mugenda (2008), is representative enough to inform a study. Table 3.1 below shows the classification of the DC schemes into strata as at 2021.

Table 3.1 Sample Size

Size of Scheme	No. of schemes	Sample Selected
Large schemes	165	17
Medium schemes	119	12
Small schemes	649	63
Total	**933**	**93**

Source: Researcher (2022)

3.4 Data Collection

This study relied on secondary data which saved on time and money that would be spent and would otherwise have been difficult to collect from the individual DC schemes. Secondary data has a pre-determined level of validity and reliability that does not need to be re-examined. Secondary data on the other hand may be erroneous, incomplete, unavailable in the needed formats or difficult to obtain. To enable an accurate comparison, data was retrived from the RBA on the 933 DC pension schemes for a period of seven years from 2015 to 2021. This period was considered long enough to acquire adequate data on the variables for regression analysis. A data collection form was used to capture data (Appendix 1). The availed data set was occassioned by numerous missing variables and the study eliminated all schemes with incomplete data from further analysis.

Data on service provider costs was retrived on DC pension schemes annual costs for the Administrator, Custodian and Investment manager professional fees. On the other hand, data on

the financial performance of DC pension schemes was retrieved on the annual net return on investments over the study period. The study used the net investment return as it is the return distributed to members at the end of every financial year and bests depicts the financial performance of the scheme.

3.5 Data Analysis

The data was coded, analysed, and presented in tables using RStudio which required the use of statistical concepts to determine efficiency scores ranging from 0% to 100%. For every variable, computation of measures of central tendency, standard deviation and dispersion was done using descriptive statistics. Inferential statistics relied on correlation and regression. Correlation determined the magnitude of the relation between the study variables while a regression determined the cause and effect among variables. A multivariate regression linearly determined the relation between the dependent and independent variables.

3.5.1 Diagnostic Tests

The diagnostic tests were carried out by determining the study variables' normality, linearity, multicollinearity correlation and heteroskedasticity.

3.5.1.1 Test of Normality

A normality test is performed on the data to ensure that it is suitable for regression analysis. The data must be regularly distributed in order to be tested for regression analysis. The test for normality was conducted using the Kolmogorov-Smirnov test which is mainly used for samples with more than fifty observations.

3.5.1.2 Linearity

Linearity is another multiple linear regression assumption that this study tested. The assumption is that for each value of the predicted values and fitted values, the residuals have a mean of zero. The study used the Regression Equation Specification Error Test (RESET). A significant p-value signifies a green light to further investigate the relationships between the predictor and the response variables inferring that linearity is not a problem.

3.5.1.3 Multi-Colinearity Test

According to Abebe (2020), assessing the explanatory variables correlation coefficients (CC); tolerance values, and Variance Inflation Factor (VIF) is the usual statistical method for testing data for multi-collinearity (VIF). To determine multi-collinearity, VIF and tolerance was used in the study. VIF values of more than 10 are frequently seen as suggesting multi-collinearity, while tolerance values of less than 0.1 would indicate multi-collinearity.

3.5.1.4 Heteroscedasticity Test

The linear regression model assumes the residuals have heteroscedasticity or equal variance for every value of the fitted values of the predictors. This study used the Breusch-Pagan test to assess heteroscedasticity in the model. A small p-value indicates that the residual variance is homoscedastic or constant.

3.5.2 The Analytical Model

The Regression analysis was used to examine the relationship between the financial performance of DC pension schemes as a dependent variable and service provider costs as independent variables.

