.ST. MARY’S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

THE INTERFACE BETWEEN PENSION FUND REGULATIONS AND INVESTMENT PERFORMANCE:

THE ETHIOPIAN EXPERIENCE

A RESEARCH THESIS SUBMITTED TO:

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APPROVAL SHEET

ST. MARY'S UNIVERSITY

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It meets the accepted standards with respect to the regulations of the university, originality and quality.

Approved by: Board of examiners

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Declaration/ Confirmation

I declare that this research project is my own work. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any higher learning institution for the purpose of earning any degree.

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ENDORSMENT

This thesis has been submitted to St. Mary‘s University, School of Graduate Studies for examination with my approval as a university Advisor.

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Acronyms/Abbreviations

CSA	Central Statistics Agency
DB	Defined Benefit
DC	Defined Contribution
EC	Ethiopian Calendar
ETB	Ethiopian Birr
GTP	Growth and Transformation Plan
ILO	International Labor Organization
IRR	Investment Rate of Return
ISSA	International Social Security Association
MOFEC	Ministry of Finance and Economic Development
NBE	National Bank of Ethiopia
OECD	Organization for Economic Cooperation and Development
POESSA	Private Organizations' Employees Social Security Agency
PPR	Prudent Person Rule
PSSSA	Public Servants Social Security Agency
QAR	Quantities' Asset Restrictions
SSA	Social Security Authority
SPSS	Statistical Package for Social Sciences

Abstract

The overall performance of the pension fund of Ethiopia affects millions of the scheme members. Based on this fact, the study attempts to understand how the pension fund regulations are related with social security fund investment performance with a particular reference to PSSSA and POESSA of Ethiopia. To achieve this aim the methodology employed is a mix of quantitative and qualitative approaches. Basically the analysis mostly depends on the social security agencies' financial reports. To comprehend the view of employees the research also administered 109 questionnaires with 88.1percent of response rate. Further, the perspectives of two pension fund managers on the subject matter were obtained through interviews. The finding revealed that the Ethiopian pension funds rate of return has been declining continuously. It also identified that the Treasury bills, as a dominant area of investment, have been negatively affecting the portfolio rate of return. Besides this fact, Treasury bill is the only asset the regulations specify as appropriate area of investment of the pension fund. Consequently, the rate of return after the restrictive regulation of the pension fund (0.88%) is significantly lower than that of the period between 1994 and 2003 (2.3%). Examinations on risks- of different assets, via coefficient of variation, asserted that the Treasury bill is scored below its counterparts which are the time deposit and government bond. It is also found that the contribution of the return from investment to cover administrative costs is high where as its contribution to cover the pension payment is very low. The what if analysis based on two scenarios which gave more weights to time deposit and government bond depicted how the opportunity cost of the rigidity of the present pension fund investment regulation is very high. The comparison of the Ethiopian investment performance with other countries also demonstrates the necessity for less restrictive regulations. In line with the findings, the study recommends that the funds should have research based assets mix in the portfolio; the scheme members must have a say right in decisions that can affect them and the regulations should be detailed and comprehensible.

Keyword: Opportunity cost, Pension fund investment, POESSA, PSSSA, Pension fund regulations, Return, Risk

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND OF THE STUDY

In today's world political equality becomes realized in many countries while social equality still continues as a headache for most nations. It is apparent that economic growth by itself cannot be a means to enjoy social rights (Alemayehu 2009). Rather, it demands a political dedication to narrow down the gap between the riches and the poor. To realize social equality, working to change the lives of poor's through mechanisms such as social protection is necessary.

Though the essence of social security as a protection is not debatable, it requires huge finance and hence there has been a stiff argument about how it should be financed. The main disagreement relies on how pension reserve should be invested. Some scholars advocate the advantages of investing on government equities where as others argue that investing in the private stock is more efficient (Baker and Weisbrot 1999).

Social security investment differs from one country to another mostly depends on their policy. For instance, hitherto in Greek investing in government equities is the only option (Nikolaos*et al* 2010). Contrary to this, in Tanzania the policy allows to invest social security fund in to commercial loan, real estate, government securities, loan able fund bank deposits and equities.(The National Social Security Policy of Tanzania 2003)

In Ethiopia, proclamation No 714/2011 and 715/2011 clearly state investment as one of the sources of social security fund. The proclamation also limits such the investment area as Treasury bill and bonds besides other highly profitable areas that would be permitted by Ministry of Finance and Economic Development (MOFEC). Though financial management theories advocate the advantages of diversification, the Ethiopian pension fund has been achieved more than targeted for the successive years. To solve this paradox there should be investigation on whether the success story is due to underestimating plan or because of right investment strategy.

According to scholars on this area, regulations are one of the greatest, if not the most apparent, determinants of pension fund investment. In line with this, countries' experiences actually depict the investment performance of pension fund is directly influenced by government regulations (Nikolaos et al 2010). Thus, among different factors that determine the effectiveness of pension fund investment this study emphasizes on the role of regulations.

Trust fund regulations contain not only investment policy, discretion to investment managers and maintaining a risk management policy and financial reporting but also the extent of asset diversification in the portfolio. The issue of pension fund regulations in general and diversification in particular is not just an issue of high return rather it affects elderly population who fall into the poverty trap after retirement.

Therefore, this study has tried to explore and describe the nature of Ethiopian pension fund regulations with their effects on the investment performances of the schemes.

1.2. PROBLEM STATEMENT

''Fix the roof while the sun is still shining'' (Baker and Weisbrot 1999). It is a former USA president Bill Clinton's famous saying about the necessity of social security reform! Virtually all contemporary literatures state the importance of reform besides their substantial difference on how that should be done. In developed countries, demographic changes that increase the aging people is the main reason to require adjustment on social security fund management (Bosworth 1997).

The issue of fixing is also relevant in developing countries since aging population increase dramatically (Uwera 2013). Though only 5% of Ethiopian population is above the age of 60, it is anticipated to be 9% in 2050. Researches also show that older men and women expected to live 15 and 16 years after their 60^{th} birthday, respectively (Erb 2001). Thus, the pension fund expected to be in line with these changes so as to prevent devastating effects.

More importantly, in Ethiopia the contribution rate reaches in its maturity. That is, any increment on the contribution rate is either not possible or huge burden to members of the pension scheme. Consequently, sustainability of the fund relies on either investment or reduction of benefits. It implies improving the investment return as high as possible is critical.

However, Ethiopian pension fund investment activity emphasis more on safe investment than investment with higher return (Hiwot 2012) Irrespective of countries economic situation, there is a general agreement among economists about the tradeoff between risk and return. Nevertheless, giving priority to one of them is more of a political decision than technical.

The current pension fund regulation of Ethiopia clearly prioritizing safety rather than profitability. Thus, to what extent this decision affects the fund should be assessed. So far, few researches have been conducted on the challenges of Ethiopian social security development in general and its investment activities in particular. These studies also mentioned government regulation as one of the inhibiting factors that deteriorate the effectiveness of the fund investment (Hiwot 2012, Abebe 2008).

So far, no study has been conducted in a comprehensive way by including the effect of proclamation number 714/2011 and 715/2011 on the investment activities of both the public and the private pension funds. These studies also ignored the justifications of government about the inflexible investment regulation related with pension fund. Therefore, this study evaluates the investment performance of the pension fund in the country so as to recommend a more appropriate investment strategy. Based on the assumption that government regulation is the most decisive factor to investment performance of social security of the country the thesis will also scrutinize the impact of the pension proclamations.

The previous studies entirely have concerned with the performance of social security investment as compared to what theories advocated (Hiwot 2012, Abebe 2008). Though measuring performances from theoretical point of view is necessary, it is not sufficient. Consequently, many studies from other countries have been including comparison of countries performance to augment the validity of the results (Musalem 2004, Hu 2008). This research included not only the experiences of other countries but also the views of pension fund employees so that a more comprehensive and valid result can be achieved.

1.3 Research Questions

1.3.1 What is the relationship between pension fund regulations and the performances of social security investment in Ethiopia?

1.3.2 How effective the investment performances of Ethiopian social security schemes have been over times?

1.3.3 How the government regulations have been affecting investment activities of pension funds of the country?

1.3.4 What is the contribution of the return from investment to the pension fund?

1.3.5 What is the opportunity cost of the current pension fund investment regulations of the country?

1.4 Objectives of the Study

1.4.1 General Objective

The general objective of this paper is to assess the interface between pension fund regulations and investment performances of social security schemes in Ethiopia.

1.4.2 Specific Objectives

- To evaluate the effectiveness of pension fund investment of Public Servants Social Security Agency (PSSSA) and Private Organizations Employees' Social Security Agency (POESSA);
- To have insight on the impact of government regulations on social security fund investment;
- To scrutinize how the return from the investment support the fund and
- To depict the opportunity cost of the current pension fund investment regulations

1.5 Scope/ Delimitation of the Study

The study covers both public servants social security agency (PSSSA) and the recently introduced private organizations employees' social security agency (POESSA) investment activities. The study also focuses only on pension fund regulations rather than the macro level investment policies. The study used twenty seven years (from 1983 to 2009 E.C) and six years (from 2004 to 2009 E.C) data from PSSSA and POESSA, respectively.

Regarding to the content, the paper aims to investigate the effects of pension regulations on investment performance with special emphasis on the investment strategy with regard to investment mix. In other words, the strategy of the fund in asset diversification and its impact on the return from the portfolio is analyzed.

1.6 Limitations of the Study

Due to lack of financial resource comparison of the investment performance with other developing countries, in spite of its importance, is done in limited manner. However, to enhance the validity of the study, the researcher compares the general investment performance of other countries with to that of the Ethiopian social security agencies. By taking into consideration the similarity of types of funds, this kind of comparison is common and acceptable.

The other problem was that finding a person that can justify the current pension fund regulation on behalf of the government. It was a very difficult assignment due to the fact that a regulation is the outcome of a group of peoples. However, the study has tried to solve these problems by including interview questions about the justifications of the government regarding to the current regulations. Finding literatures that considers the context of Ethiopia was also made the study tiresome. Consequently, the experiences of other countries schemes have been incorporated by considering their extent of relevance.

1.7 Significance of the Study

First of all, the study would help the policy makers to compare different investment strategies with their outcomes and hence to adopt a more appropriate pension fund strategy. The research on the investments would also be helpful to pension fund managers so as to adhere investment strategies that make the fund sustainable and profitable. Moreover, pensioners and their families could also be benefited from this research indirectly. It is because the result of this study helps the social security agencies to identify ways to raise the profitability of the fund. This implies the pension fund members will benefit from the investment return.

On the other hand, this study could also contribute not only practically but also academically. It is to mean that the study has cognitive significance by adding knowledge in pension fund management into the already existing one.

1.8 Organization of the Study

This thesis contains five parts. The first section is an introduction which includes background of the study, statement of the problem, research questions, and objectives of the study, significance, scope, limitation and organization of the thesis. The second chapter provides review of related literatures. In this chapter, definitions, concepts and theories of pension fund investment are presented. Further, the history of pension fund, other countries' experiences, empirical researches and conceptual framework of the study are discussed in detail. In the next chapter the research methodology that is followed in the study is discussed. This includes the research paradigm, sampling design, measuring instruments and data analyses. The fourth section of the thesis consist data analysis, research findings and interpretation of the results. The summary of findings, conclusion and recommendation part is presented in the last section.

Chapter Two: Literature Review

2. Introduction

Literature review component of the study deals with the concept and definitions of social security, pension trust fund and pension trust fund development. It also includes review of basic issues related to pension trust fund investment, Investment policy, and Investment regulations, about the risks of pension trust fund investment and the management practices of pension trust fund and also general best practices of pension trust fund investment. It also constitutes the practices of other countries and empirical researches done related to the issue.

2.1. General Concepts and Definitions

2.1.1. Social Security

Social security or social protection is the protection which society provides for its members through a series of public measures against the economic and social distress that otherwise would be caused by the stoppage or substantial reduction of earnings resulting from sickness, maternity, employment injury, unemployment, invalidity, old age and death or other distresses. It can be given through the provision of subsidies for families with children or through medical care or other based on the covers provided by the country (ILO, 1989).

2.1.2. Pension Trust Fund

"Pension trust funds are an accumulated assets contributed by sponsors and pensioners to provide for the deferred future pension entitlements of beneficiaries" (Davis, 1995).

"They are also a type of funds that collect pool and invest contributed by sponsors and beneficiaries to provide for retirement income of beneficiaries" (Bodie & Davis, 2000).

According to the above two definitions pension fund is established by the contribution of both sponsors and Pensioners in response to the consumption demand of beneficiaries at retirement period. This could not only be achieved by collecting the trust fund from employees and sponsors, it also demands the development of the fund through investment.

2.2. Review of Basic Issues Concerning Pension Fund Investment

2.2.1. Preconditions for Pension Trust Fund Investment

There are different pre conditions those different authors such as G. Colin 2001, . T. John 2006, B. Clive 2008 & L. Denispropose 2010 as the most important pre conditions before pension trust fund investment. Some of them can be the existence of a well-designed structure of investment organization which does the investment activity alone; obviously there should also be skilled man power. But most importantly most authors agree that there must also be a well performing security market in a country before the country employ a pension fund investment strategy.

The issue arises as to whether securities markets are preconditions for the development of funded pension schemes or whether funded schemes may emerge first and then stimulate capital market development.

According to International Labor Office (2009) although funded schemes could develop on the basis of loans or properly investment their greatest comparative advantage is in the capital market. Loans require monitoring. So, the customer relationship may give banks a comparative advantage there but trading and risk pooling are more effectively undertaken in the capital markets where transaction costs are lower. Therefore, capital market facilitates development of funded pensions at least those managed on decentralized basis.

The International Monetary Fund IMF (1997) also confirms that countries must have at least fairly well established financial markets before funded pensions can be put in place as well as considerable regulation and supervision to avoid and excessive risk taking.

Therefore from the above arguments the existence of a financial or security market has an advantage for the fund's effective investment but that doesn't mean investment of the fund is only going to be effective in the existence of security market it can also operate without the existence of it by investing the fund in a profitable business areas by critically managing investment risks and sometimes by taking the risks.

2.2.2. Principles of Pension Trust Fund Investment

According to International Social Security Agency ISSA (2005), social security funds are held by social security schemes in order to safeguard the scheme's ability to pay benefits and provide services to generate investment income that helps to finance benefits and services and in many instances ,to ease transitory demographic pressures.

In 2005, International Social Security Agency (ISSA) provides social security funds investment guidelines that any social security fund should follow by adopting it with their specific situation. Within the document guidelines related to governance prerequisites, governance structure, governance mechanisms and largely investment of social security pension funds are outlined.(Hiwot, 2012)

Key Principles

There has been a number of underlying investment principles which have guided the evolution of the trust Fund structure. These principles will be as important in the future as they have been in the past. According to FUND (2013) the key principles are as follows:

Long-term perspective – by the nature of its liabilities and sponsor covenants, the Fund is able to take a long-term view and position its investment strategy accordingly.

Diversification – the Fund seeks to diversify its investments in order to benefit from a variety of return patterns. Diversification is a risk management technique that mixes a wide variety of investments within a portfolio. The rationale behind this technique contends that a portfolio constructed of different kinds of investments will, on average, yield higher returns and pose a lower risk than any individual investment found within the portfolio. According to Paul C. (2012) "Diversification is a technique that reduces risk by allocating investments among various financial instruments, industries and other categories. It aims to maximize return by investing in different areas that would each react differently to the same event." In finance, diversification is the process of allocating capital in a way that reduces the exposure to any one particular asset or risk. A common path towards diversification is to reduce risk or volatility by investing in a variety of assets. If asset prices do not change in perfect synchrony, a diversified portfolio will have less variance than the weighted average variance of its constituent assets, and often less volatility than the least volatile of its constituents. (Russell, 2014)

Efficiency – the Fund aims to achieve an efficient balance between investment risk and reward.

