THE EFFECT OF EARLY ACCESS TO RETIREMENT BENEFITS ON THE FINANCIAL PERFROMANCE OF PENSION SCHEMES IN KENYA

BY

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DECLARATION

I declare that this research project is my original work and has not been submitted to any other university for award of a degree

Signature…….Date……..

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D61/72532/2012

This research project was submitted for examination with my authority as the university supervisor.

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DEDICATION

I dedicate this project to my parents for the great courage, strength among others; I also dedicate this project to my family for their love and encouragement

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LIST OF ABBREVIATIONS

ANOVA:	Analysis of variance
KSH.	Kenya Shilling
ROA:	Return on Assets
ROE:	Return on Equity
SPSS:	Statistical Software for Social Sciences
UK:	United Kingdom
USA:	United States of America

ABSTRACT

This study was carried out to establish the effect of early access to retirement benefits before the retirement age on financial performance of pension schemes in Kenya for the period 2009 to 2013. Agency Theory and Lifecycle theory of consumption smoothing influenced the study. There was a population of 1200 schemes. A simple random sample selection of schemes from secondary data yielded a sample of 80. Financial performance-pf was defined as; x_1 representing the amount of funds accessed early from the registered pension schemes in Kenya and was measured as a fraction of the total pension savings whereas x_2 represented the cost associated with early access to pension savings and was measured as a fraction of total administrative costs. Finally, X_3 represented the Central Bank of Kenya's annual, Average 91 day, Treasury Bill Rates. The analysis was done by use of software, SPSS version 20. Descriptive and inferential analysis was done by use of correlation coefficient and regression coefficients. Results revealed that financial performance of pension schemes was affected negatively whenever benefits were accessed earlier before the retirement period. This suggested that benefits paid earlier to member's reduced financial performance of pension schemes. The costs associated with early access to benefits before the retirement period had a weak, negative effect on financial performance of pension schemes. This implied that costs due to earlier access before retirement period reduced the financial wellbeing of pension schemes. Results of Treasury Bill Rates indicated some positive effect on financial performance of pension schemes; thus, a unit of increase in Treasury Bill Rates, increased financial performance of pension schemes. Those measurements were significant at 95% confidence interval. The researcher therefore concluded that, return on assets is a important factor in determining the effects of early access to benefits on financial performance of pension schemes in Kenya.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Most countries around the globe have been experiencing debates on whether to allow early access to pension benefits. This has led to discussions on amendment of pension policies in many countries in order to allow for early access. Most of the proponents for early access of pension benefits argue that inaccessibility of pension benefits till retirement age is an impediment towards increased saving to the pension funds. They further argue that pension rules may prevent individuals from smoothing their income across the life course in response to unexpected changes in income and expenditure, with associated obstinate consequences. The financial meltdown that affected most parts of United States of America and Europe between 2008 and 2009 also made households to rethink their position on access to pension benefits. The financial crisis made most households to understand the need for more liquid and accessible savings that could cushion them against such financial recessions (Lloyd, 2010).

According to the Association of British Insurers (2007) a number of countries such as New Zealand, United States of America and the United Kingdom have come up with pension models that are able to incorporate and support early access to pension benefits. These models are designed in order to facilitate early access while at the same time ensure that the pension saving concept still remains meaningful. Some regions such as the United Kingdom had to carry out elaborate studies to justify claims that inaccessibility of pension benefits was a deterrent to increased individual pension savings. For instance a survey carried out by the Association of British

Insurers found that four percent of individuals cited the lack of early access options as their reason for not taking out a pension, and seven percent said they would save more in a pension if they were enabled to withdraw pension savings earlier.

In Kenya before the amendment of the Retirement Benefits Act, the regulations allowed members of pension schemes to access their own portion of the contribution in case they left employment before retirement. The law did not allow members to access employers' contribution to the pension scheme. However, an amendment to the act now allows members to access up to 50% of the employer's contribution upon leaving employment. In July 2009, a private member bill was introduced in parliament seeking to reverse the change which was effected in 2005. The objective of the bill was to alleviate the agony of the retrenched members. This bill was passed and the Minister of Finance amended Regulation 19(5) of Occupational Regulations to allow members to access up to 50% of the employers' locked in benefits (Legal Notice Number 165, 2010).

1.1.1 Early Access to Retirement Benefits

Retirement benefits are financial instruments designed to help individuals after they stop working. Individuals typically receive retirement benefits in the form of regular cash installments or as protection in the form of insurance coverage. Retirement benefits can come from a number of sources. Employers offer them to employees as an incentive to stay with the company until retirement. Self employed individuals or

those who have limited retirement benefits where they work may need to provide their own retirement benefits (Zimele, nd). Were (2011) asserts that initially, in most countries around the world, the retirement benefits regulations did not allow for early access to retirement benefits. However, recent developments in most countries have made it possible to review the previously existing policies to allow members of pension schemes to access part of their contributions as well as employer's contributions.

The main reason for allowing early access to pension benefits to members is to encourage increased savings by the members and to enable members cope with difficult financial times such as economic recessions and any financial crises. It is also argued that enabling early access to pension funds by the members is one way of encouraging most people to register as members of pension schemes since they are assured that they have the ability to access the funds at some point if need be.

Debates on whether to allow members of pension schemes to access their benefits for whatever reasons have been featuring prominently in many countries around the globe. A number of countries such as USA, UK, and even Kenya have already amended the previous provisions in their pension Acts to pave way for early access to the funds by the members. Now the debate in most countries is not whether to allow early access to pension funds but rather what percentage of the pension benefits should the members be allowed to access before they attain retirement age. Some countries have also made amendments on the years that one has to work with a

particular employer in order to be able to access the employer's portion of the pension contribution (Lloyd, 2010).

1.1.2 Financial Performance

Ismaila (2011) indicates that financial performance is a very important aspect of financial management and can therefore not be ignored because it is central to the survival of any business enterprise. Without sound financial performance, a business organization may easily close down its operations. Successful financial performance of an organization will depend on a number of factors such as capacity to manage financial issues effectively. There is also evidence of a positive association between financially related activities such as planning, maintenance of financial records, obtaining external finance and professional finance advice, and successful financial performance.

Measuring financial performance of an organization is very important since it determines whether the organization has been able to achieve its financial objectives or not. There are a variety of measures that organizations can use or adopt in measuring their financial performance. One such category of measures is the liquidity measures that determine the ability of the business to meet its financial obligations without disrupting any of its activities. These measures usually rely on the relationship between assets and liabilities of the organization. The other type of measures are solvency measures which determine the amount of borrowed capital

used by the business relative the amount of owner's equity capital invested in the business (Ismaila, 2011).

In addition, Crane (n.d) also asserts that solvency measures provide an indication of the business' ability to repay all indebtedness if all of the assets were sold. Financial performance can also be measured using profitability measures such as Return on Assets (ROA) and Return on Equity (ROE). The profitability measures are important in measuring the extent to which a business can be able to generate profits from the factors of production.

1.1.3 Effect of Early Access of Retirement Benefits on Financial Performance

According to Were (2011) most pension schemes make money by investing the contributions from members and their employers on government securities. She further argues that this investment not only earns the schemes returns but has a very significant role in assisting the Government of Kenya to lengthen the maturity structure of its securities since most of the schemes invest on a long term basis. Early access to pension funds is therefore likely to hurt the pension schemes since they are not likely to get enough funds to invest in long term government securities. This will in turn affect the returns the pension schemes generate from their investments.

Early access to pension by members denies the pension scheme the opportunity of earning the returns that the withdrawn funds would have earned. When members withdraw part of their funds from the pension scheme, it means that the withdrawn money will not be available for investment in income generating investments. Therefore the pension schemes lose out on the revenue earned to a significant degree. If the revenue earned by the pension schemes reduces, then the financial performance of the schemes is likely to deteriorate significantly (Daniela, 2008). She further argues that frequent withdrawal of pension by the members is likely to increase fund administration costs that can either be transferred to the members or borne by the pension scheme, thus increasing its operational costs.

1.1.4 Pension Schemes in Kenya

According to Zimele (nd), a pension scheme also known as a retirement benefit scheme is defined under the Retirement Benefits Act of 1997 as a scheme or arrangement under which persons are entitled to benefits in the form of payments upon retirement, death or termination of service. It is an investment vehicle that seeks to provide individuals with a sufficient and consistent source of income after retirement when they are no longer earning a regular income from employment. It is therefore a pool of assets purchased using the contributions of its members with the aim of financing their retirement benefits. In Kenya, the pension industry is regulated by the Retirement Benefits Authority a body established by an Act of Parliament to regulate, supervise and promote retirement benefits schemes, to develop the retirement benefits sector and for connected purposes. The main types of pension

schemes in the country include public pension schemes such as NSSF, occupational pension schemes, Individual pension schemes, Defined contribution pension schemes and defined benefit pension schemes (www, rba.go.ke).

In Kenya there is low pension awareness that is largely due to language barrier that makes it difficult for ordinary people to understand the pension scheme concept. The general lack of financial awareness also has a negative effect on the general saving culture of the people into pension schemes. Most of the people who are actively involved in saving into pension schemes are those working in formal employment whereas majority of those in the informal sector are not covered. The introduction of early access to pension funds is also likely to affect the savings into the existing pension schemes in the country. There is need to build confidence among members of the public on pension schemes in order to alleviate fears and enhance savings from the members (Kwena, 2010).