The analytical model used in analyzing the relationship between variables was as below:

$$(Financial\ Performance)_j = \beta_0 + \beta_1(AC)_1 + \beta_2(IC)_2 + \beta_3(CC)_3 + Error \quad \ldots\ldots\ldots\ldots (2)$$

Where:

Financial Performance = Net Investment income of the DC Pension Schemes

β_1 = Co-efficient for Administrator Fees

β_2 = Co-efficient for Investment Manager Fees

β_3 = Co-efficient for Custodian Fees

AC = Administrator Fees

IC = Investment Manager Fees

CC = Custodian Fees

Error = Error Term

CHAPTER 4: DATA ANALYSIS, RESULTS AND FINDINGS

4.1 Introduction

This chapter presents the descriptive statistics and the results and interpretations of various tests namely; test of normality, linearity test, multicollinearity test and heteroskedasticity test. The chapter also presents the results of correlation and regression analysis.

4.2 Descriptive Statistics

Descriptive statistics are important in quantitative data as they provide a summary of the data in the simplest way possible. This study focused on the mean, standard deviation, minimum and maximum. The mean is usually used to highlight the average value of the data set. The findings revealed that the average mean for net investment income was Ksh 25,774,553.85, for administrator fees Ksh 846,220.48, for investment manager fees Ksh 1,058,326.50 and for custodian fees Ksh 573,628.89. The standard deviation on the other hand shows the dispersion of the values from the mean. The findings revealed that the standard deviations of the net investment income from the mean were Ksh 25,446,759.57, administrator fees were Ksh 1,121,102.24, investment manager fees were Ksh 873,561.76 and custodian fees were Ksh 437,249.23. These findings are summarized in table 4.1.

Table 4.1 Statistics Summary of Variables

	N	Minimum	Maximum	Mean	Std. Deviation
Net_Investment_income	407	-51146691	160933268	25774553.85	25446759.570
Administration_fees	407	5800	10692746	846220.48	1121102.244
Investment_fees	407	7621.0	4867139.0	1058326.495	873561.7648
Custodian_fees	407	18187.0	2328636.0	573628.878	437249.2290
Valid N (listwise)	407				

Source: Field Data (2022)

4.3 Diagnostic Tests

This section aims at gaining insights into the data to determine if the model is a good fit for the data. This section evaluated the correlation coefficients of the variables, normality, heteroscedasticity, linearity, and multicollinearity of the residues.

4.3.1 Test for Normality

The normality test helps confirm the assumption in multiple linear regression that the residuals should be normally distributed. A residual is a measurement of the vertical distance between a point and the regression line; standard errors. It is just the discrepancy between an actual value observed and a value that was projected. The test of normality was conducted using the Kolmogorov-Smirnov test which is mainly used for samples with more than fifty observations. Table 4.3 below shows the Kolmogrov-Smirnov test values for each variable. The study found that the P-values are all below 0.05 which resulted in the research rejecting the null hypothesis and concluding that the data did not come from a normal distribution. Table 4.3 below shows a summary of the Kolmogrov-Smirnov test results.

Table 4.2: Kolmogorov-Smirnov Test Results

Parameter	D(Kolmogorov-Smirnov)	P-value
Net investment income	0.97789	<0.05
Administrator fees	1	<0.05
Investment Manager fees	1	<0.05
Custodian fees	1	<0.05

Source: Research Findings, (2022)

4.3.2 Test for Linearity

Linearity is another multiple linear regression assumption that this study tested. The assumption is that in multiple linear regression, for each value of the predicted values and fitted values, the residuals have a mean of zero. This indicates that the model contains pertinent variables and interactions and that the link between the predictors and the outcome is functionally valid. This is mainly important because any correlation between the residuals and the predicted values or fitted values denotes unobserved confounding, and the model cannot be used to infer a causal relationship. The study used the Regression Equation Specification Error Test (RESET). A significant p-value signifies a green light to further investigate the relationships between the predictors and the response variables as linearity is not a problem. The study found a significant p-value, which led the researcher to conclude that linearity was not a problem. Table 4.4 below shows the findings for RESET.