Competitive advantage – the Fund’s size, time-perspective and risk appetite give it some competitive advantages which it seeks to exploit.

Pragmatism – the Fund recognizes that there are implementation considerations including cost and manageability which may lead it to favor practical investment solutions over optimized model structures.

As we can understand from the above principles of pension fund investment by Fund 2013, it sincerely approves the need to invest the fund in long term and diversified investment opportunities to benefit from verity of returns by balancing investment risks and rewords. Therefore investing the pension trust fund in profitable investment opportunities is supported by international pension trust fund investment principles.

There is also another view about the basic principles of investment According to Cichon, (2002) it stresses on four basic principles that should govern the investment of social security funds. The first three are the same as those related to other fiduciary institutions which are Safety, Yield (return), and Liquidity. However, once these basic conditions have been met, another factor should also be considered, reflecting the responsibilities and importance of social protection scheme in the national economy that is Social and economic utility.

Safety: is the overriding requirement for social security system because the system administers a trust fund and the responsible government bodies are trusted with the management of other people’s money. That is why strict rules have to be observed regarding the safety and control of investments. Therefore, the responsible government bodies should insure the nominal value of invested capital is recovered with the regular payment of interest. But it is difficult to control the depreciating value of money and formal safety is not sufficient. The body in charge of investment should therefore try to maintain the real value of the invested amount as well as their real yield.

Yield: is also essential because it should govern the choice of comparable assets in which to invest the social security trust fund. But the yield cannot have a great influence on the schemes financial equilibrium. Therefore it is not necessary for the investment of the contingency reserve to seek investment with the highest yield as a principal consideration. On the other hand, as far as the technical reserves of a pension insurance scheme are concerned, yield is of fundamental importance. Actuarial calculations are based on the long term interest rate because of that the investment of technical reserve must earn interest at least corresponding to the technical rate of interest or otherwise the scheme will have to face an actuarial deficit.

Liquidity: Social security funds heavily depend on the liquidity of the assets held in investment. Because the contingency reserves of short-term benefits scheme should be placed in liquid investments that are easily convertible in to cash were as the technical reserve of pension scheme primarily intended to earn Interest and do not require a high degree of liquidity.

Social and Economic Utility: if the conditions of Safety, yield and liquidity are fulfilled the economic and social utility of the investment should be taken in to account in an investment policy of a country. Because it is the most important goal of social protection scheme to invest the fund in a way that it directly or indirectly contribute to improvement of the insured person's life. Therefore, investment should be easy to manage and it is important to not divert management of the fund from social security's primary objective that is effective provision of benefits.

2.2.3. Management Issues for Mandatory Pension Fund Investment

In basic sense institutions which are active in investment especially in mandatory funded schemes face the same problem as other investors in the economy basically on investment management. This is to achieve an optimal tradeoff between risk and return by collection of the portfolio to appropriately diversified combinations of assets.

According to the International Labor Office, (2009) appropriate investment management strategy will first depend on the nature of the obligation incurred, whether it is indexed or nominal and the demographic structure of the work force. But in all cases;

- The liability will be influenced by interest rate, real earning and inflation.
- Investment strategies will be influenced by the minimum funding rules imposed by regulating authorities.
- There is an incentive for profitable companies to over fund, to maximize the tax benefits as well as to provide large contingency funds.

2.2.4. Investment Regulations of Pension Fund

Pension investment regulations are meant to ensure that pension funds adopt appropriate diversification strategies and minimize agency, systemic and portfolio risks (Kyiv, 2003). Kyivalso argues that the regulations should spell out the ceilings beyond which pension funds should not invest in any specific category or class of investments to enhance financial efficiency.

Pension funds in unrestricted investment environments generate more returns than those operating in the restricted environments (Quigler, 2009). The failure to restrict pension fund investments results in the application of the prudent man principle and thus concentrates on high return assets as opposed to the low return assets. In addition, investment restriction minimizes creativity and tends to focus more on the long-term objectives at the expense of the short-term ones (OECD, 2009c). A disclaimer is however that the high returns are obtained in the context of high risk.

Pension fund investments can be controlled through asset class (ceiling on the proportion of specific classes in a pension fund's portfolio), concentration of ownership (ceiling on the proportion of shares of a company that a pension fund can hold), by issuer (ceiling on the proportion of assets in a fund's portfolio issued by the same institution), by security (ceiling on the proportion of individual securities in a fund's portfolio) and by risk (minimum acceptable risk rating of securities). Investment regulation is therefore done to balance the investment risksand returns (Srivanis, 2000).

It is furthermore, important to control offshore investments as many pension fund managers are not well experienced to take external risks, capital markets in the international environment are reducing liquidity as a result of the global economic meltdown, they involve huge risks and the transaction costs involved are high (OECD 2009c). OECD therefore suggests a restriction on international investments to ensure a fair equilibrium between pension fund risks and returns at lower costs.

Kyiv (2003) however identifies three adverse effects of asset allocation regulations. They in clued the creation of systematic market risk implying that higher returns can only be achieved if one takes more risk; pension funds ending up controlling large shares of markets in which

they investment the markets less liquid and the development of capital markets are being hindered. Kyiv
(2003) thus advocates for careful investment restrictions that lead to pension fund growth without taking undue risk.

2.2.5. Investment Policy of Pension Funds

Parties responsible for the investment management of pension assets should establish an investment policy and describe it in a written statement. This should be required regardless of whether the investment regulations use the prudent person standard, portfolio limits or some combination of the two. An investment policy should be established regardless of plan type, whether defined benefit or defined contribution. As noted in the guidelines, pension programs that include member direction may be required to address additional or different issues in their investment policies. Similarly, the investment policies of defined benefit plans may differ from those of defined contribution plans. In particular, the relationship between actuarial determinations, funding obligations and investment management is significantly more complex for defined benefit plans, and the relationship should be adequately considered in an investment policy. (OECD, 2009)
The investment policy should establish clearly the financial objectives of the pension fund and the manner in which those objectives will be achieved. The investment objectives should be consistent with the retirement income objective of the pension funds, and therefore, with the fund's liabilities. They should also satisfy the relevant legal provisions (prudent person standard and portfolio limits), and more generally, the principles of diversification, and matching of assets and liabilities (maturity, duration, currency, etc.). (Ibid)
The investment policy should take into consideration the short and long term obligations of the pension fund, including any necessary funding and actuarial matters that may impact on those obligations. Short term obligations include the obligation to pay benefits to those in or who will enter pay status (retirement); salaries, administrative costs and fees that are to be paid by the pension plan from pension fund assets; and anticipated costs arising from portability provisions that might apply to the plan.(Ibid)

Assets should be valued in accordance with generally accepted accounting principles. And periodic analysis of each asset class and the portfolio as a whole should be carried out to determine nominal, risk-adjusted, and inflation-adjusted (real) rates of return. The analysis of investments should be publicly disclosed.

2.4. Effects of Pension Regulations on Fund Performance

Reducing liability, increasing contributions and improving investment returns are ways that help to increase pension fund reserve. Among these options increasing investment return is more preferable though it is difficult to achieve. Its difficulty usually emanated from regulatory vacuum and lack of public accountability of the government. Experiences from countries such as Kenya and India delineate that pension funds used for other purposes rather than social security (Musalem and Palacious 2004).

Despite countries level of development pension fund management has been a challenge for every country. It is mainly because there is no universal and clear standard of best practice in the field.

Carmichael and Palacious(2003) assert that the ultimate goal of social security reform is to improve reserve liability ratio. Their findings show demographic characteristics of the population and the maturity level of the scheme determine the ratio. That is, the younger the population demographically, the better its ratio and vice versa. In addition countries with immature scheme will likely to have better reserve.

Other scholars give emphasis to political influence on the efficiency of pension fund management rather than demographical factors. Regarding to this, Hess and Impavido (2003) argue that social objectives should not be deemed as a principle of pension fund management as it may lead to low investment returns. Further they conclude that asset allocation decisions based on sound portfolio theory are more effective than political decisions. Their conclusion is more plausible to pension fund investment as their analysis is based on the concept of diversification which is acceptable by most of contemporary academicians in the area.

The performance of investment determined, among other things, by the governing body of public pension plans. The governing body could likely act in line with shareholders interest if and only if it has members who are elected from either active employees or retired beneficiaries. It is common in most of social security regulations to establish a committee that oversees and responsible for investment activities. New Zealand can be a good example in this regard. It has a fund management board that incorporates members from both the government side and investment expertise's (Holzman and Stigliz 2001).

For partially funded defined benefit schemes low return hasten the day when benefit must be cut or contribution raise. In the long run it will erode the credibility of the system. It has also political implication in the sense that when contributors lost the return their relation with the government obviously deteriorated (Iglesias et.al 2000). Contrary to this, Michael Hurd (1997) advocates investment on government securities in which safety is high with "suitable" rate of return. However this conclusion about no need of investing in private market due to its inherent risks is solely based on findings from USA. Thus, Hurd's generalization is unlikely to be true in developing countries including Ethiopia in which capital market is very far from being efficient.

Many studies show that change in interest has an effect on pension funds investment return. As it observed in OECD countries decrease in interest rate leads to reduce pension fund investment return. Because minimizing interest rate will result low growth in the economy, low inflation (in both prices and salary) and finally low returns on investment, future pension benefits may also be lower (OECD, 2011). Barr and Diamond (2009) used a time series data set covering seventeen countries to investigate the impact of real interest rates. The study computed the real rate by simply subtracting annual inflation rate the nominal bond rate of return. Though, that measure implies a mismatch of the time horizon for the nominal interest rate and expected inflation that may have distorted their estimates of the implied real rates. The study reported a significant positive correlation exist between real interest rate and rate of return on investment income.

2.5. The Risks of Pension Trust Fund Investment

Corporate executives have traditionally defined pension fund risk in terms of a trade-off between risk and return on the assets built up against their fund obligations. But assets do not exist in a vacuum, seeking return and avoiding risk for their own sake.

Therefore, it is the investors who should consider the risks and the returns and invest the fund in relatively low risky and high return areas. But this shouldn't be done without market analysis and accounting information.

> *For U.S. investors it has taken the arrival of the Financial Accounting Standards Board (FASB) ruling 87 to bring the variability of pension fund liabilities to front and center. Because a primary goal of accounting procedures is to provide interested parties with consistent and reliable information about the resources the corporation has to meet its liabilities, FASB 87 focuses on the pension fund surplus meaning the difference between the Pension plan's assets and its liabilities. The result, from an investment policy standpoint, is belated awakening to the simple ideas that the assets must have some systematic relationship to the character of the liabilities they fund. Implications for asset allocation management can be profound* (Robert, Peter, & Alan, 1991, p. 29).

Therefore, by considering the asset and liabilities of the fund in addition to considering the investment risk and return investors can safely get the fund scale up through tradeoff between risk and rerun and asset and liability because there is no investment with remarkable profit without risk.

2.6. Investment Risk Management of Pension Trust Fund

Risk management is the decision making process of considering risk-return trade-offs and optimizing stakeholders' targets (Kocken, 2006).

As to the above definition risk management is satisfying stockholder's target of maximizing wealth through decision making in consideration of risk return. But other authors have defined it in a broader sense. According to Frozen (2010,p: 33) a broad definition of risk management is applied.

> *… Risk management is understood as a process that starts on the strategic level, first, with analyzing and defining the relevant risk factors for the pension fund and its' stakeholders, second, deciding on the acceptable and desirable amount of risk to be taken, and which then continues on the operational level with the process of measuring and controlling risk. Risk is understood as something subjective, linked to the individual profile of a pension fund and its stakeholders. This differs from the bulk of the investment-banking orientated body of literature on risk management which usually defines risk in an objective way not differentiating according to the needs of different investors or stakeholders*

This definition considers risk management as a strategic issue and it will be cascaded to each level of the strategy. It is understood as something subjective which differentiates according to the needs of different investors.

Therefore, risk management can be understood as a decision making process by taking risk return trade of in to consideration and in accordance with the objective of maximizing the wealth of the beneficiaries (stockholders) and also it is considered as a strategic issue which is going to be performed at each level of strategy subjectively according to the management style of the engaged investor.

2.7. General Best Practices of Pension Trust Fund Investment.

In order to maximize the effectiveness of a pension scheme's investment strategy, there are some high level principles that may be applied to design a successful investment strategy and of course high quality governance lies at the heart of an effective investment strategy. According to Jonathan & Neil (October 2010) the basic mechanisms of making the pension trust fund investment effective are:

1. Maximize the pension scheme's governance budget.
2. Tailor the scheme's investment strategy to the scheme's governance

1. **Maximize the Pension Scheme's Governance Budget.**

To maximize the pension scheme's governance budget effective investment governance is very important. It is perhaps not surprising that the best governed funds tend to perform better than less well governed funds. Basically A pension scheme's governance budget comprises of three pillars:

- The time available to make investment decisions
- The expertise of the decision makers
- The organizational effectiveness of the decision-making body

The first of these pillars is largely outside the control of the scheme, however the authors discussed a number of steps that schemes can take to maximize the second and third. One of them is effective delegation. In practice, this often means separating governance into a governing function. Which sets the framework, monitors and controls it, or it can also mean separating into an executive function which makes investment decisions within the given framework and implements the investment strategy.

Best practice funds should include a clear separation of governing and executive functions, with a strong culture of accountability. Furthermore, the executive function should have a high level of investment expertise, enabling the pension scheme to access more complex investment strategies.

Ideally, the executive function should be led by a strong Chief Investment Officer (CIO) (appointed by the governing function) with a very high degree of investment expertise. For schemes lacking the internal resources to set up a separate executive function, an alternative is to delegate certain, clearly defined, investment decisions externally, e.g. to an investment consultant or fund manager. In this case, accountability and alignment of interests is particularly important.

The other step discussed by the authors is clear objectives and commitment from all stakeholders to these objectives. But the objectives must be formulated in a policy document that all parties have agreed to and had a stake in formulating because it helps to minimize agency conflicts. In practice, this could mean helping to align the interests of all the stakeholders involved in running the scheme.

The third step to maximize the expertise of the decision makers and the organizational effectiveness of the decision-making body in order to increase the pension scheme's governance budget is creating clear investment beliefs .An investment belief might be characterized as a high level assumption about how to view investment markets or regarding what works best for a particular scheme. It should help to improve the quality of decisions taken and can act as a benchmark by which to judge the suitability or deficiency of a particular investment decision, as well as encouraging the critical examination of these beliefs.

The last step suggested by the authors Isa risk budgeting frame work which injects discipline into the investment process by forcing the scheme's trustees to think about rewarded and unrewarded risks and balancing risk and return on each investment choice.

2. Tailoring a Scheme's Investment Strategy to its Governance Budget

It is important that schemes align their investment strategy to their governance budget. Failure to do so can mean introducing too much complexity for the scheme's governance to cope with, which in turn can lead to expensive or ineffective investment strategies. The following principles can help schemes map an effective investment strategy onto their governance budget.

- Governance resources should be allocated to growth/liability matching assets at high level.
- Schemes with a very limited governance budget should primarily look to adopt low cost /low complexity investment strategies and wish to consider accessing more sophisticated strategies via pooled instruments such as diversified growth funds.

Generally speaking, it requires less governance to add value via diversification, than via active skill strategies. For example, schemes might wish to look to diversify their market exposure beyond traditional equity investments before looking to selecting a large number of actively managed funds.

2.8. Other Countries Experiences

Many countries apply rules that directly or indirectly force public pension fund managers to purchase government bonds or to lend the money to government agencies for public work in the country. For example in US purchasing government bonds was the only investment allowed. The Japanese Reserve funds were also largely invested and lend money to government agencies before their 2001 reform, for public works in the country (Hiwot, 2012). The same was true in Ethiopia, before the amendment of the proclamation in 2011. But after the amendment the proclamation allows investing the trust fund in other sectors with the permission of the ministry of finance and economic corporation (MOFEC).