1.2 Research Problem

Accessing pension funds by members before they attain retirement age has been a subject of heated debate in many countries around the world. The recent instability in economic conditions and threatening economic recessions have made most members to agitate for flexible policies that can enable them to access their pension savings to cushion them from adverse financial situations when funds are scarce. As a result of

the above conditions and arguments, a number of countries have been forced to change or review their pension policies in order to accommodate the recent developments that allow members to access some percentage of their pension savings before attaining retirement age. This has happened even though critics have indicated that early access to pension savings is likely to hurt the financial performance of pension schemes by reducing the amount available to them for investment and increasing the cost of managing the funds (Daniela, 2008).

Kenya has not been left out of this debate since a number of changes have so far been made on the Pensions Act since the year 2005 when amendments were made to the Retirement Benefits Act requiring members of schemes to preserve the whole of the employer's portion of a member's accumulated benefits after three year of membership in a scheme but before attainment of the retirement age except under the following limiting circumstances affecting a member: ill health, death and where a member withdrew from the scheme before three years of membership. According to a study carried out by (Were, 2011) on the impact of accessing pension funds before retirement, it was established that both the pension funds and members are affected by early access. Pension funds may miss out on returns whereas members may incur higher costs of managing the funds that are passed to them.

Lloyd (2010) also carried out a study on early access to pension savings in the United Kingdom (UK). The study revealed that the effect of the various models of early access to pension savings is highly uncertain. There are few studies that explore

the effect of early access to pension savings on pension schemes. It is further clear that the impact of early access of pension savings on the financial performance is still very unclear. Were (2011) in the local context attempted to study the impact of early access but it was general covering both pension schemes and members. The study did not focus on the impact of the same on financial performance of the pension schemes. This is an indication that there is a clear research gap that needs to be bridged. This study seeks to seal this gap by answering the question: what is the effect of accessing benefits before retirement age on the financial performance of pension schemes in Kenya?

1.3 Research Objective

The study's main objective was to establish the effect of accessing benefits before retirement age on the financial performance of pension schemes in Kenya. It was further decomposed to three specific objectives.

1.3.1 Specific Objectives

- To examine impact of benefits paid earlier on financial performance in Kenya over a five year period.
- To establish the impact of expenses associated with early access on financial performance for a five year period.
- To examine whether Treasury bill rates had effects on financial performance in a five year period for pension schemes in Kenya.

1.4 Value of the Study

The findings of this study will be significant to a number of people. The study will be very important in explaining some of the existing models of early access to pension benefits that are currently in use in some countries. It will also assist in confirming the viability of some of the models that have been suggested by various authors.

The concept of early access to pension funds by members in Kenya is at its infancy. It has not been operational for a very long time. The findings of this study will assist policy makers in the country in comparing the situation with other countries that have implemented this concept for a very long time.

The findings of the study will also be an eye opener to the pension schemes that operate in Kenya. It will assist them to get a more clear understanding of the consequences of early access to pension funds by their members. They will get to understand the effect of accessing benefits before retirement age on the financial performance of pension schemes in Kenya.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature on the effect of accessing benefits before retirement age on the financial performance of pension schemes. Among the issues discussed include the theories that support early access to pension benefits; the empirical literature from studies that have been conducted on early access to pension benefit; research gaps that exist and summary of the literature review.

2.2 Theoretical Review

This study will be based on two theories that seem to explain early access to pension benefits. These theories are the Life Cycle Theory of Consumption Smoothing and the Theory of Financial Intermediation.

2.2.1 Life Cycle Theory of Consumption Smoothing

The life cycle theory of consumption smoothing was developed by (Modigliani & Blumberg, 1980). The theory seeks to give a specific account of consumption and saving. The theory suggests that people save in order to be able to meet future consumption. This normally happens because people do not have much information concerning the future that seems to be quite uncertain. According to Deaton (2005) those individuals with inconsistent and low incomes are likely to save more than those with consistent and steady incomes. This happens because the individuals with lower

incomes need to smooth their future consumption when the income may no longer be available. This theory assists in explaining the reason behind the establishment of pension schemes anywhere in the world. The main reason why people save money into pension schemes is to enable them to continue earning some income even after they have left active employment.

Freidan and Martin (2009) argue that the life cycle model is an important structure used in studying the relationship between ageing, consumption and saving. The framework indicates that if consumption is smoothed, individuals are likely to save in order to transfer purchasing power to the period of their retirement. While main predictions of the life cycle theory tend to be supported by empirical evidence. The life cycle approach in its simplest version implies that financial life of individuals occurs in three phases after starting a professional activity. In the first phase, each person earns a wage from his or her labour supply and has insufficient income to cover their needs; therefore they become indebted in order to finance their needs.

However there are a number of factors that are likely to impact on the life cycle theory. These include risks of accidents during the active life which require precautionary savings or specific insurance policies, including unemployment benefits of public welfare. There is also the longevity risk associated with the number of years in retirement that can result in an undesired level of consumption. There is also the political risk related to changes in the regulations regarding pensions, for instance, early access of retirement funds may cause uncertainty. The life cycle theory of

consumption smoothing therefore insinuates that people will make savings into pension funds in order to cater for their future needs. The needs may not necessarily be at retirement age but even before retirement age when necessity demands. This explains the reason why during difficult economic times, people may want to have access to their pension savings.

2.2.2 Theory of Financial Intermediation

The theory of financial intermediation seeks to explain the reasons for existence of intermediaries in the financial sector of any specific economy. The theory builds on the notion that intermediaries serve to reduce transaction costs and informational asymmetries. As developments in information technology, deregulation, deepening of financial markets, etc. tend to reduce transaction costs and informational asymmetries, financial intermediation theory shall come to the conclusion that intermediation becomes useless. This contrasts with the practitioner's view of financial intermediation as a value-creating economic process. It also conflicts with the continuing and increasing economic importance of financial intermediaries (Dick & Bert, 2003). Dick and Bert (2003) further argue that when information asymmetry is not the driving force behind the existence of financial intermediaries, risk and risk management become the main driving forces of financial intermediation.

The rapid growth of pension funds in many countries, and the stimulus they are providing to the growth of capital markets, both suggest that their activities as

financial intermediaries merit considerable attention. However, the theory of financial intermediation has to date been developed mainly with banks in mind. It tends to focus on taking of deposits and issuance of loans as the activities of financial intermediaries, and on a subset of the activities undertaken by intermediaries and markets. An understanding of the evolving role of pension funds as financial intermediaries and their effects on financial markets is also very significant.

A pension fund is defined as a form of institutional investor, which collects pools and invests funds contributed by sponsors and beneficiaries to provide for the future pension entitlements of beneficiaries (Davis, 1995a). They provide means for individuals to accumulate saving over their working life so as to finance their consumption needs in retirement, either by means of a lump sum or by provision of an annuity, while also supplying funds to end-users such as corporations, other households or governments for investment or consumption. Pension funds have grown strongly in recent years in many countries as well as in emerging markets. Accordingly, monies are intermediated by pension funds into a variety of financial assets, which include corporate equities, government bonds, real estate, corporate debt, secured loans, foreign holdings of the instruments mentioned above and money market instruments and deposits as forms of liquidity.

The implication for this theory early access to pension funds is that the pension funds are only considered as financial intermediaries that make it easier for pensioners to invest their savings at reduced transaction costs. Being intermediaries, they have no

ownership of the funds hence the reason why they need to allow for early access when the owners request for the same.

2.2.3 The Agency Theory

This theory was proposed by Jensen and Meckling (1976). It focused on contracting parties such as shareholders, corporate managers and debtors. However since then, the finance theory has developed both theoretically and empirically to allow an in-depth investigation of the problems caused by divergences of interest between shareholders and corporate managers. The Agency theory indicates that agency problems arise because of the impossibility of perfectly contracting for every possible action of an agent whose decisions affect both his own welfare and the welfare of the principal (Brennan, 1995b). The main challenge that arises from the agency conflict is how to induce the agent to act in the best interests of the principal.

The Agency theory also argues that in the modern corporation, in which share ownership is widely held, managerial actions depart from those required to maximize shareholder returns. In agency theory terms, the owners are principals and the managers are agents and there is an agency loss which is the extent to which returns to the residual claimants, the owners, fall below what they would be if the principals, the owners, exercised direct control of the corporation. The theory specifies mechanisms which reduce agency loss. These include incentive schemes for managers which reward them financially for maximizing shareholder interests. Such schemes typically

include plans whereby senior executives obtain shares, perhaps at a reduced price, thus aligning financial interests of executives with those of shareholders (Jensen & Meckling, 1976).

McColgan (2001) also argues that the scope of each type of agency conflict will differ from one firm to another, as will the effectiveness of governance mechanisms in reducing them. As has been proved, and then often questioned again, each type of governance mechanism can be important in reducing the agency costs of the separation of ownership and control. What is required is a more detailed understanding of what makes these mechanisms important for some firms and ineffective for others. Managerial awareness of the threat of takeover perhaps leads to entrenchment at lower levels, as does the potentially ineffective market for corporate control in disciplining management. McColgan (2001) further argues that despite its faults, with respect to agency conflicts, the modern corporation appears to be the most popular form of corporate organization. Perhaps this can largely be attributable to the evolution of governance mechanisms designed to limit the scope of these problems.

Pension schemes may be considered as agents of the members. They are entrusted with money that belongs to the members for them to manage on their behalf. This theory implies that the pension schemes are only agents who need to act for the benefit of the owners who are the contributors to the pension schemes. The pension schemes may have other divergent interests to pursue but the main purpose of their existence is to create value for the contributors. The contributors have a right to

decide how their savings into pension schemes are invested and accessed including early access.