Table 4.3: Ramsey Regression Equation Error Test Results

RESET	Df1	Df2	P-value
5.2829	2	401	0.005437

Source: Research Findings, (2022)

4.3.3 Multicollinearity Test

The assumption of multicollinearity assumes that each predictor has a unique contribution to the computed outcome. Therefore, the assumption suggests that there should be no multicollinearity between the predictors which would otherwise increase the standard errors due to the redundancy. This study used the Variance Inflation Factor (VIF) and tolerance scores to test for multicollinearity. The study found that for all the independent variables the VIF was below 10

and tolerance scores above 0.2 as shown in Table 4.5 below. The model therefore did not violate the multicollinearity assumption meaning there is no linear dependence between the variables which would have inflated the variance and the standard errors of the estimated coefficients.

Table 4.4: Multicollinearity Results

Variable	Administrator fees	Investment Manager fees	Custodian fees
VIF	1.4522	2.4477	2.7164
Tolerance	0.6886	0.4086	0.3681

Source: Research Findings, (2022)

4.3.4 Heteroscedasticity Test

The linear regression model assumes the residuals have homoscedasticity or equal variance for every value of the fitted values ad of the predictors. This study used the Breusch-Pagan test to assess heteroscedasticity in the model. A small p-value indicates that the residual variance is homoscedastic or constant. The study found a small p-value of 0.0000 which lead to the rejection of the null hypothesis. The model residuals are homoscedastic, and as such, the study continued to analyze the summary of the regression model. Table 4.6 below shows the results of the Breusch-Pagan test.

Table 4.5: Breusch Pagan Test Results

Chisquare	**40.807**
P	0.0000

Source: Research Findings, (2022)

4.4 Correlation Analysis

It is important before the data is fitted in a linear regression that there exists a linear relationship between the dependent variable and the independent variables. The findings revealed a generally linear relationship between the net investment income and the independent variables. The study found correlation coefficients between net investment income and administrator fees of 0.526, investment manager fees of 0.548 and custodian fees of 0.606 at 5% significance. As such, the research concluded that multiple linear regression is a good fit for this analysis as each independent variable had a linear relationship with the dependent variable. A strong correlation of above 0.8 might signify that the variables are strongly correlated and as such, they would not offer any new insights into the model. The study found correlations of fund administrator fees to investment manager fees of 0.477 and to custodian fees of 0.552 at 5% significance. Finally, investment manager fees had a correlation coefficient of 0.766 with custodian fees at 5% significance. These statistics are summarized in table 4.2 below. The study found that there were not very strong correlations to cause an alarm on the validity of the independent variables in predicting the net investment income of DC pension schemes.

Table 4.6: Correlation[b] Analysis

		Net_investment_ income	Administrator_ fees	Investment manager_fees	Custodian_fees
Net_investment_ Income	Pearson Correlation	1			
	Sig. (2-tailed)				
Administrator_fees	Pearson Correlation	.526**	1		
	Sig. (2-tailed)	.000			
Investment manager_fees	Pearson Correlation	.548**	.477**	1	
	Sig. (2-tailed)	.000	.000		
Custodian_fees	Pearson Correlation	.606**	.552**	.766**	1
	Sig. (2-tailed)	.000	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).
b. Listwise N=407

Source: Research Findings, (2022)

4.5 Regression Analysis, Summary and Interpretation of Findings

This section will seek to interpret the summary of the linear model to offer clarity on howthe financial performance of DC schemes is affected by administrator fees, investment manager fees, and custodian fees.

Table 4.7 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.657[a]	.432	.428	19251341.820

a. Predictors: (Constant), Custodian fees, Administrator fees, Investment manager fees

Source: Research Findings, (2022)

The multiple R squared number indicates the percentage of the output variable's variance that is explained by our model. The research found that the studied research variables explained 0.432 of the variations in net investment income. This implied that factors not incorporated in this study account for 56.8% of the variability in net investment income of DC pension schemes in Kenya while the study variables explained 43.2% of the variance.