Since it is very difficult to show all countries experience in a single study and it is essential that the countries experience should be comparable to Ethiopia the study assess much related experiences from Africa and outstanding performances from Europe and North America. It is in the sense that to take a country as a bench mark to Ethiopia. The country must have similar but not necessarily identical fund management system. According to this, the thesis assesses the experience of Tanzania from Africa, Germany from Europe and Canada from North America.

As per the national social security policy of Tanzania (2003), the governing structure is participatory in a sense there are representatives from employees and pensioners in the decision making process of social security activities including the fund's investment. There policy also considers the investment activity as imperative determinant for the scheme.

Tanzania's policy also recognizes investing the pension fund only on government securities hinders the fund from getting high return and it has an adverse effect on its sustainability. Therefore, the policy permits diversification of investment portfolios on opportunities such as commercial loans, real states, government securities, loan able funds, bank deposits and equities. This has helped the system from disappointing employees and pensioners through cutting benefits and increasing contribution rate.

Though the policy permits investment in profitable private portfolios it also emphasizes on investing greater portion of the fund in on very low risk assets and relatively lesser portion on private stock market aiming to allocate the assets in an efficient manner.

German pension funds are regulated and supervised by the insurance division of the Federal Financial supervisory authority Called (BaFin‘), which operates since 2002 as integrated supervisor for banks, financial service providers, insurance companies and securities trading.(Frozen, 2010:33).

According to Frozen (2010), German's pension rules strictly adhere to quantitative investment rules, which are applied in two steps:

First, the regulator (the legally responsible body) defines the investment universe by specifying the asset classes which are allowed to invest in. That means investing in high yield bonds was allowed to be 5% at first and it grew gradually after wards to maximum of 35% investment on risk taking assets.

Second, the legally responsible body imposes limits in relation to the assets under management for the maximum investment per asset class or group of asset classes, thus legally prescribing and to a certain extent detailing the diversification principle which is central to modern investment theory.

That means; as mentioned above, investment up to 35 percent of assets in so called risk taking assets which comprises asset classes which has as highly diverse risk profiles as listed equity, hedge funds and high yield investments. But, the pension fund's individual risk taking capability determines the extent to which investments in risk taking assets are regarded as suitable, which in turns depends on the extent of reserve barrios or the implementation of hedge strategies. In this respect, German regulation is case based and risk orientated.

Further quantitative investment rules include the postulation that not more than 5%of the portfolio may be invested with the same debtor. This quota increases to 30% in case of German public authorities, international organizations and qualified banks.

In German investments in currencies other than the euro are closely limited. Firstly, at least 80 percent of the assets must be invested in the same currency in which the liabilities are denominated and secondly, assets have generally to be invested in the same country where the liability was generated.

Unlike many nations, the Canadian legislated requirements draw a sharp distinction between the investment mandate of the Canadian Pension Plan Investment Board (CPPIB) and that of public funds in many other nations For example, unlike pension funds in Japan, Korea, and the

United States, the Canadian Pension Plan Investment Board (CPPIB) is only required to make funds available to government if it is decided that a bond portfolio is to be built but the CPPIB has not yet built one. Furthermore, it is not required to make loans to state-owned firms, it is not required to make social investments, and it is not used to implement economic development policy, as occurs in many other nations, including Sweden, Japan, and Iran (Hiwot, 2012).

2.9. Studies on Pension Fund Investment in Ethiopia

So far, in Ethiopia, much attention has not been diverted in investigating the challenges of managing investment of pension trust fund. Although, unpublished master thesis Hiwot (2012) conducted a study on Practices and challenges of Ethiopian social security agency pension funds investment and concluded that it is difficult to gain confidence in the sustainability and in meeting the investment objectives of the fund because of the attainment of unsatisfactory return on pension funds investment, less diversification and inefficient investment practices. The paper also recommended in giving due consideration on investing in private equities such as real estate, mortgages, bonds and equities and also investing in a cross-section of business sectors like financial bank ,insurance ,Micro Finance Institutions, sector bonds and equities etc. and also around establishment of equipment leasing companies like buying sits in Ethiopian commodity exchange. But the study didn't assess the managerial challenges in investment of the trust fund in detail. In addition, it was conducted only on public servant's social security agency.

There are also other studies mentioned as conducted in the thesis of HiwotAmare like unpublished thesis of Gebrehiwot (2003), which is a study done on Investment outlets for SSA pension funds. It presented the absence of securities markets, particularly the absence of a wide range of alternative financial assets of long maturity to invest as the reason for the limiting SSA pension fund to low return funds and recommended on possible domestic alternative investment assets including stocks as investment outlets for SSA pension fund.

The other was a study done on social security authority by Tarekegne (2004) which was done concerning managing pension funds and revealed that the scheme had been investing only on government securities and banks (government banks) which are less risky and have low return.

However, it is noted that the investment of the authority is limited to governmental tools because of the absences of pension fund investment policy designed by social security authority (SSA) and results in inefficient fund management. The study also found that it is the government appointee in the board that decides on investment issue of the authority. There are also other few studies such as Mulualem (2002) which was done on the issue of accounting and management of pension funds of Social Security Authority and Abebe (2003) which was done on development of social security practice, problems and prospects of pension plan in Ethiopia.

Therefore this study contributes on effects of pension fund regulations on the performance of social security investment in Ethiopia and try to evaluate the effectiveness of pension fund investment of Public Servants Social Security Agency (PSSSA) and Private Organizations Employees' Social Security Agency (POESSA); to answer how government regulations has been affecting investment activities of pension funds of the country. Recommending possible ways of overcome the stated research problem and to come up with recommendation in line with the scope of the study.

2.10. Conceptual framework

Pension fund investment in Ethiopia is currently being conducted by the two organizations POESSA and PSSSA. In pension fund management, investments portfolio or asset mix is crucial. Furthermore, while considering the present investment opportunities it is appropriate to see the portfolio mix and while identifying the unutilized investment opportunities, considering better profitability through diversification but most importantly in accordance with the principles of pension fund investment like safety, liquidity and social harmony. However, there is no single benchmark to prefer one asset to the other. It is principally because of the reason that countries differ in their situation substantially. In those countries which are characterized by emerging economy , infant capital market, less investment experiment and defined benefit pension more strict pension portfolio regulations or policies are mostly practiced. Because of that the return generated by those countries is very low.

Purpose of any investment policy statements and regulations is to provide framework to the management of pension assets with acceptable risk levels and it provides the investment managers with written statement of specific quality, quantity and rate of return standards (IMF, 1997). Most policies and proclamations are ways of restricting or allowing pension trust fund administration activities including its investment.

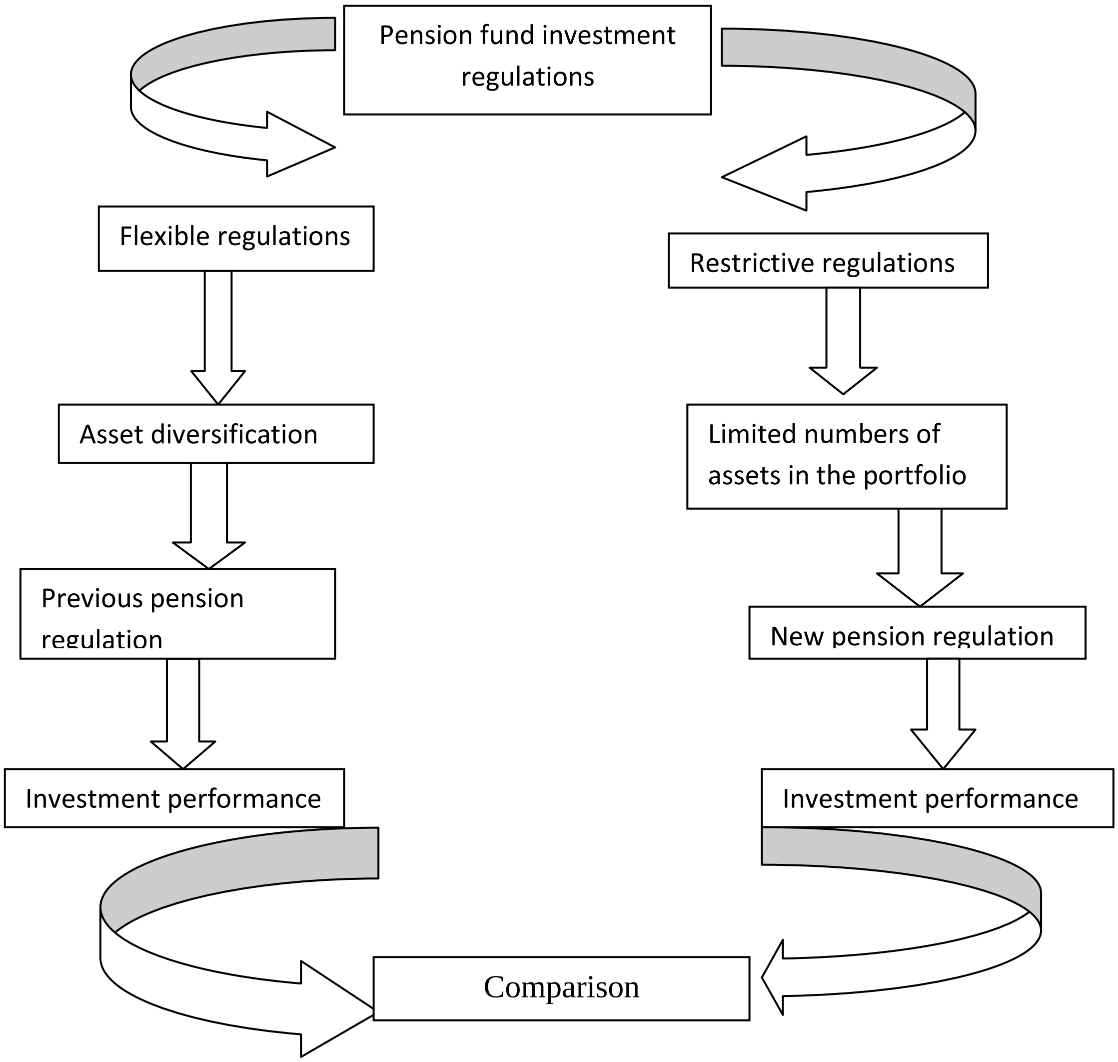
According to the International Labor Office, (2009) appropriate investment management strategy will first depend on the nature of the obligation incurred, whether it is indexed or nominal and the demographic structure of the work force. This is because investment management involves risk management, human resource management and management of accounting information in a direction of investing and developing the pension trust fund.

To see the extent of losing profitability the nominal and real rate of return compared to inflation, the growth of contribution and return from investment and also the level of return generated from current investment compared to other investment opportunity which can generate better return must be critically observed. This will be helpful to measure the real performance of the pension fund investment.

In addition to that, the challenges of managing pension trust fund investment considering internal challenges and external challenges, with its governance structure and capability of employees, participation of pensioners and their awareness about the investment activities of the organizations must be assessed. Finally the effect of return from investment and pension salary payment, Furthermore, the influence of all this challenges on the investment activities of the organizations and possible solutions to overcome the identified challenges must be stated.

To scrutinize how the social security investment regulations has impact on the investment performance of pension fund this research compare the investment performance of the fund under the new proclamation with that of before the enactment of the proclamation.

Figure 1.1 The summery of concepts



Source: Adapted from Davis (2002) with some modifications.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The aim of the study was to evaluate the effect of the pension fund regulations on the Ethiopian pension schemes investment performances. This chapter presents the methods and procedures used to meet the research objectives. The process followed to answer the research questions are presented in 8 sections. The chapter comprises research paradigm, research design and strategy of the research, type of research, selection of variables, sources and methods of data collection, sample size and sampling procedures, methods of data analysis.

3.2 Research Paradigm

A paradigm is simply a belief system (or theory) that guides the way we do things, or more formally establishes a set of practices. This can range from thought patterns to action. According to Saunders et al. (2009) there is a research paradigm continuum comprising three main research paradigms, namely the positivistic paradigm, the interpretivist paradigm and the critical realist paradigm.

For positivists, science was seen as the way to get at truth, to understand the world well enough so that we might predict and control it. The world and the universe operated by laws of cause and effect that we could discern if we applied the unique approach of the scientific method. The positivist believed in deductive reasoning, empiricism (observation and measurement), and experiment (the attempt to discern natural laws through direct manipulation and observation) (Kothari 2004). The aim of quantitative research design is to determine relationship between quantitative variables or to compare groups whereas the qualitative design involves items that are not explicitly measurable.

Interpretivism and Critical Theories are two alternatives to Positivism. The former refers to the belief that social world is not given rather it is produced and reinforced through human actions and interactions. Interpretations of reality change with time, circumstances, objectives and constituencies. Conversely critical theorists argue that social reality is produced not only by humans, but also exists objectively and dominates human experience. Accordingly, this study was undertaken in line with the critical theory paradigm. It is because most of the issues in which the study revolves around exist objectively while there are also few realities which need human interpretation such as justifications for the restrictiveness of the current pension fund investment.

3.3 Research Design and Strategy

This study evaluates how the current pension fund regulation affects the investment performance. Most of the variables are quantifiable but not all. Consequently, this study adopted mixed research approach since the analysis was based on data which gathered through both quantitative and qualitative approaches (Saunders *et al.* 2009). This approach enables the researcher to scrutinize and deeply understand the interface between pension fund regulations and the investment performance of social security agency of Ethiopia.

The strategy of this study was case study. Due to time and economic constraints it is very difficult, if not impossible, to study the relationship between pension fund regulations and investment performances of every schemes of the world. Thus the study employed PSSSA and POESSA of Ethiopia as cases to evaluate the extent in which the pension fund investment performance was affected by the regulations.

3.4 Types of Research

In line with the objectives, the study employed descriptive as well as exploratory research types. The descriptive type was used to depict the trend of pension fund investment performance. It was also used to portray the contribution of investment performance to the overall status of the pension fund. On the other hand, exploratory type of research was employed to have insight on how the pension fund regulations have been affecting the investment performances of social security agencies in the case of Ethiopia.

3.5 Selection of Variables

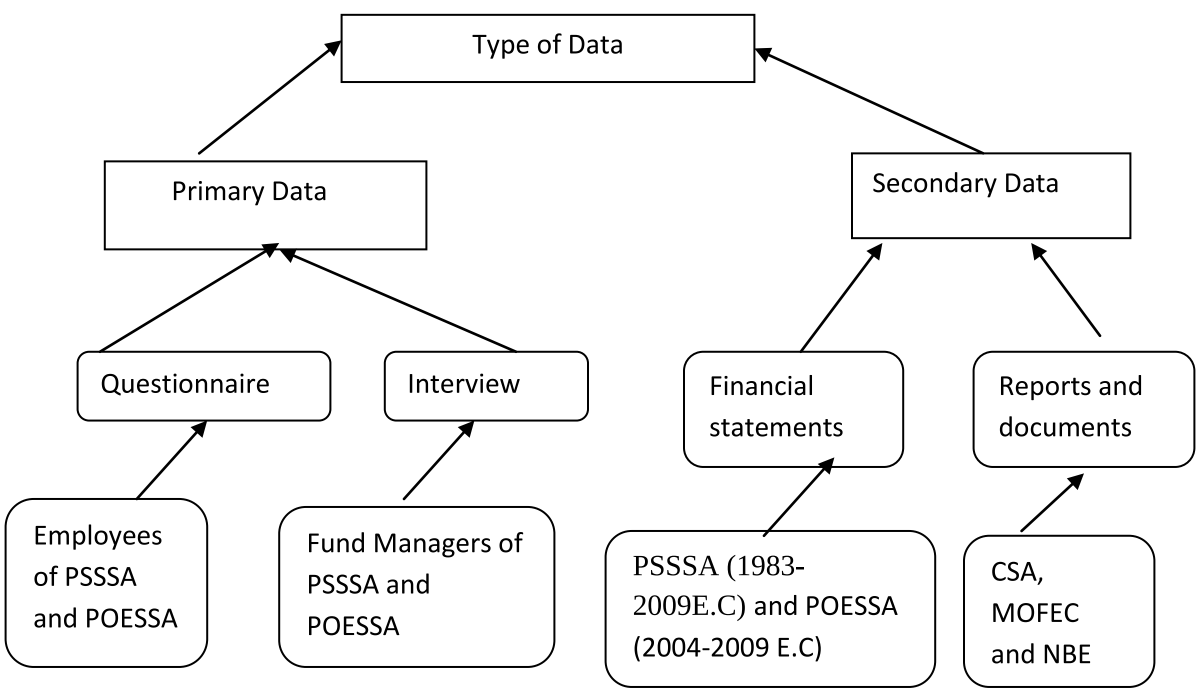
To realize the research objectives the variables were purposively selected. In the study independent variables were pension fund regulations which consists private and public pension proclamations, directive of MOFEC on investment activities of pension funds and policies of the pension funds under consideration. The dependent variable, on the other hand was the investment performance in particular and the status of the fund in general.