2.2 Determinants of Financial Performance of Pension Plans

Rockhart and Bullen (1981) define determinants as critical areas of performance that are essential for an organization to accomplish its mission. In the present context, determinants describe the underlying or guiding principles of an effort that Pension Schemes must regard to ensure that it is financially successful. In the present study, the following have been identified as critical determinants of Financial Performance of Pension Schemes**.**

2.2.1 Fund Return

One of the determinants of financial performance of pension funds is short-term nominal returns on investments. This is a common practice among most pension funds even though it hides the fact that short term returns are only one of several factors that will determine the financial performance of pension funds to provide retirement income to their members. Increased pension fund returns are dependent on the active management of the investment portfolios (Bikker & Dreu (2009). Markese (2000), for example, found that pension funds that invest more in equity stocks perform better than those that invest more in bonds and other fixed securities. There are other determinants such as administrative and investment management costs, the density of contributions and the behavior of participants in choosing a retirement age.

However in an asset backed setting, there are other determinants of the performance of pension funds. For example, countries have designed a variety of mechanisms to reduce costs, including the imposition of caps on fees, centralization of collections and the use of blind accounts, lotteries that allocate new contributors among funds, and paperless transactions. Policymakers are aware of the alternatives available, and the challenge is to ensure that the alternatives chosen are properly implemented. Collective pension arrangements established by employers and employee associations can also be an effective way to keep costs low, especially when the funds established achieve sufficient scale (Campbell & Viceira, 2002).

2.2.2 Density of Contributions

The other significant determinant of the financial performance of pension funds is the density of contributions. This factor largely affects pension benefits in countries with large informal sectors. Arenas (2005) assert that the density of contributions in Latin American countries is only about 50 percent. Individuals with a low density of contributions are likely to face low accumulated assets at retirement age, and therefore are likely to have low retirement incomes. The retirement age is also an important factor that affects the financial performance of pension funds. Because the accumulation period is shorter in countries that allow individuals to retire earlier, individuals are likely to receive lower retirement income. As a consequence, governments in some countries have been raising the official retirement age or have introduced incentives to delay retirement. The capacity of funded individual account systems to deliver retirement income will be further challenged in this respect as life

expectancy continues to increase in virtually all countries. Although these factors are important in the overall financial performance of pension funds, it is also important to give emphasis to investments and investment performance. It is primarily directed to evaluating what can be learned about the comparative investment performance of pension funds and consideration of how to undertake investment performance measurement within a framework that is derived from the particular characteristics and objectives of pension systems. Developing a performance measurement framework that is specific to pension funds is a relatively new topic in the literature. Since the seminal work of (Campbell & Viceira, 2002), many other researchers have explored the issue of developing an optimal asset allocation for pension funds, derived from the principles of life cycle savings and risk management.

It is needless to link main themes of theoretical academic literature with the available data on the financial performance of pension funds to support the development of practical policy recommendations. Arenas (2005) argues, traditional approach to financial performance of pension funds put excessive emphasis on short term rate of return, giving little attention to other determinants; because the objective of mandatory second pillars is to ensure adequate retirement income to individuals, monthly or annual returns of pension are not totally meaningful if they are not measured against a benchmark or against an objective. In addition, if alternatives faced by investors are different, international comparisons of returns or other measures of performance such as the Sharpe ratios might not be totally meaningful.

2.3 Empirical Review

Early access to pension benefits before attaining retirement age is an area that seems to have limited research activity. A study was carried out by Were (2011) on impact of accessing pension benefits before retirement age in Kenya. The study used a correlation analysis in trying to establish the nature of the relationship between early access and performance. The results indicate that there is an inverse relationship between increased early access and financial performance of pension funds. The study focuses on the amendment of the pensions Act in Kenya to allow for early access to pension benefits. The researcher argues that since the Act was amended, within duration of only six months in the year 2010, a total of Ksh. 2 billion was accessed by members of various pension schemes. The study revealed that the short term impact of early access to pension benefits would adversely affect the liquidity of the pension schemes. The study recommends that there in need for the Kenyan government to take appropriate measures to ensure that this does not persist in the long term.

Daniela (2008) also examined the effect of early access to pension benefits. The aim of the study was to establish how early to access pension funds. The study used a comparative approach where the amount of pension funds accessed was compared to the final payments at the commencement of retirement age. Her study reveals that early access to pension benefits is likely to generate myriad effects on the various stakeholders. For instance the pension schemes will be forced to part with funds that they would have invested in long term investments. This implies that the pension schemes stand to lose the income or returns they used to earn from long term

investments of the pension benefits. The study further established that loss of such returns may have adverse effects on the revenue that is earned by the pension schemes. It was also established from the study that early access to pension benefits can also raise the cost of managing the pension savings. This cost may be passed on to the pension schemes or to the members who save with the pension schemes.

Sean, Adam and Daniela (2008) carried out a study to establish whether early access to pension funds would increase retirement incomes. The study utilized a trend analysis of the time when there was no early access and the time when there was early access. It focused on reforms on the UK pension policy to allow for early pension access and the time before the reforms. The study insinuates that allowing early access to pension saving, for example, for a first-home or in circumstances of financial hardship, could encourage more people to save in a pension.

Early access may especially provide incentive to younger people, women, men and women in low income groups; who have traditionally been amongst the groups least likely to be saving enough for their pensions. It was further revealed that permitting early access to pension savings may encourage more people to save in pension funds and may encourage people to contribute higher percentages of their income. However, it was also noted that early access to pension benefit may have negative effects such as increasing the scope for tax avoidance and generate greater complexity in pension fund administration which could lead to higher management charges.

Another study was also carried out by (Lloyd, 2010) on early access to pension savings. The study was just a survey that sought opinion from a number of respondents on the issue of early access to pension savings. He argues that the strategic objectives of UK pension policy are for everyone to have a retirement income that meets their expectations and aspirations and, as much as possible, for this retirement income to be pension-based in order to insure individuals against longevity-risk. To encourage pension saving, such savings benefit from uniquely generous tax-relief in respect of both income and capital gains. Pension saving is subject to strict rules preventing access to pension saving before someone reaches retirement age. This perhaps explains why the UK has longstanding annuities.

The study revealed that there are problems with pension savings with persistent under saving trends that threaten the pension savings. Focusing on the UK pension rules as the main cause of under saving (Lloyd, 2010) argues that the UK government undertook pension reforms aimed at increasing the incentives for pension saving, ensuring universal access to a decent pension scheme and overcoming behavioral barriers to saving. The study also indicated that early access enabled members to smooth their income during difficult financial times.

Antolin and Stewart (2009) also carried out a study on early access to pension savings. The aim of the study was to establish how early to access pension savings may be detrimental to retirement benefits. The study took the form of a descriptive survey that sought for expert opinion on the issue of early access to pension savings.

They however argue that in times of financial crises such as the economic meltdown of the year 2008 when unemployment rates shot, may necessitate the introduction of flexible pension policies that allow early access to savings. However, policies allowing temporary or early access to private pension savings introduced in a number of countries such as Australia, Iceland and Spain and are being considered in very many other countries around the world for those in dire financial difficulties such as the unemployed could endanger the future adequacy of retirement income. In addition to the above, policy measures decreasing contributions to personal accounts also risk permanently reducing future retirement income.

The study also revealed that assets accumulated in pension schemes risk falling short of financing an adequate level of retirement where countries allow employers to stop making matching contributions to personal occupational account, revoke approved increases in contribution levels or decide to reduce overall contribution levels.

H. M. Treasury (2010) on early access to pension funds established that early access to pension savings is one such option. It could encourage more pensions saving, or provide flexibility for individuals facing financial hardship. It could also give more choice during the accumulation of pension savings, and so complement the reforms to remove unnecessary restrictions on accessing retirement savings in later life. However, early access also poses potential risks to retirement outcomes, and evidence on the likely impact of early access is currently limited. The study further reveals that under the traditional policies governing management of pension schemes, savings are

low and diminishing in nature. It is therefore important to craft policies aimed at encouraging people to save and invest by creating conditions for higher saving which will support a sustainable and balanced economic recovery, and foster a culture of personal responsibility. These policies are more likely to change pension savings behavior and equally improve incomes for the members.

A study was carried out to establish the strategies to improve pension fund efficiency in Kenya (Njuguna, 2010). The aim of the study was to establish the variables that explain operational efficiency of pension schemes in Kenya. Through a regression model, the following variables were used to measure operational efficiency: strategic management of administration and investment costs, timely processing of pension benefits, improvement in the internal control systems, efficiency in the conduct of trustee meetings, timely reporting to members, decrease in compliance costs, increasing the rate of return, critical involvement of members in decision making, pension fund board autonomy from the sponsor, achieving appropriate funding levels, appointing service providers competitively and effective compliance with laws.

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

Another study was also carried out on improving the financial efficiency of pension funds in Kenya (Njuguna & Arnold, 2010). The aim of the study was to establish how various variables affected the financial performance of pension funds in Kenya. The study utilized correlation analysis and analysis of variance through regression analysis in establishing the nature and magnitude of the relationship between the variables and financial performance of pension funds. The findings from the study reveal that smaller pension funds are more financially efficient than larger ones owing to the bigger ones sitting on large sums of money and inefficiently investing it.