Table 4.8 ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	113542747242616096.000	3	378475824142053 68.000	102.121	.000[b]
	Residual	149357507230377 632.000	403	370614161861979. 250		
	Total	262900254472993 728.000	406			

a. Dependent Variable: net_investment_income

b. Predictors: (Constant), custodian_fees, administrator_fees, investment manager_fees

Source: Research Findings, (2022)

The ANOVA results in Table 4.8 show that the data had a 0.000 significance level which suggests that the independent variables had a significant relationship with the net_investment income and the model can be used to draw conclusions about the study variables. The study found an F-statistic of 102.1 which is far from one, which signifies that the null hypothesis should be rejected. As such, the regression model provided a relationship between the dependent variable, net investment income, and the independent variables, administration fees, investment fees, and custodian fees.

Table 4.9: Regression Coefficients

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4445077.452	1604917.907		2.770	.006
	Administrator_fees	5.954	1.027	.262	5.798	.000
	Investment manager_fees	4.897	1.711	.168	2.862	.004
	Custodian_fees	19.365	3.601	.333	5.377	.000

a. Dependent Variable: net_investment_income

Source: Research Findings, (2022)

The coefficient of regression model was as below:

Y = 4.445e+06 + 0.262(AC) + 0.168(IC) + 0.333(CC)

Where:

Y = Net Investment Income; AC = Administrator Fees; *IC* = Investment Manager Fees; *CC* = Custodian Fees

4.6 Discussion of Research Findings

The objective of the research was to establish the effect of service provider costs on the financial performance of defined contribution pension schemes in Kenya. The study utilized secondary data obtained from the RBA of 93 DC pension schemes. The regression model was limited to small (below 500 million) and medium (500 million - 1 billion) DC pension schemes. Natural log of investment income was the specific attribute considered for financial performance. Inferential and descriptive statistics were used to analyse the data and the results are discussed in this section.

The results of the multivariate regression R squared (0.432) revealed that approximately 43.2% of the variance found in net investment income is explained by service provider costs while variables not considered in the study explained 56.8% of net investment income. The overall model was also statistically significant as the p value was 0.006 which is less than the significance level of 0.05.

Table 4.9 above shows a summary of these coefficients containing an estimate, a standard error, a t-values, and p-values. The estimate provides the coefficients for each independent variable, the standard error shows the variance one may get if one runs the model again, the t-value shows the number of deviations the estimates is from zero, and the p-value shows the possibility of getting a value larger than or equal to t. Therefore, p-values, which when the values are very small signify a relationship between the dependent and independent variables. The study found that there was a significant relationship with p-value below the significance level of 0.05 between financial performance and administrator fees ($p = 0.000$), investment manager fees ($p = 0.004$) and custodian fees ($p = 0.000$). The multiple regression model did not violate any assumptions,

and as a result, custodian fees, administrator fees and investment manager fees, which are service provider costs are good predictors of the financial performance of defined contribution pension schemes.

This analysis showed positive coefficient estimates of administrator fees (β_1= 0.262), investment manager fees (β_2= 0.168), and custodian fees (β_3= 0.333) signifying their positive association with financial performance (the net investment income). It is evident from the regression equation that despite there being a significant association between net investment income and administration fees, investment fees, and custodian fees, these service provider costs do not have a negative effect on the financial performance of DC pension schemes. The findings of the study revealed that as net investment income increases, there is a significant increase in service provider costs for small and medium DC pension schemes.

The results negate the findings of various studies. Ngetich (2012) found that the governance of pension schemes has an impact on financial performance. Good governance involved regulating the service provider fees and keeping them at a minimum. Ngetich (2012) inferred without statistical backing that regulating service provider fees would improve the financial performance of individual pension schemes. Muriithi (2017) also found that service provider costs including administration fees, investment fees, and custodian fees had a significant adverse relation to financial performance of pension schemes, without focusing on defined contribution pension schemes. Nyakundi (2009) who studied pension coverage in Kenya pointed out that the problem facing Kenya's pension scheme is the fees paid to the service providers because the efficacy of pension schemes depends in part on the operating costs that are charged by the service providers. Nyakundi (2009) argued that high administrative costs may result in lower retirement income

and a low annual rate of return, especially in defined contribution systems. This study therefore found that service provider fees had a significant association with defined contribution schemes' financial performance but they do not have a negative effect on the financial performance. As such, service provider costs increase with an increase in net investment income, without affecting the overall performance of the schemes.