3.6 Sources and Methods of Data Collection

3.6.1 Data Sources

The data was gathered in line with the principle of Triangulation of data sources so that the reliability of data can be upgraded. The main source of data for the study was document analysis while questionnaires and interviews were also used. Data collected from Primary and secondary sources for the research. The utilization of both sources helps the researcher to gain deep knowledge on the subject under study. It is also enabled to get the fact by means of cross checking. Accordingly, the study employed primary sources of data which are questionnaire and interview. Financial statements of PSSSA and POESSA were used as a secondary data sources for the study. The following figure shows how the data was collected from different data sources.

Figure 3.1 Types and Sources of Data



Source: Developed by the Researcher, 2018

3.6.2 Primary Data Collection

Primary data was acquired from questionnaires and interview. Questionnaires were employed to gather the primary data. The questionnaires administered to officers of the social security agencies. The total number of questionnaire distributed to gather primary data was 109. Moreover, four fund managers who could give reliable information were selected to the interview but one of them was not around during the data collection period.

3.6.3 Secondary Data Collection

To answer the research questions the yearly financial statements of PSSSA and POESSA were analyzed. The time series data has covered from 1983 to 2009 E.C of PSSSA while it was 2004 to 2009 for POESSA. The secondary data was excerpt from academic publications by various authors to explain and justify the techniques employed in this research work, as well as data from annual reports of National Bank of Ethiopia, CSA, and MOFEC. The data was also collected from books on pension funds, news reports, and journals and other publications whenever deemed as relevant to the study.

3.7 Sample Size and Sampling Procedure

The credibility of a research principally depends on how good the research sample is. That is, the method for arriving at the representative sample is very important so as to increase the validity and the generalizability of the result. The choice is dependent on the type of information the study aims to collect. This study depends on the information gathered from social security agencies in the country with a particular emphasis on management of investment activities.

For qualitative data, the total number of the targeted population was 149 employees who have been working at least two years in social security agencies of Ethiopia. The work experience is needed due to the information demanded that includes the trend of performance and other retrospective issues. The questionnaire administered for 109 randomly selected employees of the two agencies. Random sampling is needed because it enables the researcher to generalize the findings from sample to the total population (Kothari 2003).

The number of administered questionnaire was 57 and 52 from PSSSA and POESSA, respectively. This allocation of questionnaire is based on proportional sampling method in which ‘the sizes of the samples from the different strata are kept proportional to the sizes of the strata’ (Saunders *et al*2009). After determining the number of respondents from each organization, the respondents from each group were selected based on simple random sampling. According to Kothari (2003), it is sound to use simple random sampling when the population is known and the list is available Thus, sample is determined based on the following formula:

$$n= \frac{N}{1+N(e)^2} = \frac{149}{1+149(0.05)^2} = 108.5$$

Where:

n=Sample size

N= target Population

e= sampling error 5% or 0.05 at 95% confidence interval

According to the above computation the sample was determined as 109.

3.8 Data Analysis

Data analysis is a process of converting large data into easily understandable format. Accordingly this study employed both quantitative and qualitative data and the data were analyzed using SPSS and excel.

3.8.1 Quantitative Data Analysis

For the descriptive and exploratory purpose of this study different form of data was applied. The yearly investment returns made by the pension funds of Ethiopia was analyzed based on internationally accepted measurements. To evaluate the investment return HPY, average IRR, Arithmetic average and Geometric average were utilized. Regarding to risk the study employed absolute measurements of risk (variance and standard deviation) as well as the relative measurement (coefficient of variation) of risk. Ratios were also used to evaluate the contribution of the return to the fund status.

The effect of inflation on the fund has also been examined to assess the real rate of return of the funds and hence the fund performance. Through the questions administered for respondents who have different level of information about the social security researcher has scrutinized how the diversification of asset affect the performance of the investment.

The collected data was edited and processed using Microsoft Excel and Word. To be sure about the real relationship between the regulations and investment performances statistical analysis was followed by using SPSS version 20. The chi square test employed to examine the relationship between characteristics of respondents and their perception on a certain variable. The Paired sample t-test was performed so as to compare the nominal as well as the real rate of returns of before and after the new proclamation. The independent t-test was also performed to compare the performance of PSSSA and POESSA after 2004E.C. To present the findings the researcher also used tables and charts as well as statistical results.

3.8.2 Qualitative Data Analysis

The questionnaire was consisted some open ended questions. Responses for these questions were coded and categorized so that deep information about the investment activities of the schemes can be obtained from employees. The interview with the fund's managers have also included in the analysis.

The claims of employees were cross checked with the evidences from the documents. In line with the objectives of the research the information acquired through quantitative and qualitative data were mixed. This helps the researcher to obtain valid results by triangulation of data.

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Demographic Characteristics of the Respondents

In this section, respondents' characteristics are presented. Based on their response, respondents' gender, educational status, the organization in which they work and their experiences in social security agency are analyzed as follows:-

Table 4.1 : Characteristics of Respondents

Variable	Measurement scale	Frequency	Percentage
Gender			
	Female	51	52.6%
	Male	45	47.4%
	Total	**96**	**100.0%**
Educational Level	Below Diploma	10	10.4%
	Diploma	29	30.2%
	Degree	53	55.2%
	Masters	4	4.2%
	Total	**96**	**100.0%**
Respondent's Organization	PSSSA	57	59.4%
	POESSA	39	40.6%
	Total	**96**	**100.0%**
Years of Experience	2-5	30	31.6%
	6-10	30	31.6%
	11-15	22	23.2%
	16-20	9	9.5%
	Above 20	4	4.2%
	Total	**95**	**100.0%**

Source: survey data, 2018

As it can be seen from the above table the number of female respondents is almost equal to that of males. That is, 52.6% of respondents are male while the remaining 47.4% are female. Regarding to education level, the majority of the respondents are degree holders (55.2%) followed by respondents who hold diploma (30.2%). This shows most of the respondents are in the level to understand the questions related to the investment activities of the fund. The respondents can also be categorized into two based on the organization they are belonging to. As shown above the greater part, 59.4%, of them are employees of Public Servants Social Security Agency (PSSSA) while the remaining 40.6% are from Private Organizations Employees Social Security Agency (POESSA). That is, the difference in sample between PSSSA and POESSA is the representative of the difference in the target population between the agencies. As the work experience is considered, it indicates not the respondents' whole years of experiences rather only those years they were working in social security agencies. About 60 % of the respondents have 10 or fewer years of experiences whereas the remaining 40% employees have been working above 10 years in social security agencies. This helps to compare the view of those less experienced workers with that of highly experienced employees in the subject matter.

4.2 Response Rate

The total number of targeted population was 149 of which 89 were from PSSSA and 60 from POESSA. By using proportional random sampling 57 and 52 employees were selected from PSSSA and POESSA, respectively. Accordingly, the number of questionnaires distributed to employees of PSSSA and POESSA were 109. Among these 96 of them were filled by respondents. Therefore, the response rate is about 88.1%.

4.3 Investment Performance of Ethiopian Social Security Funds

The performance of investment can be measured in various ways by employing different mechanisms. However, every performance measurement required to depict not only the fund's level of yield but also its effectiveness in minimizing risks. Accordingly, there are means of measurements of return such as arithmetic and geometric mean. To measure risk it is common to use standard deviation which is the absolute measure of risk. Variance and coefficient of variation are also other measurements of risk.

To show the trend of performance of the agencies with regard to investment activities the paper utilized time series data. The data contained investment return, invested amount, amount of contribution, pension payment and cost of administration. The time covers from 1983 to 2009 E.C to examine the PSSSA's investment performance while it covers 2004 to 2009 E.C in the case of POESSA.

4.3.1 Investment Performances of Public and Private Employees' Pension Funds

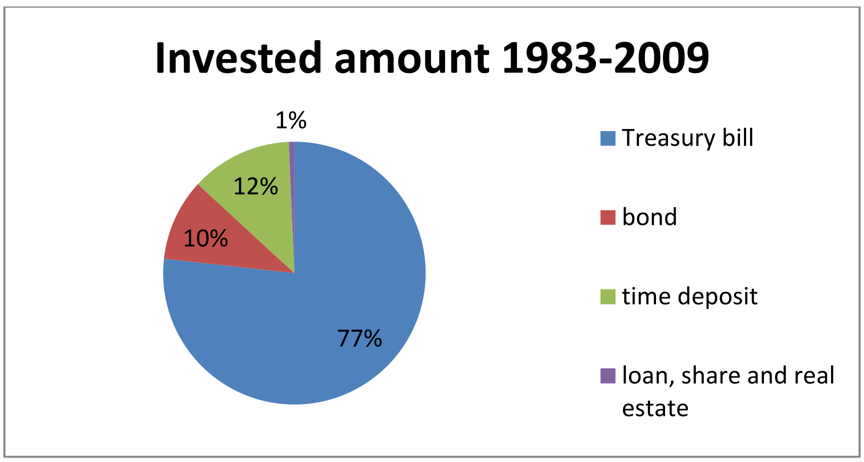
For more than five decades the social security of Ethiopia has been invest its reserves on a limited number of assets. The investment activity has been also considered as one of the major activities of the fund as collection of pension contribution and pension payment to beneficiaries. In fact, these major tasks of the fund are strongly dependent on each other. Invested money can be obtained if and only if there is a reserve from collected money after reducing money for pension payment and cost of administration. On the other hand, the return from investment contributes to enhance the efficiency of pension contribution. It also affects both the effectiveness and the amount of pension payment.

However, it is questionable that to what extent the investment activity of the fund is emphasized by the managers of social security. It is questioned because the investment activity lacks clear and detail guidelines. In the early times of the agency, there was even no regulation about how to invest the reserves. Until recently, the fund's investment activity was guided by principles such as investing on highly profitable, less risky and sustainable investment areas without specifying how these goals are achieved.

Regarding to the fund's portfolio the reserve has been invested on areas including Treasury bill, government bond, share, loan, time deposit and real state. Nonetheless, it does not mean all these investments were in the fund's portfolio concurrently and consistently. Treasury bill, for instance, was included in the portfolio in the year 1990. Conversely, the attempt to invest in real estate was ended without fruit (SSA 2002).Yet it is included in the analysis since there was invested amount on the area which must be considered.

As the following pie chart shows the portfolio of the PSSSA's pension fund from 1983 to 2009 is dominated by Treasury bill. Though there was no investment on Treasury bill for the first six years, it accounts more than three-fourth of the total invested amount in the period under study. Bank time deposit and government bond had followed by 12% and 10%, respectively. The other investment activities (share, loan and real state) collectively account only 1% of the total invested amount. The principal reason for the dominance of the Treasury bill in the portfolio is the current regulation of the fund which restricts all other investment areas without first specified by MOFEC. It becomes very clear by comparing the percentage share of Treasury bill before the new regulation with that of after 2003E.C. From 1991- 2003E.C the average share of Treasury bill from the total portfolio was about 57.5% but now it grows by about 34% and reaches to share more than 3 quartiles of the invested amount.

Figure 4.1:Asset Mix in the Portfolio of PSSSA from 1983 to 2009 E.C



Source: own computation based on annual reports of PSSSA ,2018

In the 1983s, government bond was the predominant area of the fund followed by time deposit. In that time there was no clear specification criteria to select investment areas for the fund. As a result it, is very difficult to examine whether the portfolio is in line with the organization's obective. In the 1990s, however, the fund has guidelines which specify its ideal portfolio. In the guideline the fund had a strategy that limits the share of the Treasury bill into 15% while to significantly increase the share of other assets such as fixed time deposit, corporate bond and real estate. But the existing situation implies the fund fails to achieve its strategic plan which was designed in the 1990s. Although there is an improvement in recent years regarding to investment guidelines, there is still a doubt about the effectiveness of the portfolio.

On the other hand, the recently established POESSA invest its reserve entirely on Treasury bills. For the last six years no other asset is incorporated in the fund's portfolio. It is because the proclamation clearly restrict the fund to invest on "Treasury bond". The managers of the fund also affirmed there is no way to invest on other profitable assets though the proclamation indicates the possibility of doing so by first getting permission from the MOFEC.

The respondents position concerning to portfolio optimality and the existence of investment policy is also presented as follows:

Table 4.2: Respondents' View about the Optimality of the Portfolio

			Respondent's Organization		Total
			PSSSA	**POESSA**	
Do you think that the agency's portfolio is in its optimal level?	No	Count	45	37	82
		% of Total	47.4%	38.9%	86.3%
	Yes	Count	11	2	13
		% of Total	11.6%	2.1%	13.7%
Total		Count	56	39	95
		% of Total	58.9%	41.1%	100.0%

Source: survey data, 2018

A portfolio is called optimal if there is no other portfolio that, at equal risk, offers a higher return. Optimality can be said achieved if there is no portfolio offering the same return at lower risk (Carmichaeland Palacios2003). In this regard, as observed from the above cross tab, the majority of respondents from both PSSSA and POESSA are against the current asset mix of the respective portfolios. In PSSSA the number of respondents who preferred other asset mixes than the existing one was 4 times greater than that of their counter respondents. The opposition of the current portfolio mix is more serious in POESSA than in PSSSA. As discussed earlier it is possibly because the Treasury bill has been the only area of investment for the fund and hence the respondents are likely to be against this extreme restriction. The managers from both organizations also admit that the funds were not in their efficient stages.