Smaller pension funds have smaller financial resources which they have to invest more judiciously. Kakwani and Hinz (2006) conducted a study on poverty, old age and social pensions in Kenya. The main purpose of the study was to come up with information that could assist pension schemes to reform and expand the pension systems in favour of the old. The findings from the study indicate that poverty among the old is greater than that of the population at large. It was also established that the pension system in Kenya is limited and only few old people, about three percent are able to receive some pension.

2.4 Summary of Literature Review

This chapter has presented a review of the theories that support the existence of pension schemes both as financial intermediaries and agents. The study has also examined the economic theory of consumption smoothing and its relevance in

pension schemes especially in early access. The theories reveal that pension savings are meant to assist the contributors to meet future expenditures. The contributions are invested in long term assets and early access to pension funds is likely to limit the funds available for investment. Literature confirmed that there is an empirical relationship between early access to pension funds and financial performance.

Early access to pension funds especially during distressful economic times denies the pension schemes the financial resources that are required in making investments. This reduces the short term returns that are earned thus reducing the financial performance of the fund. The empirical review has also revealed that some countries have already adopted policies that can allow early access to pension savings in order to assist individuals during times of adverse economic difficulty when there is absence of alternative income.

Most of the studies reviewed have however not been able to specifically bring out the effect of early access on the financial performance of the pension funds. What is clear is that most of the studies appreciate the fact that early access to pension savings is likely to endanger the liquidity of the pension schemes. This is a clear indication that there is need to carry out a study to establish the effect of accessing pension benefits early on the financial performance of pension schemes in Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents a discussion on the research methodology that was adopted in establishing the effect of early access on the financial performance of Pension Schemes in Kenya. Among the relevant issues that are discussed include the research design employed in carrying out the study; the target population for the study; the techniques that were employed to arrive at the sample size for the study; the type of data collection methods; and techniques employed in data analysis.

3.2 Research Design

According to Kothari (2004) research design is defined as framework that shows how problems under investigation will be solved. The researcher used longitudinal data approach along organizational schemes over period of five years starting from 2009 to 2013. According to SAGE Dictionary of Social Research Methods (2006), descriptive design comprises of statistical methods and measures which summarizes sets of data so that descriptive statements can be made about individuals, social groups or societies.

This approach was appropriate for this study as it enables an analysis of groups called schemes based upon impact as a result of drawing funds before retirement period. It concentrated on profitability factors for return on assets. Independent variables were;

amount of funds accessed early, cost associated with early access and average 91 day Treasury bill rates.

3.3 Population of the Study

The population of this study was all the registered pension schemes in Kenya. According to the Retirement Benefits Authority (2013), there were 1200 fully registered pension schemes in Kenya. The 1200 pension schemes formed the population of study.

3.4 Sample and Sampling Methods

Oso and Onen (2009) identified three major sampling techniques acknowledged by researchers: statistical formula, statistical tables and discretion of the researcher. The study applied statistical formula. The researcher used the formula below that yielded 80 samples that were selected through a simple random procedure.

Desired confidence interval was derived from Survey Monkey key AICPA American Institute for Certified Public Accountants. (www.surveymonkey.com)

Sample size= $[Z^2 * P (1-P) / e^2] / 1+ [\{(Z^{2*}P (1-p)\} / e^2N]$

$$x = \frac{\frac{z^2 x\, p(1-p)}{e^2}}{1+\frac{(z^2 x\, p\, (1-p)}{e^2 n}}$$

Table 3.1 Desired Confidence Interval

Desired confidence interval	Z-score
80%	1.28
85%	1.44
90%	1.65
95%	1.9
99%	2.58

N= population size: e= margin of error (percentage put to decimal): Z= Z score

N=1200 at 95% confidence level, margin of error 10.5% and n=80.

According to Cooper and Schindler (2006) every sample must have a non zero probability of selection. The study further divided population by the sample size, resulted to fifteen. This guided randomization procedure so that a finite sample was assumed; through counting where every 15th case was selected repetitively until a sample of 80 was attained.

3.5 Data Collection Techniques

The study made use of secondary data that was collected from the Retirement Benefits Authority. The data formation was quantitative in nature such as the profitability of the registered pension schemes, amount of funds accessed by members and the costs of managing the pension schemes. It was obtained from audited financial statements for each of the 80 registered pension schemes in Kenya. The data covered duration of five years from 2009 to 2013 to provide accurate comparison. A data collection schedule was developed to assist in capturing the relevant data required.

The researcher used secondary data due to cost advantages, to permit more time for data analysis since primary data would have required more time for collection. History has also shown that secondary data if appropriate for the research at hand has possibility for high quality internal data since it is part of organization management planning. However it is also true that, being made for organization internal objectives, it can present challenges for other research purposes like secondary consumers.

3.6 Data Analysis Techniques

The researcher made use of multivariate regression analysis to establish the relationship between early access to pension savings and financial performance of registered pension schemes in Kenya. The following analytical model was utilized in analyzing the relationship between financial performance of registered pension schemes in Kenya as a dependent variable amounts accessed and costs of managing the funds as dependent variables formulated in the model; $P_f = a + b_1x_1 + b_2x_2 + b_3x_3 + e$

Where:

pf= financial performance

a = Constant coefficient

b_1 to b_3 = beta coefficients

x_1= amount of funds accessed early, before the retirement period

x_2= cost associated with early access to benefits before retirement period

x_3= Kenya Average 91 day Treasury Bill Rates.

e = standard error of estimate

3.7 Measurement

Where $\mathbf{P_f}$ was the financial performance of the registered pension schemes in Kenya measured using Return on Assets (ROA); x_1 represented the amount of funds accessed early from the registered pension schemes in Kenya and it was measured as a fraction of the total pension savings whereas x_2 represented the cost associated with early access to pension savings and was measured as a fraction of all the total costs and X_3 represented the central bank of Kenya Average 91 day Treasury Bill Rates. The costs associated with early access were obtained by getting the difference between pension administration costs and overall costs incurred in running the pension scheme. Correlation analysis was also used to demonstrate the relationship between each of the independent variables and financial performance. The results were presented in tables and graphs where applicable.

3.8 Test of Significance

Research outcome cannot boast of ideal phenomena as to have 100% certainty about relationship between variables. This is due to sources of error that can only be controlled, for example, sampling error, researcher bias, problems of reliability and different types of validity. The study therefore used tests of statistical significance to improve on the probability that the relationship established is not due random chance. It also indicates the probability that statistical assumptions of the test being conducted have not been violated.

CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION

4.1 Introduction

The purpose of this study was to examine the effect of accessing benefits before retirement age on the financial performance of pension schemes in Kenya. Variables for the data were; amount of funds accessed early from the registered pension schemes in Kenya; cost associated with early access to pension savings and average 91 day Treasury bill rates.

Multivariate regression analysis was used to establish the relationship between early access to pension savings and financial performance of registered pension schemes in Kenya. This analytical model ($P_f = a + b_1x_1 + b_2x_2 + b_3x_3 + e$) was utilized in analyzing the relationship between financial performance of registered pension schemes in Kenya as a dependent variable and amounts accessed, costs of managing the funds, and Treasury bill rates as independent variables.

Where $\mathbf{P_f}$ was the financial performance of the registered pension schemes in Kenya measured using Return on Assets (ROA) pf was measured as a ratio of net income divided by average total assets (see annex 2 page, D); x_1 represented the amount of funds accessed early from the registered pension schemes in Kenya and it was measured as a fraction of the total pension savings whereas x_2 represented the cost associated with early access to pension savings and was measured as a fraction of all the total costs while X_3 represented average 91 day Treasury bill rates. The costs

associated with early access were obtained by getting the difference between pension administration costs and overall costs incurred in running the pension scheme. The resultant variables were measured as ratios. Correlation coefficient was used to test relationship between each of the independent variables and financial performance.. The results were presented in tables, descriptive and inferential statistics.

4.2 Relationship Analysis by Correlation

The study analyzed the relationship between financial performance of pension schemes and return on assets ROA in a five year period. Financial performance was the dependent variable while Return on assets with sub variables as benefits paid earlier, cost of early access and Treasury bill rates as independent variables. The results were shown in table 4.1.

The results show, there was a weak negative relationship that was statistically significant between amount of funds accessed earlier and financial performance; ($R= -0.126$ $P<0.01$, $N=400$). There was a negative negligible relationship that was not statistically significant between, costs associated with early access and financial performance, ($R= -0.072$, $P< 0.149$, $N=400$). When financial performance was examined using Treasury bill rates, a weak positive correlation was evident, ($R= 0.164$, $P< 0.05$, $N=400$).

Table 4.1 Correlation Coefficient; ROA and Financial Performance

		Amount of early access over total savngs,x1	Cost of early access over total costs,x2	Average Treasury bill rates, x3
Amount of early access over total savngs,x1	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	400		
Cost of early access over total costs,x2	Pearson Correlation	.182**	1	
	Sig. (2-tailed)	.000		
	N	400	400	
Average 91 day, Treasury bill rates, x3	Pearson Correlation	.044	.291**	1
	Sig. (2-tailed)	.375	.000	
	N	400	400	400
Financial performance, pf	Pearson Correlation	-.126*	-.072	.164**
	Sig. (2-tailed)	.012	.149	.001
	N	400	400	400

Source: Computed by researcher using data

4.3 Analysis of ROA on Financial Performance by Regression

The researcher carried out a regression coefficient analysis on return on assets against financial performance. This was to test the causality through an analysis of the effects identified from the relationship. The results were shown in table 4.2; 4.3 and 4.4.