CHAPTER 5: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The main objective of the study was to determine how service provider costs including administrator fees, custodian fees, and investment manager fees affected the financial performance of defined contributions pension schemes in Kenya. This section includes a summary of the findings from the previous chapter, conclusions, limitations of the study, recommendations for policy and practise and recommendations for further research.

5.2 Summary

The objective of the research was to establish the effect of service provider costs on the financial performance of DC pension schemes in Kenya. Little research has been focused on service provider costs. These costs are annual professional fees charged for the provision of services to a DC pension scheme as required by regulation and include administrator fees, investment manager fees, and custodian fees. Administrator fees are associated with all operational responsibilities of professional asset administrationt, such as keeping records, communication with people involved, policymaking, supervisory and regulatory compliance. Custodian fees are charged for the safe custody of scheme assets by a custodian bank while Investment manager fees are charged for the provision of trading, investment analysis, portfolio managers' and analysts' wages, commissions for utilizing trading platforms, and risk management.

The study utilized secondary data obtained from the RBA of 933 DC pension schemes financial performance, administrator fees, investment manager fees, and custodian fees from 2015 to 2021. The study sample was 10% of the 933 DC pension schemes divided into three strata; small

size DC schemes (below 500 million); medium size DC schemes (500 million - 1 billion) and large-size DC schemes (above 1 billion). The regression model was limited to small and medium DC pension schemes eliminating the large schemes whose inclusion occasioned violation of assupmtions the model. Natural log of investment income was the specific attribute considered for financial performance. Quantitative and Inferential statistics were used to analyze the data and the results are discussed in this section.

The correlational analysis found a positive and significant relationship between financial performance and administrator fees (β_1= 0.262, p = 0.000), investment manager fees (β_2= 0.168, p = 0.004) and custodian fees (β_3= 0.333 , p =0.000) with p-value below the significance level of 0.05. The multiple regression model did not violate any assumptions and therefore met the required goodness of fit.

The multiple regression model found a multiple R squared of 0.432 revealing that approximately 43.2% of the variance found in net investment income is explained by the variances in service provider costs while variables not considered in the study explained 56.8% of financial performance of the model .

5.3 Conclusions

The aim of the study was to determine how service provider costs affected the financial performance of defined contributions pension schemes in Kenya. The research findings depicted that individually the administrator fees, custodian fees, and investment manager fees had a positive as well as significant effect on net investment income.

The study conclusions reveal that an increase in service provider costs leads to an increase in net investment income but without a direct negative effect on the financial performance. Service provider costs, therefore, do not affect the financial performance of DC pension schemes. This may imply that an increase in service provider costs leads to an increase in financial performance. This can be explained by the fact that service provider costs tend to be pegged as a percentage of the DC pension scheme total assets. An increase in investment income occasions an increase in fund assets and thereby increasing service providers fees. It is also likely that the segregation of core duties of DC schemes, administration, safe custody and investment adequately takes care of the agency problem and motivates service providers to pursue higher fees payments by individually improving on the operational efficiency of schemes bringing down operational costs and thereby improving financial performance.

5.4 Recommendations for Policy and Practise

Pension scheme operational efficiency, according to Bateman and Mitchell (2004), is measured by operational expenses, is critical since it leads to higher returns on investment and, as a result, higher retirement benefits for retirees. High operational costs are mostly borne by plan members, putting pension disbursements at risk and potentially eroding retirement wealth, or, conversely, increasing the cost of retirement security.