Table 4.3: The Existence of Investment Policy in PSSSA

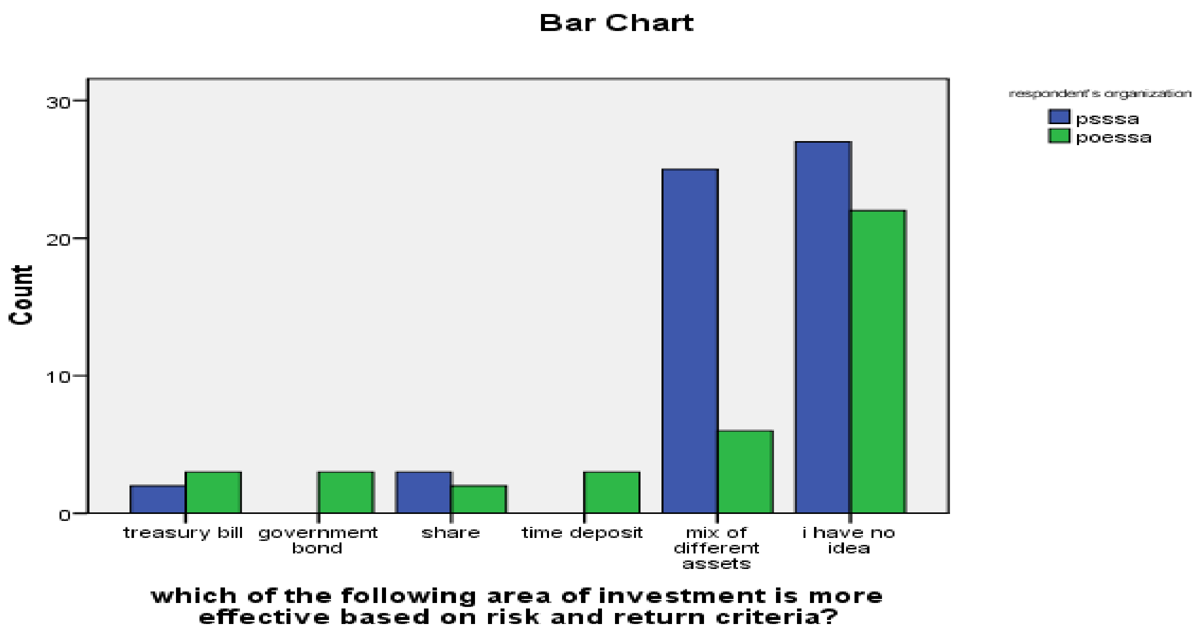
Is there any investment policy that guide your pension investment related works?		Frequency	Percent	Cumulative Percent
Valid	Yes	6	10.5	10.5
	I have no idea	39	68.4	78.9
	No	12	21.1	100.0
Total		57	100.0	

Source: survey data, 2018

The above table has revealed PSSSA's employees comprehension about the existence of organizational investment policy. Majority of the respondents (68.4%) have no information whether the agency has policy of pension fund investment. This implies the investment activities of the funds were out of sight even for the employees of the social security agency. Yet among those who have information the number of respondents who respond 'no' is twice greater than that of repondents said yes. the managers of the fund admit the absence of organizational policy. As a matter of fact, according to the managers, it is wortheless to have investment policy while Treasury bill is the exclusive investment of the fund. However, the existence of respondents who perceive the agency has investment policy indicates there is an information gap with in the organization.

Besides the investment policy the employees perception towards the area of pension fund investment was also a subject to inquiry. As the below bar chart portray there was also great information gap about the area of investments the funds have been investing on. Still majority of the respondents have no idea about the area of investment which is effective for the funds.

Figure 4.2: Employees Perception about Effective Investment Area for the Fund



Source: survey data, 2018

In POESSA, among those who have information the majority prefer mixing of different assets than single assets. But the differnce is not as such great as in the case of PSSSA. Infact, employees of PSSSA tested the fruits of mixing different assets in the portfolio and hence greatly favor investing on different assets while POESSA and also its employees lacks this experience.

Contrary to the current trend, in PSSSA, about 44% of the respondents prefer mix of different assets in the portfolio. Only 3.5% of employees support Treasury bill as a best investment area for the fund based on risk and return criteria.

Table 4.4: Chi-Square Tests on Effective Investment Area

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.100[a]	1	.043		
Continuity Correction[b]	2.964	1	.085		
Likelihood Ratio	4.583	1	.032		
Fisher's Exact Test				.067	.038
Linear-by-Linear Association	4.057	1	.044		
N of Valid Cases[b]	95				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.34.

b. Computed only for a 2x2 table

Source: survey data, 2018

As the chi- square test depicted there is a significant relationship between respondents' organization and their selection of investment area for the fund as effective in achieving goals of return and risk. The difference of views based on organization primarly emanated from the difference in experience of employees on the advantages of mixing different assets in the portfolio.

Here, the thing that should be emphasized is that presently the pension fund of PSSSA does invest not only on the Treasury bill. Instead the portfolio consists government bond, time deposit and share. The managers of the fund explained this act not as a failure to compliance to the regulation. Rather, it is to continuing the investment in which the fund had already spend money before the regulation. However, it is contradicted with the case of the real estate since it was decided to cease after the proclamation which results the loss of millions of birrr. Inspite of this, the employees view about the issue is different as the next table depicted:

Table 4.5: Does the Agency's Investment Activity is in line with Proclamation 714/715**?**

			Respondent's Organization		
			PSSSA	**POESSA**	Total
Does the agency's investment activity is ne with proclamation 714/715?	Yes	Count	9	16	25
		% of Total	10.1%	18.0%	28.1%
	to some extent	Count	20	8	28
		% of Total	22.5%	9.0%	31.5%
	I have no idea	Count	25	11	36
		% of Total	28.1%	12.4%	40.4%
Total		Count	54	35	89
		% of Total	60.7%	39.3%	100.0%

Source: survey data, 2018

As it is described in the crosstab, from the total of 54 respondents from PSSSA only 9 of them presume the agency fully compliance with the regulations. It is about 16.6% of respondents from PSSSA while there were 45.7% of employees of POESSA who thought the agency has fully adhere to the regulations. As discussed above, PSSSA fail to adhere the current regulation of the pension fund.that is why majority of the employees prefer to label the compliance level as 'to some extent'

Table 4.6: Chi-square Tests on Compliance to the Proclamation

	Value	Df	Asymp.sig.(2-sided)
Pearson Chi-Square	8.897	2	.012
Likelihood Ratio	8.803	2	.012
Linear-by-Linear Association	6.043	1	.014
N of Valid Cases	89		

a.0 cells (.0%) have expected count less than 5. The minimum expected count is 9.83.

Source: survey data, 2018

The chi-square test asserts that there is a significant relation between employees' organization and their perception about the conformity of the fund to regulations of investment activities. Definitely, compliance to the regulation in POESSA is much better than that of PSSSA.

Unlike PSSSA, the reserve in POESSA solely invested on Treasury bill which is in line with the present pension fund proclamation.

4.3.2 Analysis on Return and Risk of PSSSA and POESSA

As any other pension funds, the pension fund of Ethiopia is guided by well known international principles of trust fund. Specifically, principles of high return, minimized risk and liquidity of assets are getting the concern of the fund. Nevertheless, because of the restriction of the investment areas by the regulation the way the fund striving to materialize these principle is different from other countries. In this section, whether this effort is sucessesfull or not is under scrutiny.

As the table below depicted, for the last 27 years (1983-2009) the public servants pension fund earn more than a billion birr yield by investing its reserves. In the period under consideration, the fund has invested more than 2.775 billion birr each year, on average. The invested amount in 1983 was about 0.4 billion birr but after a quarter of a century it reaches 15 billion birr. In other words, the capacity of the fund to invest augumented by more than 37 times of its capacity in the early 1983s.

Table 4.7: The Trend of PSSSA's Investment Performance

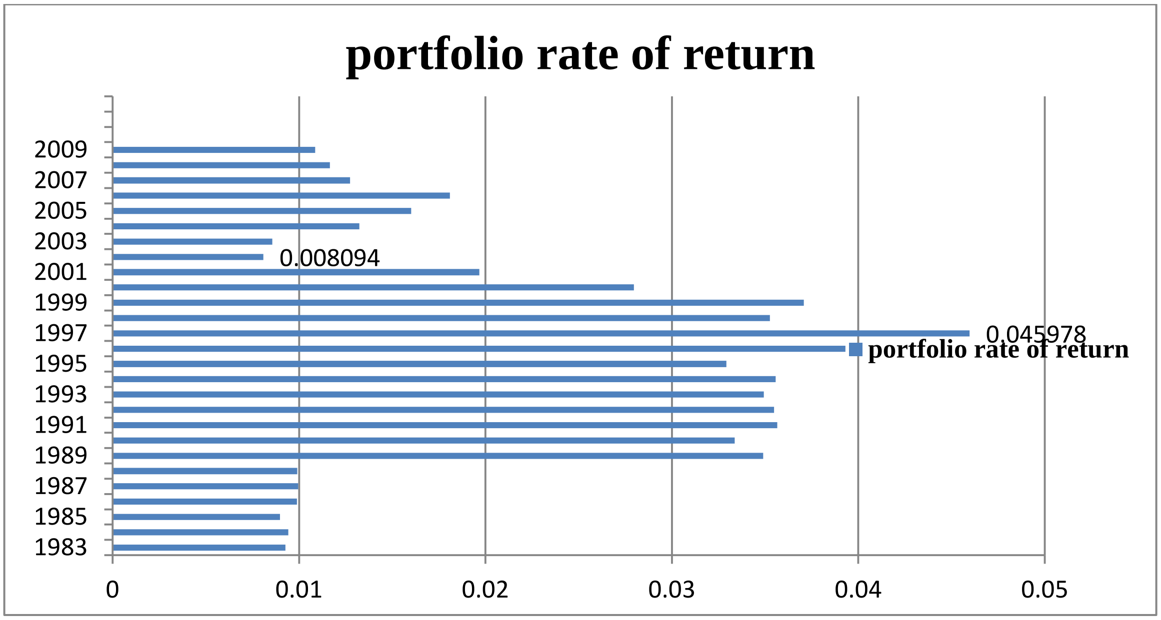
Year	**Invested amount (in millions of ETB)**	**Growth of invested amount**	**Return (in millions of ETB)**	**Growth of return**	**Portfolio rate of return (HPY)**
1983	411.84	-	3.82	-	0.009275
1984	440.63	0.0699	4.15	0.0863	0.009418
1985	440.78	0.0003	3.96	-0.0458	0.008984
1986	440.88	0.0002	4.36	0.1010	0.009889
1990	440.88	0	4.39	0.0069	0.009957
1988	441.47	0.0013	4.37	0.0046	0.009898
1989	545.37	0.2353	19.03	3.3547	0.034893
1990	615.04	0.1277	20.52	0.0783	0.033363
1991	849.23	0.3807	30.28	0.4756	0.035655
1992	964.58	0.1358	34.22	0.1301	0.035476
1993	1,029.52	0.0673	35.96	0.0508	0.034928
1994	1,049.96	0.0004	37.35	0.0387	0.035572
1995	1,183.77	0.1275	38.97	0.0434	0.032920

1996	1,194.93	0.0094	46.98	0.2055	0.039316
1997	1,269.94	0.0627	58.39	0.2429	0.045978
1998	1,420.80	0.1188	50.1	-0.1420	0.035261
1999	1,327.04	-0.0660	49.2	-0.0180	0.037074
2000	1,713.50	0.2912	47.91	-0.0262	0.027960
2001	1,760.91	0.0277	34.63	-0.2771	0.019665
2002	5,114.66	1.9046	41.4	0.1955	0.008094
2003	6,085.34	0.1898	52.1	0.2585	0.008561
2004	5,291.26	-0.1304	70	0.3436	0.013229
2005	5,287.49	-0.0007	84.65	0.2093	0.016009
2009	4,719.32	-0.1075	85.37	0.0085	0.018089
2007	6,856.23	0.4528	87.3	0.0226	0.012732
2008	8,990.85	0.3113	104.84	0.2009	0.011660
2009	15,043.58	0.6732	163.38	0.3583	0.010860
Total	74,929.8		1,217.63		
Arithmetic mean	2,775.178	0.1878192	45.09741	0.22718846	0.01625028
Geometric mean			39.008		

Source: own computation based on reports of PSSSA, 2018

As the above table depicted, the return from the investment also shows increment from year to year. On average, the fund have earned 45 millions of birr from the 1983s to the mid of the first decade of the new millennium. In the early times of the 1983s the return was constrained below 5 millions. However, in the year 1989 the amount of return jumped to about 19 million. This number became doubled just after 6 years in 1995. Though the return reaches 58 million birr in1997, then after it diminishes for a number of consecutive years. Since the then amount of invested money was increasing consistently it was beyond expectation to have a declining investment return. The agency explained this shrinking of the return as a result of the weakening of investment in the national level. The trend of portfolio return of PSSSA is presented in vivid way as follows:

Figure 4.3: Portiflio Rate of Return of PSSSA (1983-2009)

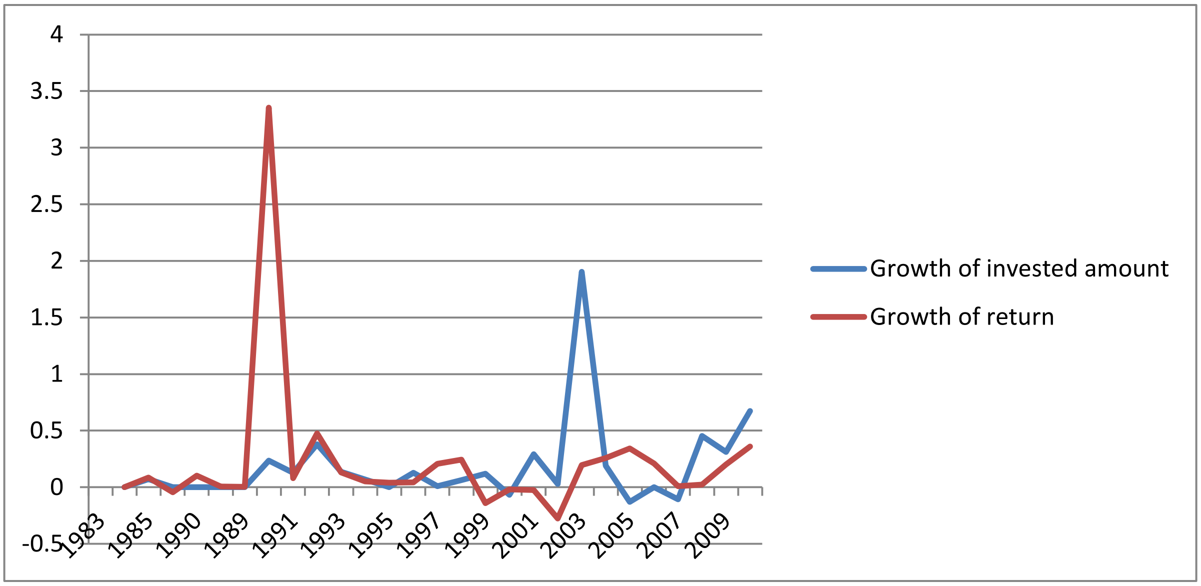


Source: own computation based on annual reports of PSSSA, 2018

As the above graph shown the portfolio rate of return of the fund has been moving in the range between 0.8% (2002E.C) and 4.6% (1997E.C). The average return from 1983 to 2009 was 1.6%. As far as the return is concerned, the period between 1989 and 2000 can be considered as the golden period of the fund. Within this period the fund has accounted more than 3% rate of return in every single year with the average of 3.6%. In the early 1983s, the overall rate of return of the fund was just below 1% without significant fluctuation. Contrary to this, starting from the year 2000 the rate has diminished in increasing scale until its lowest in 2002. The year after 1997 was also characterized by high fluctuation of rate of return.

It has already presented that both the invested amount and the amount of return has been increasing in a more or less consistent manner. The documents of the agency also has been presenting this facts as a success of the fund. However, niether the increment of the invested amount nor the level of return perse necessarily implies the high performance of the fund. Rather, a better performance measurmant is the rate of return. In this consideration, the fund has declining its performance particularly in the recent years. There are some possible causes for this situation. The one readily observable reason, the differece between the growth rate of the invested amount and the return, is indicated in the following graph as follows:

Figur 4.4:Growth of Invested Amount and Returnof PSSSA(1983-2009E.C)



Source: own computation based on annual reports of PSSSA, 2018

It can be obvious from the graph that the invested amount and the level of return has been increasing for most of the years with the exception of few years. This graph helps to observe the difference between these two variables. The gap has an effect on the portfolio's rate of return. When the invested amount is growing in a larger rate than that of the return it is likely that the rate of return is declining and vice versa. Accordingly, starting from 2007 the growth of invested amount surpassed return's growth rate and hence the portfolio rate of return has been diminishing continually. However, it does not mean that it is the exclusive reason for the recent years going down of rate of return. Instead, it is just a symptom for the major reason. How that reason, the pension fund proclamation of 714/2011 and 715/2011, affect the investment performance is analyzed in the next sections.