Table 4.2 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.231[a]	.053	.046	.14695

a. Predictors: (Constant), Average Treasury bill rates, x3, Amount of early access over total savngs,x1, Cost of early access over total costs,x2

Source: Computed by researcher using data

In table 4.2 Pearson product moment was weak and positive, R=0.231. The coefficient of determination given by R^2 was 0.053. This model therefore established that in the period under study; 2009 to 2013, Return on assets decomposed as benefits paid earlier by the pension schemes, cost of early access and treasury bill rates could be used to predict the effect of financial performance of pension schemes as they accounted for five percent of variability. The fact that Pearson product is positive but weak suggest that regression analysis is within relationship range of strength observed in table 4.1. The findings indicate weak relationships which could be a result of period of study, the sample selected, the independent variables being tested among others.

Table 4.3 further supported the result through an analysis of variance. The findings indicate that the model was a good fit for the data as suggested by (F=7.452, df= 3, 3396, P<0.005). F ratio of this magnitude is high enough to have been a result for a chance or sampling error.

Table 4.3 Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.483	3	.161	7.452	.000[b]
	Residual	8.551	396	.022		
	Total	9.034	399			

a. Dependent Variable: Financial performance, pf

b. Predictors: (Constant), Average Treasury bill rates, x3, Amount of early access over total savngs,x1, Cost of early access over total costs,x2

Source: Computed by researcher using data

4.4 Regression Analysis

The study used the panel data regression analysis to investigate the type effect among variables; cost of early access, benefits paid earlier and Average 91 day Treasury bill rates as predictors with financial performance as the criterion variable; the results are shown in table, 4.4. The results were weighed at a 95% confidence interval.

Table 4.4 Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	.126	.025		5.068	.000	.077	.175
Amount of early access over total savngs,x1	-.079	.034	-.114	-2.302	.022	-.147	-.012
Cost of early access over total costs,x2	-.137	.065	-.110	-2.116	.035	-.264	-.010
Average 91 day Treasury bill rates, x3	1.127	.287	.201	3.929	.000	.563	1.691

a. Dependent Variable: Financial performance, pf

Source: Computed by researcher using data

The outcome from the regression show that; a= 0.126, P<0.01. Independent variables; benefits paid earlier against total costs, (x_1= -0.079, P=0.05) while cost of early access, (x_2= -0.137, p<0.05), Treasury bill rates. (x_3 = 1.127, p=000) and standard error of estimate, (e= 0.025, 0.034, 0.065, 0.287). The equation for this study had predicted that - financial performance = $a+b_1 x_{1+} b_2x_{2+} b_3x_{3+}e$.

In substitution of equation therefore (pf = 0.126 -0.079 x_1 -0.137x_2 +1.127x_3). This model shows that financial performance was affected negatively by benefits paid earlier and costs associated with early access to benefits before retirement age. The study established that Treasury bill rates caused positive effect to financial performance; whenever Treasury bill rates went up.

It was therefore evident from the study that as benefits paid earlier increased by one unit, there was a corresponding decrease in financial performance by 0.114 of a unit. The study also showed that, as cost of early access increased by one unit, financial performance was also affected negatively by a decrease in 0.110 or of a unit. As Treasury bill rates increased; financial performance also increased by 0.201 of a unit. Results are indicated by standardized beta computation. This model has been supported to a confidence interval of 95% within upper and lower limits indicated the table 4.4.

4.5 Discussion of the Findings

The variables of analysis were all standardized as ratios for ease of comparison. In this regard standardized beta coefficients of the results can be expressed as percentages for the individual predictors such that; x_1=-0.114 or 11.4%; x_2= -0.110 or11%; x_3 =0.201 or 20.1%, which may be used interchangeably in the discussion. The findings of this study show that pension schemes for period under study; five years from 2009 to 2013 experienced negative effects on performance whenever

benefits were accessed earlier. One unit withdrawal to pay for earlier pension savings caused a decrease in performance of a scheme by 0.114 of a unit. This was depicted by table 4.4. Njuguna (2010), fund size is significant determinant of financial efficiency of pension schemes. This study therefore supports this observation in that early access to pension funds will affect efficiency of performance in schemes as indicated by negative effects due to earlier access. Individuals with a low density of contributions are likely to face low accumulated assets at retirement age, and therefore are likely to have low retirement incomes (Bikker & Dreu, 2009). Bicker and Dreu also find that the impact is not on performance alone but also on the pensioners too.

The results through a second variable on return on assets; (cost of early access) still showed negative effect on financial performance of pension schemes. The correlation coefficient findings were, ($R= -0.072$, $P< 0.149$, $N=400$). An analysis of regression coefficient of cost of early access on financial performance indicate a inverse beta value which suggests that as x increased in one unit, y recorded a decrease of 0.110 of a unit. This effect gives the study confidence that cost associated with accessing benefits earlier had disastrous ramifications on growth or financial performance of the pension schemes in the period studied. Although a correlation coefficient gave insignificant results on the relationship table 4.1; regression findings provided significant results at ($p<0.05$). Bicker also points out that; efficient pension fund should operate at the lowest possible cost and maximize its returns on investments

and benefits payable to the retirees. Management costs thus have direct impact on performance on pension schemes.

It was also noted from the study that Treasury bill rates, a factor in return on assets had weak positive relationship that was statistically significant for the period under study, ($R= 0.164$, $P< 0.05$, $N=400$). This variable showed through a regression that an increase of one unit caused an increase in financial performance by a 0.201 of a unit. An observation made by Markese (2000), for example, found that pension funds that invest more in equity stocks perform better than those that invest more in bonds and other fixed securities. These findings are very similar as they portray an area that is critical for pension schemes niche. Markese observation helps to explain perhaps why coefficient of determination in this study was low given type of variables.

This is in line with the study done by (Daniela, 2008) that suggests use of ROA in prediction of financial performance of pension schemes. The study however established that this variable only accounted for five percent of variability. This suggests more variables are needed to evaluate performance of schemes. These results can be seen by percentage of variance in table 4.2. If factors remained equal or similar to the period researched upon then variables under test would continue to guide future planning for the organizations within a 95% confidence interval considering upper and lower bound limit provided in table 4.4.

The results indicated by the model in the study; pf = 0.126 -0.079 x_1 -0.137x_2 +1.127x_3 establish that the model is appropriate. It suggests that by drawing cash to cater for pension benefits earlier than set retirement age, schemes are negatively affected; equally by costs incurred to process earlier payments.

Table 4.4 findings in percentage terms; if financial performance was weighed by ROA, 12.6% being a constant, organizations then stand to lose by deducting 7.9% and 13.7% from the would be profitability due to benefits paid earlier and costs associated with those payments. In the period between 2009 and 2013, pension schemes also performed well by 120% due investments in Treasury bills. This is evident from the table 4.4 on un-standardized beta findings. Treasury bill rates had the biggest magnitudinal effect as compared to savings paid earlier and cost of early access in determining effect of financial performance. This could be attributable to short term period of the Treasury bill period, (91 day).

Were (2011), by correlation analysis in trying to establish the nature of the relationship between early access and performance indicate that there is an inverse relationship between increased early access and financial performance of pension funds. This study concurs with Were, that if early access is increased to exceed some limits as indicated by table 4.4, if factors remained constant as had been the period of study, performance would suffer economically. The study went further to establish the size of inverse relationship and found that effects due to costs were, 0.114 for each

unit and due to benefits accessed, 0.110 for each unit. This is shown by parametric findings in the standardized beta statistic in table 4.4.

Daniela (2008) examined the effect of early access to pension benefits and found that it was likely to affect funds that would have been invested in financial projects by the schemes. This study agrees with her since the findings are clear that as costs associated with early access increase, financial performance reduces and as benefits paid earlier continue to increase the financial performance tend to deteriorate. Antolin and Stewart (2009), policy measures decreasing contributions to personal accounts also risk permanently reducing future retirement income. This study also supports this observation in that if negative effects identified here exacerbate, then income levels for pensioners will also plummet. If Lifecycle theory of Consumption smoothing is to remain relevant, this study argues that early access to benefits has to remain minimal to permit pension schemes opportunity to invest and provide future annuities to their members. This factor would provide confidence to members and even improve on the contributions as schemes would become good agents as explained in the Agency Theory.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This study examined the effect of accessing retirement benefits before retirement age on the financial performance of pension schemes in Kenya, the study utilized variables; benefits paid earlier, expenses associated with early access, and Treasury bill rates in a 91 day average for a five year period.

5.2 Summary of the Findings

There have been animated debates globally on whether to allow early access to pension benefits. This has led to discussions on amendment of pension policies in many countries in order to allow for early access. Most of the proponents for early access of pension benefits argue that inaccessibility of pension benefits till retirement age is an impediment towards increased saving to the pension funds. Opponents contrariwise argue that early access to pension savings before retirement age denies pension schemes opportunity to invest the contributions in profit making ventures. This study was carried out as an attempt to bridge the gap between the two groups by building consensus through an analysis of ROA. The study used a random sample of 80 cases from a population of 1200; in a descriptive approach through correlation and regression models.

Results of the models proved that in a five year period 2009 and 2013, there was a weak negative effect between benefits paid earlier and financial performance of pension schemes for the 80 samples considered. This was supported by a regression model that showed that for every unit increase in benefits paid earlier a comparative decrease of 0.114 of a unit was also recorded. The study further established that there was a weak negative relationship between, cost of early access and financial performance as shown in table 4.1. A subsequent analysis through regression showed a negative effect in that for every unit increase in expenses associated with early access there was a decrease in financial performance to 0. 110 of a unit.