The research findings revealed that administrator fees, custodian fees, and investment manager fees had a positive and significant effect on financial performance of DC pension schemes implying that an increase in service provider costs leads to an increase in financial performance. The researcher recommends the need for government to regulate service provider costs through the RBA, as the industry policy makers, to steer service providers towards acting in the best

interest of pension schemes. This will benefit schemes from better performance and consequently positively impact the economy as pension schemes act as financial market intermediaries. The researcher also recommends that trustees of DC schemes harness effectiveness of their service providers in the enforcement of contracts and service level agreements geared towards performance based compensation.

5.5 Limitations of the Study

The focus was on various factors which are thought to influence financial performance of Kenyan banks. The research focused on the effect of service provider costs on the financial performance of Kenyan DC schemes focusing on those mandated and regulated by the RBA as administrator fees, investment manager fees and custodian fees. There are however other professional fees, deemed to impact the net investment income, which are incurred by DC pension schemes. The inconsistencey in their reporting vary from scheme to scheme which made it difficult to include them in the study. They include fees for governance audits, audits of financial statements, engagement of professional trainers and lawyers. Others are internal factors like governance attributes and management efficiency by Trustees whereas others are beyond the control of the DC schemes like poor contribution remittance by the scheme founders, fluctuations in interest rates and political stability.

In this study, a five-year period from 2015 to 2021 was selected. There is no proof that comparable results will remain the same across a longer time frame. Moreover, it is impossible to predict if the same outcomes would persist past 2021 given that additional time contains instances of big economic transitions like recessions and booms.

One of the main restrictions for the study was violation of multiple regression assumptions when large DC schemes (above 1 Billion) were included in the analysis. Upon inclusion of large DC

pension schemes, the data violated linear regression assumptions. This was mainly because the values of large DC schemes vary greatly in terms of size and consequently their expenses. Therefore, the researcher conducted multiple linear regression for only small and medium DC pension schemes.

The other main restriction for the study was was quality of data. It has been presumed that the data utilized in the study was accurate. Poor quality data was caused by numerous missing variables from the availed data set. To overcome this problem, the researcher dropped all the schemes with missing values and retrieved the required sample from the adjusted number schemes with complete variables. The low-quality data could have had an impact on the selection of the sample making it not to be not entirely random.

The regression model was used to perform the data analysis and because of the associated limitations of using the model such as inaccurate or erroneous findings resulting from a change in the variable value, the researcher would not be able to generalize the conclusions precisely. A regression model cannot be performed using the prior model after data is added to it.

5.6 Suggestions for Further Research

This research only accommodated small and medium-sized defined contributions pension schemes. Research focusing on large-sized DC pension schemes, which violated the assumptions of the multiple linear regression model, can be done to establish if their research findings complement or contradict the current research. Further, research can compare the service provider costs of DC schemes in the public sector compared to those in the private sector.

This study focused on defined contribution pension schemes registered in Kenya. Further studies can be extended to perform cross country comparisons involving various African regions and other

global jurisdictions as a factor in assessing retirement security in the regions. The study also focused on net investment income as a measure of financial performance. Further studies can utilize other measures of performance that were not considered in this study.

The current research scope was restricted to seven years; more research can be done over a wider time span to determine if there is a threshold point where service provider costs have an impact on the financial performance of DC schemes.

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APPENDICES

Appendix 1: Data Collection Form

Name of Scheme:				
Year	**Performance (Net Investment Return)**	**Service Provider Costs (Annual Fees)**	**Contributions**	**Fund Value (Size of the Scheme)**
2015		A – C – I –		
2016		A – C – I –		
2017		A – C – I –		
2018		A – C – I –		
2019		A – C – I –		
2020		A – C – I –		
2021		A – C – I –		

KEY: A – Administrator fees (Annual)

C – Custodian fees (Annual)

I – Investment Manager fees (Annual)