On the other hand, POESSA has been investing its reserves on Treasury bill for the last six years. Reports in the agency repeatedly presents investment reports as effective even more than expected. For the last six consecutive years the fund has achieved investment return more than 100% and extended to 231% of its objective. Here the question 'why this much difference from the objective is occurred?' is raised. Is that really due to the fund's effectiveness in its investment activities or because of underestimated planning? This doubt will have an answer in the following discussions.

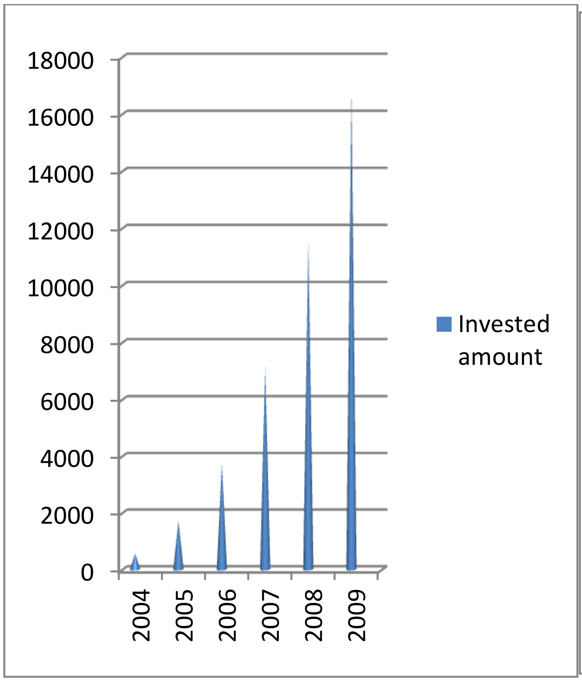
Table 4.8: The Trend of POESSA's Investment Performance (2004-2009E.C)

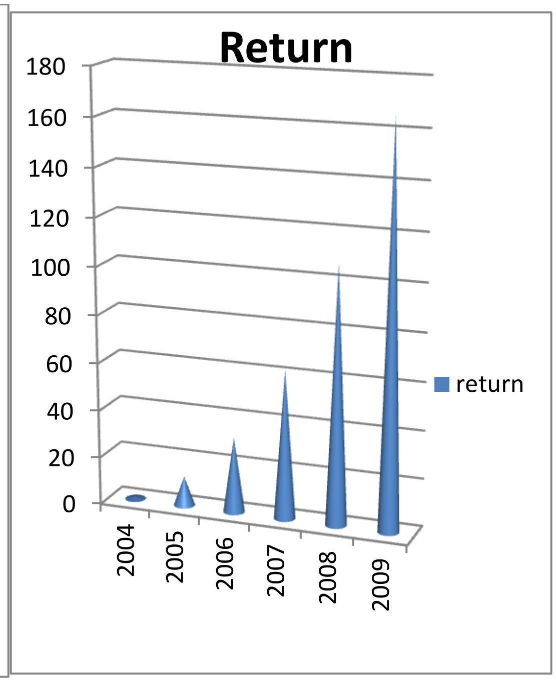
Year	**Invested amount (in millions ETB)**	**Growth of Invested amount(in millions birr)**	**Return (in millions birr)**	**Growth of Return**	**Rate of return**
2004	563.31	-	0.92	-	0.001633
2005	1,720.03	2.05	12.21	12.27	0.007099
2009	3,745.23	1.18	31.63	1.59	0.008445
2007	6,880.49	0.84	62.64	0.98	0.009104
2008	11,216.25	0.63	107.79	0.72	0.00961
2009	16,599.05	0.48	166.65	0.55	0.01004
Total	40,724.36	-	381.84	-	
Arithmetic mean	6787.39	1.036	63.64	3.22	0.007655
Geometric mean			27.14		

Source: own computation based on annual reports of POESSA, 2018

The above table presents the six years investment activities of the pension fund of POESSA. The amount of investment grows by 1.036% on average for the period under consideration. In the year 2009 the agency was investing more than 40 billion birr in Treasury bill with a return of 166.65 millions of birr. The return even grows more than the growth of invested amount. That is why the rate of return have been improving from year to year though it is still very low. The major reason for this smallness of return is the regulation by which the fund is guided. The study presented the result of the assessment of how the regulation is affecting the fund performance here under.

Figur 4.5: Comparison of the Growth of Invested Amountand Return





Source: own computation, 2018

Both the invested amount and the return have been growing tremendously for the period between 2004-2009E.C. The rising of invested amount is due to the increment of contribution rate of pension. The agency also broaden its base of pension collection. These led to high growth of collected money of pension contribution. Since the pension payment is in its infant stage the reserve money for investment is growing fast. The return also growing by an average of more than 3% over the study period.

The collected views of employees on the extent of the effectiveness of the fund is depicted below:

Table 4.9: Respondents' perception on Effectiveness of Investments

Respondents' perception on Effectiveness of Investments			Educational level				Total
			below diploma	diploma	degree	masters	
	strongly agree	Count	0	2	4	0	6
		% of Total	.0%	2.2%	4.3%	.0%	6.5%
	agree	Count	5	3	6	1	15
		% of Total	5.4%	3.3%	6.5%	1.1%	16.3%
	neutral	Count	4	9	8	0	21
		% of Total	4.3%	9.8%	8.7%	.0%	22.8%
	disagree	Count	1	8	21	2	32
		% of Total	1.1%	8.7%	22.8%	2.2%	34.8%
	strongly disagree	Count	0	5	12	1	18
		% of Total	.0%	5.4%	13.0%	1.1%	19.6%
Total		Count	10	27	51	4	92
		% of Total	10.9%	29.3%	55.4%	4.3%	100.0%

Source: survey data,2018

Regarding to the overall effectiveness of the funds, in investment activities a little more than half of the respondents either disagree or strongly disagree the claim of the managers that the fund is effective so far. It is only less than quarter of the employees have thought that the investment so far is effective. Related with education, those respondents who are less educated are more tend to agree with the statement that the investment so far is effective. Conversely, the higher the education level the more the respondents disagree with the claim of effectiveness. In line with this, 75% of masters and 65% of degree level respondents refuse the argument of that the pension fund so far is effective.

Risk is another concern of every pension fund. This is due to the nature of the fund in which the money is entrusted by members of the scheme. Consequently, investment on areas which are less risky assets are not only essential but also necessary. By considering this fact the pension fund of PSSSA gave high attention to minimize the risks of the fund. Further, every decision of the fund prioritize the goal of risk minimization against high return principle. But the effectiveness of the fund on this regard needs to be examined based on modern portfolio theory and agreed standards. To measure the risk of the pension investment between 1983 and 2009 E.C variance and standard deviation are used:

Table 4.10: PSSSA Portfolio Rate of Return (1983-2009E.C)

Year	**Return (in millions of ETB)**	**Portfolio rate of return (HPY)**	**HPY_i –E(HPY)**	**[HPY_i –E(HPY)]^2**
1983	3.82	0.009275	-0.01363	0.0001857
1981	4.15	0.009418	-0.01348	0.0001818
1982	3.96	0.008984	-0.01392	0.0001937
1983	4.36	0.009889	-0.01301	0.0001693
1984	4.39	0.009957	-0.01294	0.0001675
1985	4.37	0.009898	-0.013	0.0001691
1986	19.03	0.034893	0.011992	0.0001438
1990	20.52	0.033363	0.010462	0.0001095
1988	30.28	0.035655	0.012754	0.0001627
1989	34.22	0.035476	0.012575	0.0001581
1990	35.96	0.034928	0.012027	0.0001446
1991	37.35	0.035572	0.012671	0.0001606
1992	38.97	0.032920	0.010019	0.0001004
1993	46.98	0.039316	0.016415	0.0002695
1994	58.39	0.045978	0.023077	0.0005325
1995	50.1	0.035261	0.01236	0.0001528
1996	49.2	0.037074	0.014173	0.0002009
1997	47.91	0.027960	0.005059	2.559E-05
1998	34.63	0.019665	-0.00324	1.047E-05
1999	41.4	0.008094	-0.01481	0.0002192
2000	52.1	0.008561	-0.01434	0.0002056
2001	70	0.013229	-0.00967	9.355E-05
2002	84.65	0.016009	-0.00689	4.75E-05
2003	85.37	0.018089	-0.00481	2.316E-05
2004	87.3	0.012732	-0.01017	0.0001034
2005	104.84	0.011660	-0.01124	0.0001264
2009	163.38	0.010860	-0.01204	0.000145
Total	1,217.63			
Arithmetic mean	45.09741	0.022901		
Geometric mean	39.008	0.019329		
			Sum	0.0042023
			Variance	0.000125
			Standard deviation	0.01118

Source: own computation based on the annual reports of PSSSA, 2018

From this computation it can be understand that the annual average rate of the portfolio of PSSSA from 1983 to 2009E.C was about 1.93 %. Moreover, the annual return could vary from the average by the standard deviation of 1.11%.

Table 4.11: Portfolio Rate of Return of POESSA (2004-2009 E.C)

Year	**Return (in millions of ETB)**	**Rate of return (HPY)**	**HPY_i – E(HPY)**	**$[HPY_i – E(HPY)]^2$**
2004	0.92	0.001633	-0.00579	0.000033547
2005	12.21	0.007099	-0.00033	0.000000106
2009	31.63	0.008445	0.00102	0.00000104
2007	62.64	0.009104	0.002955	0.000002819
2008	107.79	0.009610	0.003461	0.000004774
2009	166.65	0.001004	-0.00515	0.000041229
Total	381.84			
Arithmetic mean	63.64	0.006149167		
Geometric mean	27.14	0.004525365		
			Sum	0.000083515
			Variance	0.000000000048
			Standard deviation	0.000006928

Source: own computation based on annual reports of POESSA, 2018

The pension fund of POESSA has an average of 0.61% return for the period between 2004 and 2009E.C. Within the same period the fund was also characterized by a standard variation of 0.0006%. From the above computations for both agencies the tradeoff between risk and return can be more elucidated. In the case of PSSSA, the fund has experienced better average return while the standard deviation is also higher than POESSA. Contrary to this, the level of risk in POESSA was very low but with low return.

However, neither variance nor standard deviation can be a good measurement of variations between two distributions since both are absolute measurements of dispersion. Therefore, the study used coefficient of variation as a best measurement means of risk. The values of coefficient of variation of the two funds are 0.011751 and 0.0011266for PSSSA and POESSA, respectively.

It is clear that the relative measurement of risk is in favor of POESSA. The coefficient of variation of POESSA is considerably lower than that of PSSSA's. It is because the former invests only on Treasury bills in which the return rate is fluctuated by lower magnitude whereas the later invest its reserves on different assets including risky assets such as share. This fact implies that investing only on Treasury bill helps to minimize risks as the fund managers argue. In the same talking, virtually all respondents believe that the current regulation enables the funds to minimize risk by restricting the investment area on Treasury bill. But still this explanation is not free from critics as the following discussion presents.

The managers of the fund are arguing that the fund emphasis to invest on Treasury bill is helping to the safety of the entrusted money. The agency also portrays Treasury bill as a risk free asset and hence the most appropriate to the pension fund. This argument, however, overlooks one important point. That is, though the Treasury bill is less risky it is not free from all types of risks, at least not free from inflation risk. Thus, the following discussion is taking into account the effects of inflation on the analysis.

Table 4.12:PSSSA Nominal Return Vs Real Return from 1983-2009 E.C

Year	Annual nominal portfolio return	Inflation	Real Portfolio Return
1983	0.93	2.2	-1.27
1984	0.94	9.6	-8.66
1985	0.90	5.2	-4.3
1986	0.99	20.8	-19.81
1987	1.0	21.0	-19.8
1988	0.99	10.1	-9.11
1989	3.49	1.1	2.39
1990	3.34	13.4	-10.06
1991	3.57	-2.6	6.17
1992	3.55	-1.4	4.95
1993	3.49	3.9	-0.41
1994	3.56	4.7	-1.14
1995	3.29	6.2	-2.91
1996	3.93	-5.2	9.13
1997	4.60	-7.2	11.8
1998	3.53	15.1	-11.57
1999	3.71	4.9	-1.19
2000	2.80	10.4	-7.6
2001	1.97	11.6	-9.63
2002	0.81	15.8	-14.99
2003	0.86	25.3	-24.44
2004	1.32	36.4	-35.08
2005	1.60	2.8	-1.2
2009	1.80	16.5	-14.7
2007	1.27	8	-6.73
2008	1.17	8.5	-7.33
2009	1.09	10.5	-9.41
Average	2.240741	9.17037	-6.9222

Source: own computation based on annual reports of PSSSA, 2018 and CSA 2014

The above 27 years time series data show how the inflation rate of the country affects the real rate of return of pension fund investment. From the period under the study only 5 years have positive rate of return. The real rate of return was between the range of 11.8 in 1994 and -35.08 in 2001. The average real rate of return over the 27 years was -6.92. That is, the invested amount by public servants pension fund depeleted by about 8% per year, on average, in the period between 1983 and 2009E.C.

This very low investment performance not exclusively resulted by low returns. Instead, the situation exacerbated by the general price level increase of goods and services across the nation. However, it is plausible to argue that the fund must invest, whenever possible, on assets which has a return above the inflation rate. Indeed, the fund atleast could minimize the effects of inflation to a certain extent. The situation of POESSA is also not special as the following table indicated:

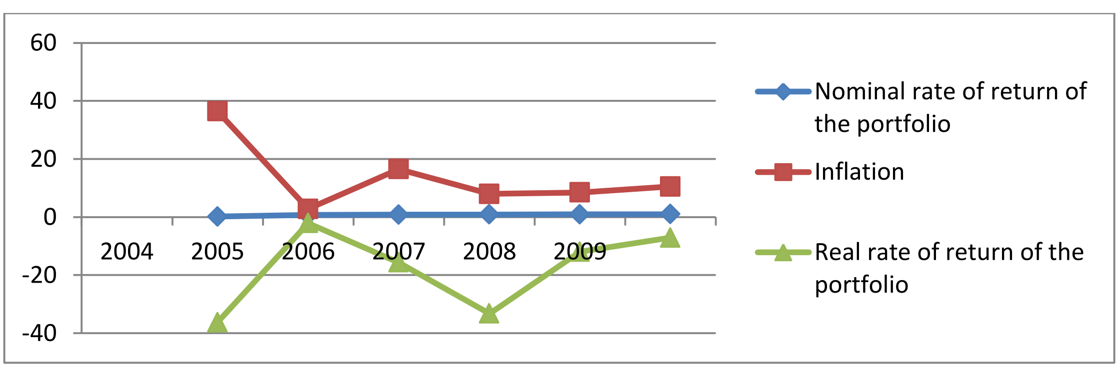
Table 4.13:Nominal Return Vs Real Returnof POESSA (2004-2009E.C)

Year	**Nominal rate of return of the portfolio**	**Inflation**	**Real rate of return of the portfolio**
2004	0.16	36.4	-36.24
2005	0.71	2.8	-2.09
2009	0.85	16.5	-15.65
2007	0.87	34.1	-33.23
2008	0.93	12.85	-11.92
2009	0.98	8.07	-7.09
Average	0.74	13.7833	-17.70333333

Source: own computation based on annual reports of POESSA, 2018 and CSA, 2014

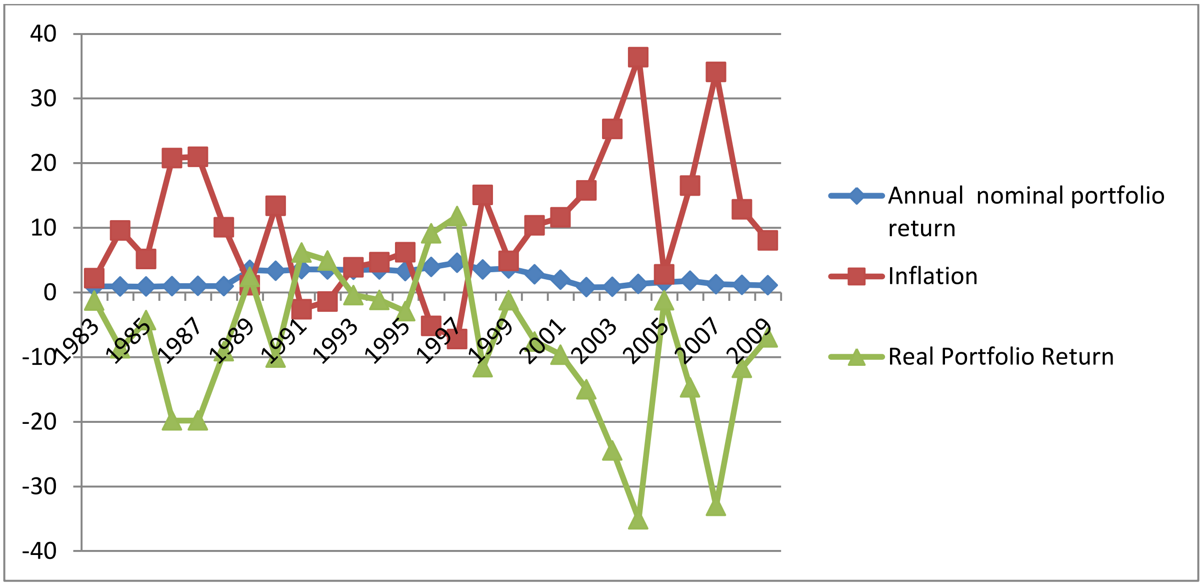
Similar to that of PSSSA, the real portfolio return of POESSA have experiencing negative returns throughout the period from 2004 to 2009E.C. The real return rate of the portfolio has been improving over these three consecutive years. It is largely due to high decrement of the inflation level. Besides, there was also a slight improvement of nominal rate of return without any change in the asset mix of the portfolio. The next graphs also show the above discusion in an apparent way.