Further analysis of third variable Treasury bill rates resulted in a weak positive but statistically significant relationship with financial performance. This showed that financial performance improved comparatively where one unit compared to 0.201 of a unit. Benefits paid earlier and cost of early access exhibited a similar magnitude effect in causing deterioration of financial performance as shown in table 4.4. The study utilized the model - financial performance = $a+b_1\ x_{1+}\ b_2x_{2+}\ b_3x_{3+}e$. The study established that the model was a good fit and appropriate in determining financial performance of pension schemes. The researcher therefore argues, return on assets, (x_1 = benefits paid earlier, (x_2 = cost of early access) and ($x_{2=}$Treasury bill rates) can be used to predict the effect of financial performance of pension schemes. Results revealed that at last five percent of variance in financial performance was accounted for by return on assets. Although r^2 is low other supportive factors like the error being low suggesting the model was fit but; one would be wide of the mark in real cases.

5.3 Conclusion

The purpose of this study was to examine the effect of accessing benefits before retirement age on the financial performance of pension schemes in Kenya. The research identified weak negative effect between benefits paid earlier and financial performance of pension schemes in Kenya. This was evident from observation that a unit increase in benefits accessed earlier led to a decrease in financial performance to approximately 0.114 a unit. The weak relationships indicated; suggests that since pension schemes had been in operation for long period of time, the management practice ensured that financial performance could not be adversely affected by earlier withdrawals from members since this could result in legal tussles which would mean much higher costs. The study, moreover, by way of confidence intervals established the limits within which this could be persevered from the table of regression coefficients using the upper and lower bounds. This suggests that given prevailing conditions for the period under this study if the limits are exceeded, then the model becomes redundant. Therefore continued access to benefits earlier may pose financial challenges for the schemes in the long-run.

A further examination of costs associated with early access found that in the period under investigation weak negative effects were recorded. Regression beta findings showed that for every unit increase in costs due to early access, approximate 0.11 of a unit also reduced financial performance. Cost of early access and benefits paid earlier showed approximately equal effects on financial performance.

The researcher therefore compared the proposed model for the study bearing the independent variables for ROA, on financial performance ($Pf = a+b_1x_{1+} b_2x_{2+} b_3x_{3+}e$), where Pf was the financial performance of the registered pension schemes in Kenya measured using Return on Assets (ROA); x_1 represented the amount of funds accessed early from the registered pension schemes in Kenya, measured as a fraction of the total pension savings whereas x_2 represented the cost associated with early access to pension savings and was measured as a fraction of all the total costs whereas X_3 represented Treasury bill rates and was measured using the 91 day average, central bank of Kenya rates.

The results gave a similar model where; $pf = 0.126 -0.079 x_1 -0.137x2 +1.127x_3$. The resulting formula showed therefore that ROA can be used to predict the effects of financial performance of pension schemes in Kenya. The researcher argues that the formula can be applied to test for similar effects by pension schemes in their management planning. This is supported by the fact that sampling was randomized while the results generated in table 4.4 all provided significant results with small amounts of error.

5.4 Recommendations

The research revealed that benefits paid earlier had low effects which could be harmful to economic wellbeing if escalated judging by the magnitude of beta findings, managers of pension schemes need to plan carefully the extent to which benefits can be accessed without permeating some bounds. It was also revealed by the study that

cost of early access matter a lot in determining financial performance of pension schemes suggesting that at least partly it was shared by members. This weak effect has to be managed carefully because if it became bigger then, a bigger burden will also be shared by the schemes impacting on their economic power.

The scheme should encourage more membership as this will act as risk management through distribution mechanisms. This will ensure that the bounds identified by this study will not be arrived at soon, and to ensure sustainability. The model used to predict financial performance is a good fit for the schemes management practice. This suggests that pension schemes need to control earlier access to funds before retirement age; control costs associated access to benefits as these are areas where schemes tend to be hurt most according to the model.

Pension schemes are beneficiaries of the results in that Treasury bills are an optimistic ways of investment for schemes as the returns are realized over short duration while rates of return appear to improve financial performance considerably. Policy makers need to be informed about the negative impact likely to befall pension schemes if legislation in place supports earlier access to benefits by pensioners neglecting the core objective of the schemes as well as economic impact of their investment including in Treasury bills. The model applied here can be used by students in their further analysis of return on investments in other similar settings to further academic or study demands.

5.5 Limitations of the Study

The study covers pension schemes based in Kenya. There were 1200 duly registered schemes from Retirement Benefits Authority, of which a sample of 80 was randomly selected thus external validity is Kenyan. The study was mainly focused on return on assets which accounted for five percent of variability for the variables under examination, benefits paid earlier, cost of early access, and Treasury bill rates.

The study used a time period of five years, which suggests a longer or shorter period may provide different results. This may have been the result of five percent variance. The results are however useful for schemes future operation plans. The research utilized an average 91 day Treasury bill rates for all the schemes which indicated positive effects. This suggests that if a study was conducted for a 182 or 365 day period some differences in the results may be established. The amount of data in use was exclusive secondary obtained from Retirement benefits authority. This data had to be collected from different departments and finally be collated to form critical mass needed for this study and where there were gaps it recorded a zero (see appendix 2. Pg. D to O) for the missing data.

5.6 Suggestion for Further Research

The study found out that cost of early access to pension savings was probably borne partly by members of the schemes. It is worthwhile to research on acceptable cost of

early access sharing ratio that can ensure; the schemes and the members are not economically adversely affected.

This research established that return on assets accounted for five percent of variability for the variables measured. A different study on return on investment may be done to test its effect on financial performance by evaluation of other variables that may be deemed important for the study.

Treasury bill rates are an important factor in assessing organization performance since one unit of it affects organization performance positively. The study utilized an average 91 day Treasury bill rate, a study to evaluate 182 and 365 day period may be done to test effect of bill time on organization performance.

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APPENDICES

Appendix I: Selected Pension Schemes

1. AAR Holdings Limited Staff Pension Scheme
2. Action aid - Kenya Staff Pension Scheme
3. ADRA-Kenya Staff Provident Fund
4. African Banking Corporation Limited Staff Provident Fund
5. Aga Khan Foundation Staff Pension, Life Assurance and Personal Accident Scheme
6. Agricultural Society of Kenya Staff Provident Fund
7. Airside Limited Staff Pension Scheme
8. Alpha Logistics Limited Staff Retirement Benefits Scheme
9. Amedo Centres Kenya Limited Executive Staff Retirement Benefits Scheme
10. Anova Food BV (EA) Staff Retirement Benefits Scheme
11. Appropriate Technologies for Enterprise Creation Staff Retirement Benefits Scheme
12. Arya Vedic School Staff Provident Fund
13. ASP Company Limited Provident Fund Scheme
14. Athi Water Services Board - Staff Provident Scheme
15. Avenue Hospital Staff Retirement Benefits Scheme
16. Bakels East Africa Staff Retirement Benefits Scheme
17. Bank of Baroda (Kenya) Staff Provident Fund
18. Baptist Misson of Kenya Staff Retirement Benefits Scheme "A"
19. Barclays Bank of Kenya Limited Staff Retirement Benefits (DC) Scheme 2009
20. BDF East Africa Limited Staff Retirement Benefits Scheme
21. Bicorn Exim Staff Provident Fund
22. Bob Morgan Services Staff Retirement Benefits Scheme
23. Bridges Capital Ltd Staff Reirement Benefits Scheme
24. British American Insurance Company (Kenya) Limited - Umbrella Pension Fund
25. Bungoma Teachers SACCO Retirement Benefit Scheme
26. C. Dorman Limited Staff Retirement Benefits Scheme
27. Capital Markets Authority Staff Retirement Benefits Scheme
28. Cargo Service Centre (EA) BV Staff Pension Scheme

29. Catholic Diocese of Homa-Bay (Development Office) Staff Provident Fund
30. CFC Bank Limited Staff Retirement Benefits Scheme
31. Chase Bank Staff Retirement Benefits Pension Scheme
32. CHF Staff Retirement Benefits Scheme
33. Christian Childrens Fund Staff Retirement Benefits Scheme
34. Cisle Kenya Branch Staff Retirement Benefits Scheme
35. CMC Holdings Ltd Staff Retirement Benefits Scheme (No.5)
36. Coffee Board of Kenya Staff Retirement Benefits Scheme
37. Comet Plastics Limited Staff Retirement Benefits Scheme
38. Continental Products Staff Pension Scheme
39. Country Images Provident Fund
40. Deliverance Church Kasarani Staff Retirement Benefits Scheme
41. EABS Bank Staff Retirement Benefits Scheme
42. East African Breweries Ltd Mgt Staff Pension Fund and Life Insurance Scheme
43. East African Wildlife Society Staff Retirement Benefits Scheme
44. Endeavour Africa Group Staff Retirement Benefits Scheme
45. Feradon Associates Limited Staff Retirement Benefits Scheme
46. General Adjusters Limited Staff Provident Fund Scheme
47. Githere Investments Limited Staff 1139Retirement Benefits Scheme
48. Habib Bank AG Zurich Kenya Staff Provident Fund
49. Hemingways Resort Staff Pension Scheme
50. Inchcape Shipping Services Staff Retirement Benefits Scheme
51. International School of Kenya (ISK) - Staff Pension Scheme
52. JohnsonDiversey East Africa Limited Provident Fund
53. Karen Rose Limited - Staff Retirement Benefits Scheme
54. Kenchic Limited Staff Retirement Benefits Scheme
55. Kenya Association of Tour Operators Staff Retirement Benefits Scheme
56. Kenya Marine & Fisheries Research Institute Staff Retirement Benefits Scheme
57. Kenya Post Office Savings Bank - Staff Retirement Benefits Scheme 2007
58. Kenya Tea Packers Limited Staff Provident Fund and Life Assurance Scheme
59. Kirinyaga District Farmers Sacco Staff Retirement Benefits Scheme
60. Lavington United church Staff Retirement Benefits Scheme