Figure 4.6: Nominal Return Vs Real Return of POESSA (2004-2009 E.C)



Source: own computation based on POESSA's annual reports, 2018

Figur 4.7:NominalReturn Vs Real Return ofPSSSA(1983-2009)



Source: own computation based on PSSSA's annual reports, 2018

The overall performance of Ethiopian pension fund investment is scrutinized so far. Regarding to return, the funds have achieved their organizational objectives. Irrespective of the funds plan, the level of yield obtained from different investment activities have been very low. The trend also demonstrate that the fund rate of return become shirinking time to time. Even more poorer results are found when the effect of inflation is considered in the analysis of rate of return. With respect to risk the funds able to achieve the objective of minimizing risks atleast in nominal terms. Nevertheless, the funds yearly real rate of return deviates from its average significantly and hence the aim of risk minimization is far from fully achieved.

4.4. The Effect of Regulations on Ethiopian Pension Funds

Regulations are crucial for pension fund management as for other financial institutions, if not more important. As the history of social security of Ethiopia shows the regulations mainly either ignore or give little attention to investment activities. Inspite of the lack of emphasis, the regulations of pension fund have been affecting the funds performance.

It was stipulated in the pension legislation that a rate of pension contribution , based on an actuarial valuation has to be set up, and a necessary reserve fund has to be established in the specific schemes, viz, the Civil Servants' scheme, the Military scheme and the Government Undertakings's scheme. However, the Civil Servants' scheme and the Military scheme actually did not collect contributions, hence did not build up a reserve fund, nor paid benefits themselves as required by the pension legislation. Contributions in these schemes were directly deducted from the salary of the insured members by the government offices thus reducing budget expenditure. Pensions were also paid directly from the respective budgets. The then social security scheme for public servants was not involved in the financing of these schemes. Until the 1990s, the Government Undertakings' pension scheme was the only pension scheme that collected contributions, paid benefits and accumulated a reserve in accordance with the provisions in the pension law.

The Social Security Authority Establishment Proclamation (No. 38/1996) has given the necessary powers and duties to social security authority (SSA) to administer the pension schemes, including the collection of contributions and the payment of benefits. Since july 1998, the SSA has actually managed the collection of contributions and the payment of benefits (ILO 2001).

Together with the contribution of employees and employers, the investment income earned on the accumulated and invested reserve funds is a source of financing for the schemes. Hitherto only the government undertakings' scheme actually accumulated a reserve that could be invested. In addition, there was a reserve accumulated from contribution of employees and emoloyers of civilian autonomuos bodies, the so called Civilian Autonomous Bodies' reserve. That is, the data from 1983 to 1989 exclude the military scheme as it was administered by other institution and not by social security.

The effects of regulations on investment performance are examined by categorizing the data into three categories. The first category covers the time period between 1983 and 1993E.C in which the regulation on investment activities was obscure. Further more, the indicators of the fund performance were not found in detail. The second category covers from 1994 to 2003E.C. In this period, the regulation did not restrict the fund invetment quantitatively. The last period under the investigation of this paper is between 2004 and 2009E.C. the investment activity of the fund highly restricted and hence the fund has required to solely invest its reserves on Treasury bill.

4.5 Regulations and Investment Performance in Different Periods

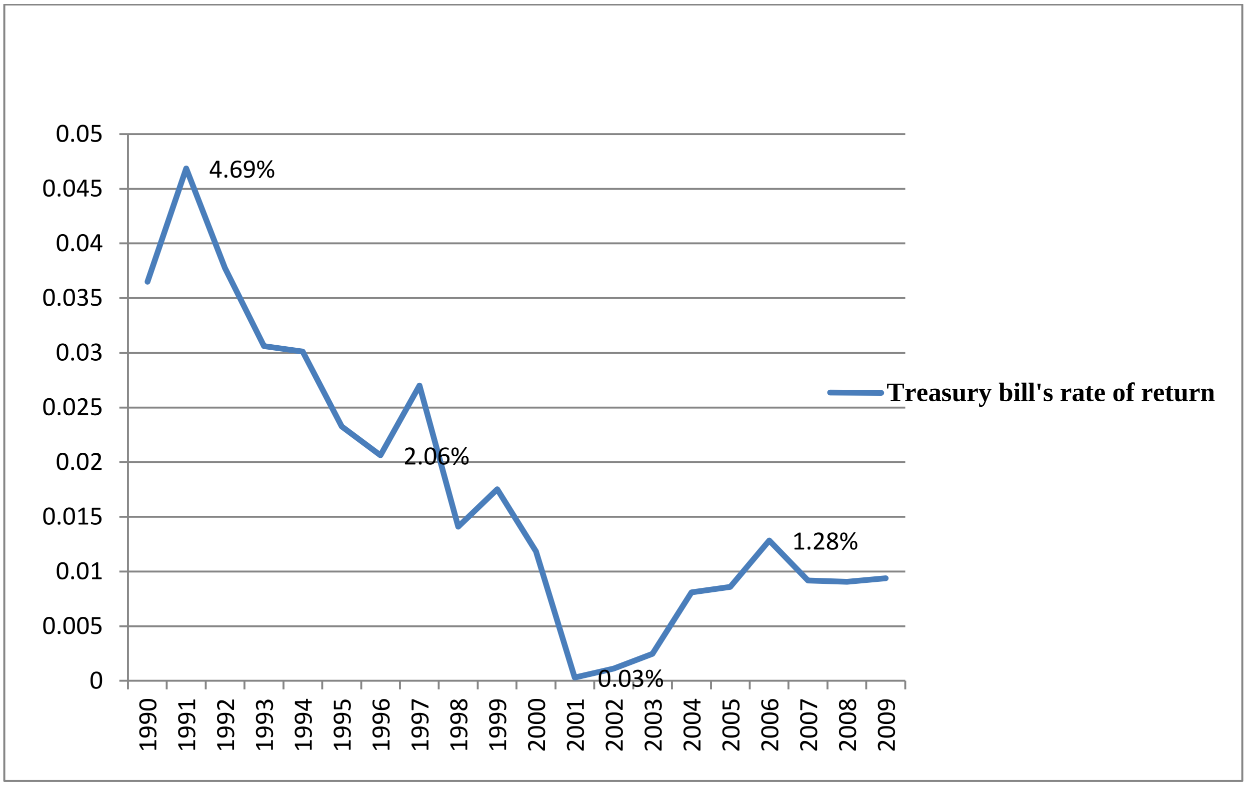
Under the period between 1983 and 1993 the performance of the fund principally based on not on the regulations but on the decisions of the fund managers. The then authority of the fund also lacked enough power to oversee its investment activities. For instance, the fund invest 174.2 million birr each year on government bond within this period. Yet from the total amount of invested money more than 90% were not paid back to the scheme even after the date of maturity. Only interest at a rate of 1% was paid back. That is too low under present circumstances. It prevents the fund to invest the money in other profitable assets. Even worse, the National Bank of Ethiopia has deducted more than 2 million Birr from the provident fund of the Government Undertakings' that would have been transferred to SSA account. The bank was requested to clarify this issue and replied that a share was bought with the money. But this money wasniether paid back nor clarification was given by the bank.

Regarding to invested amount, government bond and time deposit were the major areas in which the reserve was invested. The rate of return gained from these assets were 1% and 6-10%, respectively. In the year 1993 E.C the fund was the first to invest the newly commenced Treasury bill. Then after Treasury bill was one of the major areas of investment for the fund. In the 1983s and early 1993s the discount rate of the Treasury bill was very high compare to its currentrate. From 1993 to 1996E.C the discount range was between the range of 4.69 and 2.06. One shocking thing here is that even the lowest discount rate of that time is much more than todays highest.

The situation was much better in the 1993s specifically starting from 1997. Regarding to govrnment bond, the SSA has reached an agreement with MOFEC that to paid back the principal in 15 equal instalments at a rate of 5% per year. The average rate of Treasury bill was also better than that of post 2006E.C but lower than the 1983s. Yet the portfolio rate of return was accounts superior result than the other two periods.

The post 2006 investment performance of the fund is the outcome of proclamation no. 714/2011. Though the already invested capitals on share, time deposit and bond have been continued as parts of the portfolio after the enactment of the proclamation all the reserves have invested on Treasury bill. The following graph shows how the return from Treasury bills depleted over time even in nominal terms:

Figur 4.8: The Trend of Treasury bill Rate of Return (1990-2009E.C)



Source: adapted from PSSSA, 2018

The sequence graph clearly depicts the trend of the rate of return from Treasury bill from 1990 to 2009E.C. It indicates the rate become lower and lower while keep going to recent years. This implies not only the level of return from Treasury bill becomes diminished but also the portfolio's return as a whole. That is, the Treasury bill has been the dominant asset in the portfolio of the fund and thus any change in its return level has great implication on the overall performance of the fund. Therefore, the higher the share of the Treasury bill in the portfolio the lower the average yield the fund earns. Irrespective of its low return, the new proclamation specifies the Treasury bill as the chief, if not the only, investment area for social security funds. Why?

4.5.1Justifications of Restricting the Pension Fund Investment

Prior studies on pension fund studies usually have overlooked the justifications presented from the government side. Nevertheless, the regulatory body has some rationales behind the articles that govern pension fund management. These justifications, however, need careful examinations to gauge the effects of current regulations on the funds performance.

The first argument is related with the aim of minimizing risk. The fund administer the money entrusted by members of the scheme and hence it requires the highest possible cautiousness to manage wisely. Thus, the government prefer safety first strategies. Related to this the financial crisis in many countries and its effect on pension fund was also led the regulatory body to emphasis on risk averse investments through restrictive regulation. Infact, many European countries lost their entrusted money with some nations pressured either to reduce the benefit level or to increase the age of entitlement. Their investment strategy also had its own contribution for this failure. The coincidence between the time of world financial crisis and the enactment of the pension proclamation of Ethiopia influence the regulatory body to give priority to risk minimization.

The other reason to implement restrictive regulation on pension fund investment is to keep the society, particulary the pensioners, from inflation. The amount of reserve the pension fund can invest is huge enough to have effect on the overall economy. Then, if it is invested by considering only the return the money supply in the economy would be more than necessary. By turn it induces inflation which highly affects fixed income earners such as retired persons. Thus, the government of Ethiopia argues that by controlling the investment activity of the fund it is possible to prevent the economy including pensioners from the effects of inflation.

The resource mobilization strategy which is indicated in the first Growth and Transformation Plan (GTP) of Ethiopia is another reason for restricting pension fund investment. In the GTP resource mobilization is emphasized as a means of financing various projects. As of this strategy different sources of finance in the country should be mobilized and serve to finance those projects which are prioritized by the government. For instance, the PSSSA was moving some steps to involve in real estate investment before the implementation of the new proclamation. However, the government was against fragmented investments on the same area. The argument is that since the government has its own housing projects by considering the overall need of the country, investing on the same area is resource wastage than worthy.

The above three points are the major justifications for the restrictiveness of the regulation raised by managers of the fund while interviewing. But all the arguments miss one important point that is the scheme members must be consulted on issues which affect them before the regulation was adapted. According to the guidelines of the ISSA, the members have to be represented in the administration of the scheme. Other countries' experiences also show how important it is. As a result, any plan including the GTP must take into account the consensus of scheme members.

The argument of preventing inflation seems to be contradicted with the other justifications. The reserve money of the pension fund not totally out of the economy rather it is collected via Treasury bill and utilizing to finance the country's projects. Consequently, the Treasury bill investment of the fund obviously increases the money supply in the economy. Thus, inflation is inevitable regardless of the asset the fund is investing on. It is rather better to enable the pensioners to cope up the inflation by indexing the benefit as the market situation.

The more sound but controversial argument is the one that focus on minimizing the risk. As previous discussions shown the risk can be minimized, at least in nominal terms, by shifting the investment to Treasury bills. But the comprehensive comparison should be taken based on not only risk but also return and inflation so that it is possible to evaluate the investment performance before and after the newly adopted proclamation.

4.5.2 Effects of Proclamation 714/2011 and 715/2011 on the Investment performance of the Pension Funds

The pension proclamation 714/2011 made revision on some important social security issues. Among other things, the proclamation point out which asset is eligible investment area to the fund. The proclamation clearly states the pension fund shall be utilized for, inter alia, investments as follows: "Investments in Treasury bonds and other profitable and reliable investments to be specified by directive to be issued by the Ministry of Finance and Economic Development…"

As under the article of pension fund utilization the proclamation restrict the investment area of the fund. But it does not mean that the proclamation by itself prohibits all other alternative investment areas since it gives mandate to MOFEC to identify other profitable and reliable areas for the fund. So far, MOFEC fails to specify alternative investment areas which are appropriate to the pension fund. The Ministry, according to social security fund managers, iteratively ignores the options of potential investment areas issued by social security agencies. In fact, the Ministry opt only Treasury bill to invest on by the pension fund. Related to this, respondents also share their beliefs on whether there was a conducted research to identify profitable and reliable investment area for the fund.