61. Liaison Insurance Brokers Limited Staff Pension and Life Assurance Scheme
62. Lutheran World Federation/Dpt For World Service- Kenya/Sudan Prog Staff ProvFund
63. Macmillan Kenya (Publishers) Limited Staff Retirement Benefits Scheme
64. Mantrac Staff Provident Fund
65. Mbao Pension Plan (Blue MSMEs Jua Kali Individual Retirement Benefits Scheme)
66. Moi Educational Center Staff Retirement Benefits Scheme
67. Nairobi Bottlers Ltd Staff Provident Fund
68. National Council of Churches of Kenya Staff Provident Fund
69. Opportunity International Wedco Limited Staff Provident Fund Scheme
70. Parliamentary Service Commission Staff Retirement Benefits Scheme 2008
71. Redeemed Gospel Church Staff Retirement Benefits Scheme
72. Sameer Africa Limited - Staff Provident Fund
73. Tenwek Hospital Staff Pension Scheme
74. Undugu Society Staff Pension Scheme
75. Unilever Tea Kenya Limited Staff Pension Scheme
76. Vintage Africa Ltd & Vintage Travel and Tours Services Limited Staff Provident Fund
77. Wines of the World Staff Retirement Benefits Scheme
78. Winrock International Staff Provident Fund
79. Young Mens Christian Association Staff Retirement Benefits Scheme
80. Young Womens Christian Association Provident Fund

Appendix 2: Summary Data

Amount access early/ total savings	Cost of early access/ total costs	Treasury bill rates	Financial performance
0.02	0.14	0.09	0
0.3	0.06	0.09	0.3
0.42	0.26	0.09	0.04
0.29	0.32	0.09	0.04
0.23	0.46	0.09	0
0.11	0.15	0.09	0.14
0.25	0.07	0.09	0.01
0.12	0.22	0.09	0.02
0.07	0.07	0.09	0.37
0.25	0.38	0.09	0.3
0.19	0.26	0.09	0.1
0.49	0.27	0.09	0.02
0.31	0.2	0.09	0.04
0.25	0.05	0.09	0.01
0.2	0.29	0.09	0.07
0.27	0.05	0.09	0.13
0.39	0.4	0.09	0.07
0.07	0.04	0.09	0.3
0.19	0.98	0.09	0.05
0	0	0.09	0.24
0.24	0.18	0.09	0.05
0.26	0.25	0.09	0.08
0.34	0.22	0.09	0
0.4	0.28	0.09	0.26
0.1	0.07	0.09	0.19
0.2	0.34	0.09	0.13
0.47	0.31	0.09	0.08
0.39	0.35	0.09	0.03
0.13	0.08	0.09	0.01
0.29	0.15	0.09	0.38
0.39	0.32	0.09	0.17
0.35	0.24	0.09	0.03
0.16	0.05	0.09	0.02
0.16	0.08	0.09	0
0.05	0.06	0.09	0.01
0.23	0.26	0.09	0.36

Appendix 2: Summary Data

Amount access early/ total savings	Cost of early access/ total costs	Treasury bill rates	Financial performance
0.23	0.26	0.09	0.36
0	0	0.09	0.05
0.2	0.18	0.09	0
0.14	0.05	0.09	0
0	0	0.09	0.01
0.17	0.05	0.09	0.04
0.34	0.28	0.09	0.19
0.31	0.23	0.09	0.01
0.33	0.1	0.09	0.06
0.32	0.06	0.09	0.22
0.31	0.15	0.09	0.05
0.2	0.08	0.09	0
0.17	0.04	0.09	0.65
0.21	0.01	0.09	0.06
0	0	0.09	0.19
0.24	0.09	0.09	0.03
0.34	0.2	0.09	0
0.29	0.07	0.09	0.07
0.08	0.09	0.09	0.03
0.09	0.05	0.09	0.11
0.27	0.01	0.09	0.04
0.09	0.12	0.09	0.17
0	0	0.09	0.88
0.3	0.04	0.09	0.02
0.22	0.03	0.09	0.03
0.11	0.03	0.09	0.05
0.1	0.05	0.09	0.06
0.32	0.11	0.09	0.04
0.18	0.09	0.09	0.19
0.07	0.62	0.09	0
0.29	0.3	0.09	0.13
0.45	0.12	0.09	0.28
0.3	0.2	0.09	0.14
0.2	0.22	0.09	0.25
0.46	0.04	0.09	0

Appendix 2: Summary Data

Amount access early/ total savings	Cost of early access/ total costs	Treasury bill rates	Financial performance
0.22	0.12	0.09	0.02
0.04	0.08	0.09	0.01
0.24	0.28	0.09	0.3
0.16	0.13	0.09	0.17
0.12	0.08	0.09	0.28
0.08	0.08	0.09	0
0.16	0.14	0.09	0.11
0.31	0.04	0.09	0.01
0.23	0.16	0.09	0.19
0.12	0.04	0.09	0.05
0.13	0.07	0.09	0.17
0.18	0.08	0.13	0.28
0.22	0.07	0.13	0.11
0.01	0.04	0.13	0.42
0.16	0.21	0.13	0.1
0.31	0.05	0.13	0.18
0.19	0.05	0.13	0.34
0.12	0.02	0.13	0.35
0.23	0.17	0.13	0.26
0.18	0.37	0.13	0.13
0.2	0.73	0.13	0.33
0.24	0.25	0.13	0.21
0.14	0.07	0.13	0.15
0.26	0.16	0.13	0.2
0.25	0.14	0.13	0.25
0.4	0.07	0.13	0.2
0.27	0.1	0.13	0.25
0.2	0.07	0.13	0.19
0.36	0.26	0.13	0.05
0	0	0.13	0.07
0.15	0.28	0.13	0.2
0.16	0.26	0.13	0.27
0.36	0.26	0.13	0.42
0	0	0.13	0.11
0.23	0.26	0.13	0.45

Appendix 2: Summary Data

Amount access early/ total savings	Cost of early access/ total costs	Treasury bill rates	Financial performance
0.22	0.11	0.13	0.24
0.13	0.02	0.13	0.02
0.19	0.05	0.13	0.59
0.25	0.11	0.13	0.2
0.3	0.29	0.13	0.3
0.35	0.24	0.13	0.15
0.3	0.08	0.13	0.23
0.2	0.06	0.13	0.32
0.01	0.04	0.13	0.24
0.04	0.08	0.13	0.16
0.33	0.06	0.13	0.12
0.21	0.33	0.13	0.3
0.21	0.06	0.13	0.26
0.1	0.02	0.13	0.17
0.24	0.14	0.13	0.1
0.18	0.03	0.13	0.21
0.47	0.37	0.13	0.2
0.22	0.07	0.13	0.27
0.21	0.2	0.13	0.21
0.33	0.23	0.13	0.37
0.35	0.09	0.13	0.06
0.27	0.12	0.13	0.61
0.31	0.23	0.13	0.42
0.38	0.33	0.13	0.44
0	0	0.13	0.05
0.24	0.08	0.13	0.54
0.28	0.2	0.13	0.04
0.39	0.18	0.13	0.27
0.38	0.47	0.13	0.07
0.43	0.29	0.13	0.24
0.13	0.07	0.13	0.7
0.64	0.61	0.13	0.07
0.35	0.09	0.13	0.56
0.45	0.35	0.13	0.36
0.47	0.23	0.13	0.64

Appendix 2: Summary Data

Amount access early/ total savings	Cost of early access/ total costs	Treasury bill rates	Financial performance
0.3	0.14	0.13	0.43
0.31	0.14	0.13	0.28
0.21	0.27	0.13	0.08
0.33	0.14	0.13	0.23
0.12	0.31	0.13	0.21
0.2	0.13	0.13	0.14
0.21	0.03	0.13	0.14
0.12	0.11	0.13	0.02
0.2	0.35	0.13	0.52
0.16	0.18	0.13	0.02
0.16	0.06	0.13	0.26
0.14	0.09	0.13	0.09
0.13	0.28	0.13	0.2
0.15	0.22	0.13	0.21
0.17	0	0.13	0.2
0.16	0.09	0.13	0.37
0.16	0.16	0.13	0.3
0.12	0.38	0.13	0.04
0.26	0.13	0.13	0.37
0.17	0.09	0.13	0.37
0.36	0.22	0.09	0.18
0.3	0.13	0.09	0.22
0.24	0.04	0.09	0.18
0.02	0.14	0.09	0.29
0.15	0.27	0.09	0.09
0.2	0.07	0.09	0.43
0.08	0.01	0.09	0.42
0.13	0.02	0.09	0.46
0.07	0.02	0.09	0.38
0	0	0.09	0.11
0.09	0.06	0.09	0.36
0.21	0.16	0.09	0.32
0.26	0.13	0.09	0.29
0.22	0.09	0.09	0.32
0.23	0.06	0.09	0.32

Appendix 2: Summary Data

Amount access early/ total savings	Cost of early access/ total costs	Treasury bill rates	Financial performance
0.16	0.03	0.09	0.18
0.3	0.05	0.09	0.33
0.17	0.02	0.09	0.41
0.18	0.1	0.09	0.19
0.2	0.1	0.09	0.02
0.13	0.06	0.09	0.2
0.05	0	0.09	0.29
0.32	0.35	0.09	0.01
0.29	0.14	0.09	0
0.35	0.03	0.09	0.01
0.51	0.44	0.09	0.01
0.31	0.03	0.09	0.03
0.12	0.01	0.09	0.11
0.12	0.04	0.09	0
0.5	0.18	0.09	0.12
0.11	0.1	0.09	0.13
0.42	0.25	0.09	0.31
0.73	0.09	0.09	0.46
0.46	0.04	0.09	0.23
0.2	0.21	0.09	0.3
0.13	0.29	0.09	0.49
0	0	0.09	0.38
0.13	0.03	0.09	0.3
0.37	0.07	0.09	0.34
0.28	0.15	0.09	0.18
0.3	0.51	0.09	0.3
0.25	0.19	0.09	0.02
0	0	0.09	0.35
0.25	0.04	0.09	0.12
0.35	0.08	0.09	0
0	0	0.09	0.02
0.25	0.07	0.09	0.19
0.21	0.05	0.09	0.58
0.18	0.17	0.09	0.1
0.19	0.12	0.09	0.1

Appendix 2: Summary Data

Amount access early/ total savings	Cost of early access/ total costs	Treasury bill rates	Financial performance
0.39	0.15	0.09	0
0.28	0.25	0.09	0.06
0	0	0.09	0.07
0.25	0.53	0.09	0.02
0.35	0.24	0.09	0.25
0.28	0.08	0.09	0.16
0.36	0.14	0.09	0.08
0.4	0.04	0.09	0.04
0.51	0.09	0.09	0.05
0.07	0.03	0.09	0.18
0.36	0.13	0.09	0.07
0.29	0.18	0.09	0.18
0.22	0.09	0.09	0
0.16	0.01	0.09	0.32
0.02	0	0.09	0.78
0.13	0.03	0.09	0.15
0.17	0	0.09	0.07
0.1	0	0.09	0
0.11	0	0.09	0.07
2.19	0	0.09	0.06
0.07	0	0.09	0.19
0.2	0	0.09	0.14
0	0	0.09	0.36
0.12	0	0.09	0.28
0.13	0	0.09	0.26
0.08	0.04	0.09	0.11
0.13	0.01	0.09	0.05
0.27	0.08	0.09	0.07
0.25	0.01	0.09	0.12
0.04	0.01	0.09	0
0.11	0.01	0.04	0.06
0.13	0.03	0.04	0.08
0.28	0.04	0.04	0.13
0.08	0.08	0.04	0.09
0.03	0.02	0.04	0.06

Appendix 2: Summary Data

Amount access early/ total savings	Cost of early access/ total costs	Treasury bill rates	Financial performance
0.03	0.02	0.04	0.06
0.15	0.01	0.04	0.08
0.25	0.01	0.04	0.05
0.09	0	0.04	0.07
0.19	0.08	0.04	0.3
2.95	0.03	0.04	0.09
1.82	0	0.04	0.01
0.16	0.01	0.04	0.1
0.33	0	0.04	0.03
0.38	0.05	0.04	0.16
0.25	0.03	0.04	0.16
0.01	0.01	0.04	0.38
0.29	0.04	0.04	0.05
0.2	0.02	0.04	0.02
0.15	0.04	0.04	0.15
0.23	0.07	0.04	0.66
0.34	0.1	0.04	0.23
0.12	0	0.04	0.03
0.34	0.11	0.04	0.18
0.36	0.04	0.04	0.11
0.11	0.06	0.04	0.24
0.2	0.01	0.04	0.12
0.35	0.02	0.04	0.29
0.15	0	0.04	0.09
0.18	0.01	0.04	0.1
0.3	0.03	0.04	0.1
0	0	0.04	0.62
0.29	0.01	0.04	0.01
0.32	0.02	0.04	0.72
0.23	0	0.04	0.03
0.28	0.06	0.04	0.13
0.17	0.16	0.04	0.15
0.37	0.2	0.04	0.85
0.35	0.04	0.04	0.13
0.29	0.05	0.04	0.15

Appendix 2: Summary Data

Amount access early/ total savings	Cost of early access/ total costs	Treasury bill rates	Financial performance
0.44	0.12	0.04	0.05
0.41	0.02	0.04	0.1
0.29	0.03	0.04	0.04
0.16	0.02	0.04	0.04
0.02	0.01	0.04	0.14
0	0	0.04	0.08
0.28	0	0.04	0.02
0.11	0.34	0.04	0.24
0.09	0.04	0.04	0.37
0	0	0.04	0.11
0	0	0.04	0.09
0	0	0.04	0
0.26	0.07	0.04	0.06
0	0	0.04	0.07
0.31	0.19	0.04	0.02
0.27	0.07	0.04	0.2
0.31	0.11	0.04	0.14
0.34	0.12	0.04	0.07
0	0	0.04	0.05
0.63	0.03	0.04	0.06
0.27	0.17	0.04	0.21
0.18	0.02	0.04	0.07
0.33	0.08	0.04	0.22
0.3	0.1	0.04	0.12
0.07	0.13	0.04	0.08
0.27	0.01	0.04	0.09
0.11	0.04	0.04	0.07
0.26	0.03	0.04	0
0.11	0.45	0.04	0.05
0.1	0	0.04	0.06
0.02	0.02	0.04	0.06
0.07	0.02	0.04	0.16
0.16	0	0.04	0.11
0	0.04	0.04	0.06
0.18	0.35	0.04	0.07

Appendix 2: Summary Data

Amount access early/ total savings	Cost of early access/ total costs	Treasury bill rates	Financial performance
0.09	0.51	0.04	0.12
0.1	0.2	0.04	0.1
0.07	0.06	0.04	0
0.16	0.09	0.04	0.07
0.01	0.1	0.04	0.13
0.34	0.06	0.04	0.1
0	0.02	0.07	0.06
0	0.13	0.07	0.1
0	0.08	0.07	0.01
0	0.01	0.07	0.05
0	0.03	0.07	0.19
0	0.01	0.07	0.39
0	0.02	0.07	0.45
0	0.01	0.07	0.43
0	0.02	0.07	0.13
0	0.01	0.07	0.49
0	0.05	0.07	0.51
0	0.1	0.07	0.32
0	0.07	0.07	0.26
0	0.01	0.07	0.26
0	0.06	0.07	0.33
0	0.02	0.07	0.1
0	0.19	0.07	0.35
0	0.01	0.07	0.27
0	0.01	0.07	0.01
0	0.01	0.07	0.15
0	0.01	0.07	0.33
0	0.01	0.07	0.34
0	0.01	0.07	0.36
0	0.01	0.07	0.1
0	0.03	0.07	0.3

Appendix 2: Summary Data

Amount access early/ total savings	Cost of early access/ total costs	Treasury bill rates	Financial performance
0	0.01	0.07	0.27
0	0.02	0.07	0.34
0	0	0.07	0.24
0	0.01	0.07	0.23
0	0.01	0.07	0.35
0	0.01	0.07	0.97
0	0.01	0.07	0.27
0.15	0	0.07	0.43
0	0	0.07	0.35
0	0	0.07	0.24
0	0	0.07	0.09
0	0.04	0.07	0.04
0	0.04	0.07	0.25
0	0.04	0.07	0.23
0	0.01	0.07	0.13
0	0	0.07	0.35
0	0	0.07	0.26
0	0.01	0.07	0.15
0	0	0.07	0.26
0	0	0.07	0.14
0	0.01	0.07	0.2
0	0	0.07	0.25
0	0.02	0.07	0.06
0.01	0.03	0.07	0.18
0.02	0.02	0.07	0.32
0.03	0.02	0.07	0.48
0.02	0.01	0.07	0.3
0.03	0	0.07	0.17
0.04	0.08	0.07	0.17
0.04	0.02	0.07	0.21
0.05	0.03	0.07	0.31

Appendix 2: Summary Data

Amount access early/ total savings	Cost of early access/ total costs	Treasury bill rates	Financial performance
0.08	0.01	0.07	0.37
0.05	0.02	0.07	0.32
0.14	0	0.07	0.17
0.05	0	0.07	0.3
0	0	0.07	0.48
0.15	0.43	0.07	0.07
0.05	0.57	0.07	0.08
0.02	0.39	0.07	0.38
0.11	0.37	0.07	0.35
0.17	0.16	0.07	0.36
0.12	0.11	0.07	0.15
0	0	0.07	0.13
0	0.03	0.07	0.32
0.05	0.14	0.07	0.19
0	0	0.07	0.22
0	0	0.07	0.3
0	0	0.07	0.32
0	0	0.07	0.06
0	0	0.07	0.17
0	0.02	0.07	0.3
0	0.01	0.07	0.2
0	0	0.07	0.25
0	0.02	0.07	0.06
0.01	0.03	0.07	0.18
0.02	0.02	0.07	0.32
0.03	0.02	0.07	0.48
0.02	0.01	0.07	0.3
0.03	0	0.07	0.17
0.04	0.08	0.07	0.17
0.04	0.02	0.07	0.21
0.05	0.03	0.07	0.31