Table 4.14: The Existence of Attempt to Identify Alternative Investment, in View of Respondents

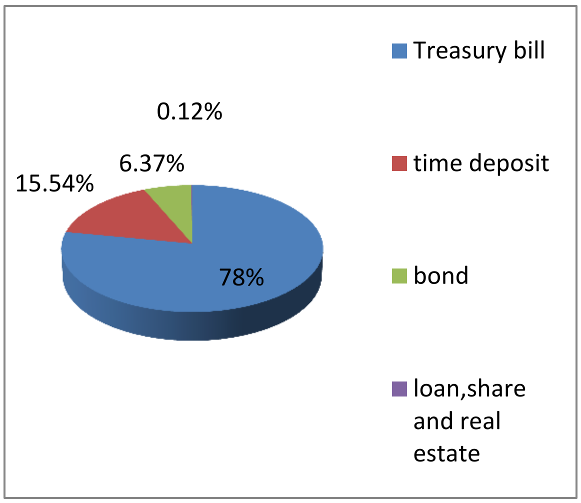
			Respondent's organization		**Total**
Any attemptto Identify Alternative Investment			**PSSSA**	**POESSA**	
	no	Count	49	36	85
		% of Total	51.0%	37.5%	88.5%
	yes	Count	8	3	11
		% of Total	8.3%	3.1%	11.5%
Total		Count	57	39	96
		% of Total	59.4%	40.6%	100.0%

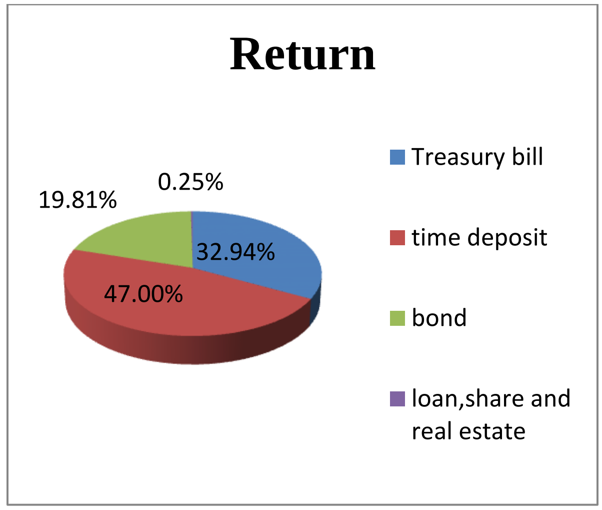
Source: survey data, 2018

Similar to the fund managers, the employees asserts there was no any attempt by the agency to identify and provide research based proper investment area to the pension fund. The vast majority of the respondents (88.5%), irrespective of organizational difference, respond as no research attempt by the department they belong. The interviews as well as the document analysis affirm this standing is correct while there are few respondents wrongly assume there was an attempt.

To examine how this restriction has been affecting the funds' investment performance, the paper compares the performances of the three eras; the 1983-1993E.C, 1994-2003E.C and 2004-2009E.C. Because of the absence of clear regulation the comparison gives little attention to the 1983s while focusing on the other two eras. In addition, the data after the new proclamation (2004-2009E.C) compiled not only from PSSSA but also from POESSA.

Figure 4.9: Comparison between the Share of Assets in Invested Amount and Return (1994-2003E.C)

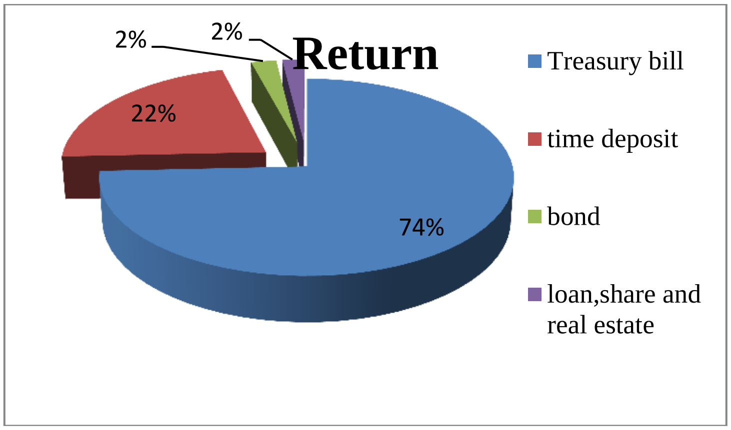


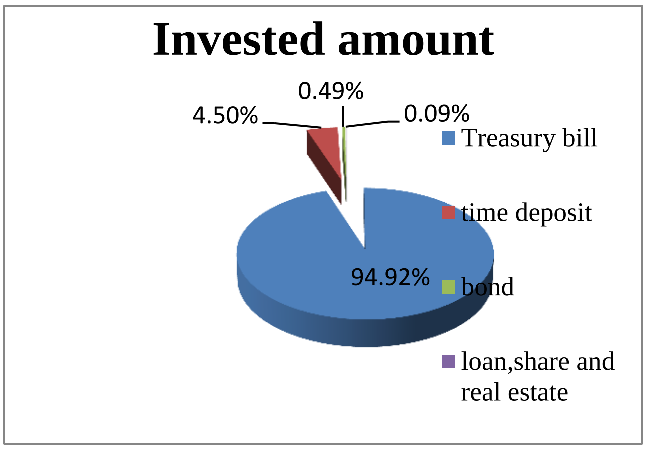


Source: own computation, 2018

In this period, about three forth of the invested amount was shared by Treasury bill where as its share from the total return is only one third. Time deposit, on the other hand, was a fruitfuil investment asset. Its share of the total invested amount is only about 16% while the share of time deposit from the total return was three times its share in the invested amount. Although the share of Treasury bill in invested amount was about five times that of time deposit the return gained from time deposit was much better. The government bond also accounts twice its share in the return compare to its share in invested amount. The other assets also has share in the return more than their share in the invested amount except the Treasury bill. Despite the fact that Treasury bill has been help to earn low return the next era greatly emphasis on this asset.

Figure 4.10: Comparison between the Share of Assets and their Return (2003 -2009)

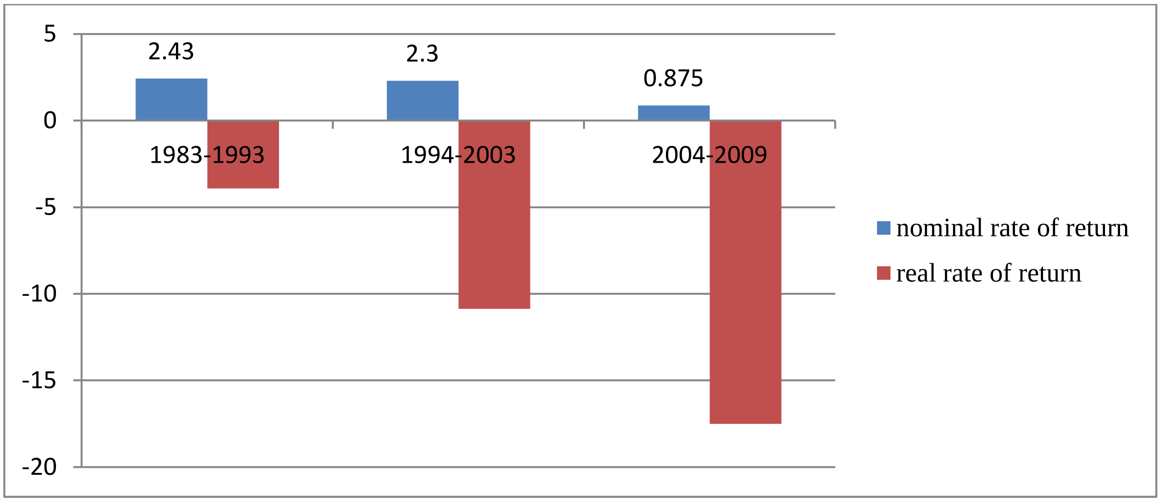




Source: own computation based on reports of PSSSA, 2018

In the post 2003E.C period the portion of Treasury bill has been increasing alarmingly. All new investments go to the Treasury bill so that the parcel of other assets in the portfolio keep diminishing overtime. Yet regarding to return all assets besides the Treasury bill has been contributing more than the scale of investment they have in the portfolio. Still the data indicate that investing on Treasury bill is not successful as far as return is considered. In addition, the trend shows the portfolio average return declining continiuosly.

Figure 4.11: Nominal and Real Return of Pension Funds Scheme (1983-2009E.C)



*The 2004-2009 data include the POESSA

Source: own computation based on reports of PSSSA, 2018

It can be seen from the above graph that the average rate of return of the portfolio of Ethiopian pension funds shirinking overtime. One of the principal reason for this reality is that the discount rate has been significantly decreased through time. Treasury bill as the predominant asset of the portfolio in all periods has great effect on the overall performance of the pension fund investment. Across these periods the share of the Treasury bill in the portfolio has increasing tremendously while its discount rate diminished year to year. The rate of return from the Treasury bill was 3.2%, 1.04% and 0.75% in the period 1983-1993E.C, 1994-2003E.C and 2004-2009E.C, respectively.

Though the difference of nominal return level between the first and the second era was slight, their difference in real rate of return is considerable. Nedless to say, it is due to higher inflation rate in the second period than the first one. Correspondingly, the inflation rate of the period 1994-2003E.C was the highest (15.06) compare to its counterparts. It is two and half times the inflation rate of the first period. On the other hand the post 2003E.C period average inflation rate was 10.38 which is less than the second era. Nonetheless real rate of return of the second period was still above the third one. It can be explained by the restrictiveness of the fund regulation in the last period. The following statisticall tests show whether the difference is significant or not.

Table 4.15: Paired Samples T-test of Nominal Return rate Before and After the Proclamation

	year of investment	N	Mean	Std. Deviation	Std. Error Mean
nominal rate of return of the portfolio of PSSSA and POESSA1983-2009	>= 2004	6	.591196	.6438861	.2628654
	< 2004	10	2.300000	1.2971764	.4102032

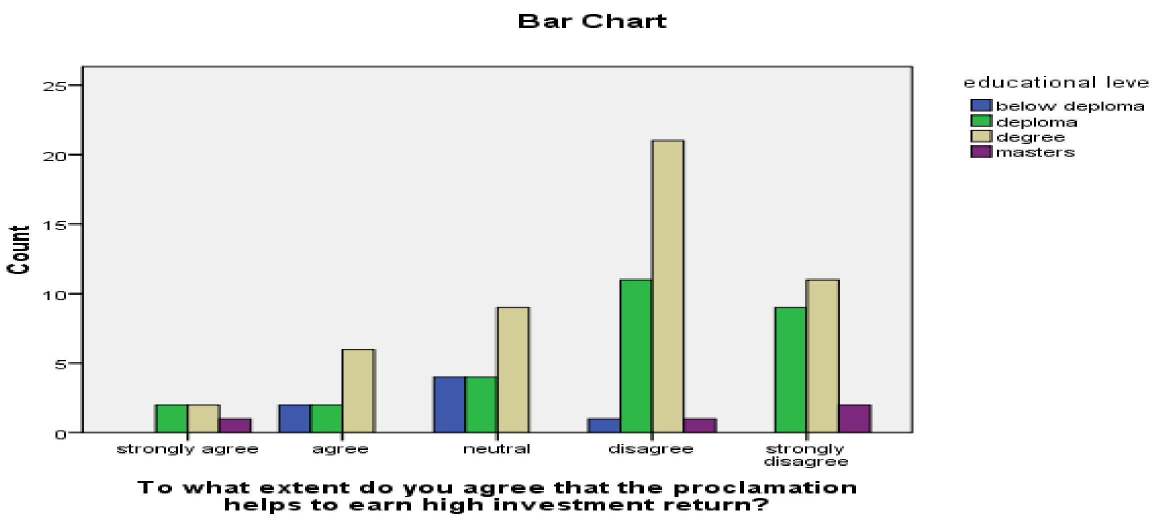
Paired Samples Test

		Paired Differences					T	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	nominal return rate before the new proclamation - nominal return rate after the new proclamation	-.020267428	.012132994	.004953274	-.033000225	-.007534631	-4.092	5	.009

Source: own computation, 2018

The paired t- test reveals there is a significant difference between the pre and post 2003 investment performance of the Ethiopian pension funds. The period between 1994 and 2003 was characterized by 2.3% average rate of return with a standard deviation 1.23. After the endorsement of the restrictive proclamation of the funds the average annual return was shrinking to 0.59%. Besides, the risk level of the funds become half of the pre new proclamation period. Therefore in line with investment theories the return and risk of the fund go in opposite directions. The employees of the agencies are also aware about this fact.

Figure 4.11: The Perception of Employees towards How the Proclamation Affects the Investment Return



Source: survey data, 2018

The above bar graph shows, irrespective of education level, the vast majority of the respondents thought that the existing proclamation does not help to earn high investment return. Only about 16% of the employees agree with the statement. Conversely, virtually all the respondents assert the current regulation has been successful in downplaying investment risks. The fund managers also advocate the merit of the restrictiveness of the present regulation to minimize risks.

Table 4.16: Paired Samples T-test Real Return Rate Before and After the Proclamation

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	real return rate before the new proclamation	-5.530000	6	9.6564238	3.9422185
	real return rate after the new proclamation	-17.498333	6	12.5730289	5.1329176

Source: own computation, 2018

As indicated in the table the real rate of the return in either of the periods was very low while the standard deviations of both periods are high. Therefore, the Ethiopian pension fund performance has been low by any criteria. It is partly because of high inflation throughout the study period. The arguments of those who are the advocates of the restrictive fund investment so as to minimize risk can be true only the effect of inflation is overlooked. This fact necessitates the fund to improve its rate of return with tolerable risk level.

Modern theories of portfolio propose earning high return with acceptable level of risk by mixing different assets which are inversely related by their risk-return characters. In the same way the real rate of return was considerably better in the period between 1993 and 2004E.C than that of post 2003E.C. But the standard deviations of both periods were high and close to each other. It implies, the risk level of the fund has not been improved by restrictive regulation if inflation is considered in the analysis. The comparison between these two periods reveals that mixing of different assets results better level of return than investing only on Treasury bill with roughly the same level of risk.

However, after the inclusion of the effects of inflation the statistical test depicted there is no significant difference in performance between the pre and post of the new regulation. Higher level of inflation in the period between 1994 and 2003E.C is not the only reason for the absence of significant difference between the two periods. Rather, the failure of PSSSA in compliance to the regulation and hence continuing its earnings from other assets besides Treasury bill helps the fund to have similar performance as before the proclamation was adopted. To evaluate this assumption the study compares the average rate of return of PSSSA and POESSA within 2004 to 2009E.C. This comparison enables to examine whether mixing of different assets (PSSSA) in the portfolio has considerable advantage on investing only on one less risky assets (POESSA) or not.

Table 4.17: Independent Samples T- test of Nominal Rate of Return of POESSA and PSSSA

	year of investment	N	Mean	Std. Deviation	Std. Error Mean
nominal rate of return of the portfolio of PSSSA and POESSA1983-2009	POESSA	3	.005726	.0036077	.0020829
	PSSSA	3	1.176667	.0901850	.0520683

Nominal rate of return of portfolio of PSSSA and POESSA 1983-2009	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	4.562	.100	-2.247E1	4	.000	-1.1709409	.0521100	-1.3156214	-1.0262604
Equal variances not assumed			-2.247E1	2.006	.002	-1.1709409	.0521100	-1.3944680	-.9474138

Source: own computation, 2018

The test clearly shows PSSSA's performance was high if return is considered. In fact the average rate of return for the last six years was 1.177% in PSSSA whereas POESSA accounts only about 0.006% in the same period. Regarding to risk, the absolute measurement of risk that is standard deviation is in favor of POESSA. However, the best measurement of risk in relative with return is coefficient of variation. Based on this measurement the risk level of PSSSA (0.077) is noticeably better (lower) than POESSA (0.631).

4.6 The Contributions of Pension Fund Investment

So far the paper presents the investment performance of the Ethiopian pension funds and how the performance has been affected by regulations. This section, on the other hand, deals with the contributions of the investment for the fund sustainability and for the benefit payment. Further, pension funds usually have positive role in a society through different ways. Creating employment opportunity, investing on infrastructure, helping to develop capital market and financing debt of the country are some of the major contributions which have been done by different pension funds across countries.

Though the investment areas of the fund are very much limited, it is obvious that the investment activities have positive effects beyond the social security boundary. For instance, the Treasury bill investment helps the government to finance its mega projects. However, there is lack of clear and detail information about to what the invested money is utilized. Unlike other countries listing out the societal contribution of the pension investment with evidences is very difficult, if not impossible. It is due to the fact that the contribution in most cases is indirect and hence beyond the agencies mandate to collect information.

The other contributions of the investment activities of the fund which are obtained within the agencies are the concern of this paper. Consequently the study evaluates the trend of the investment activities and its impact on the sustainability of the fund. In addition to this, the comparison is carried out between the return levels on the one hand and other variables such as administration cost, pension payment and pension contribution on the other.

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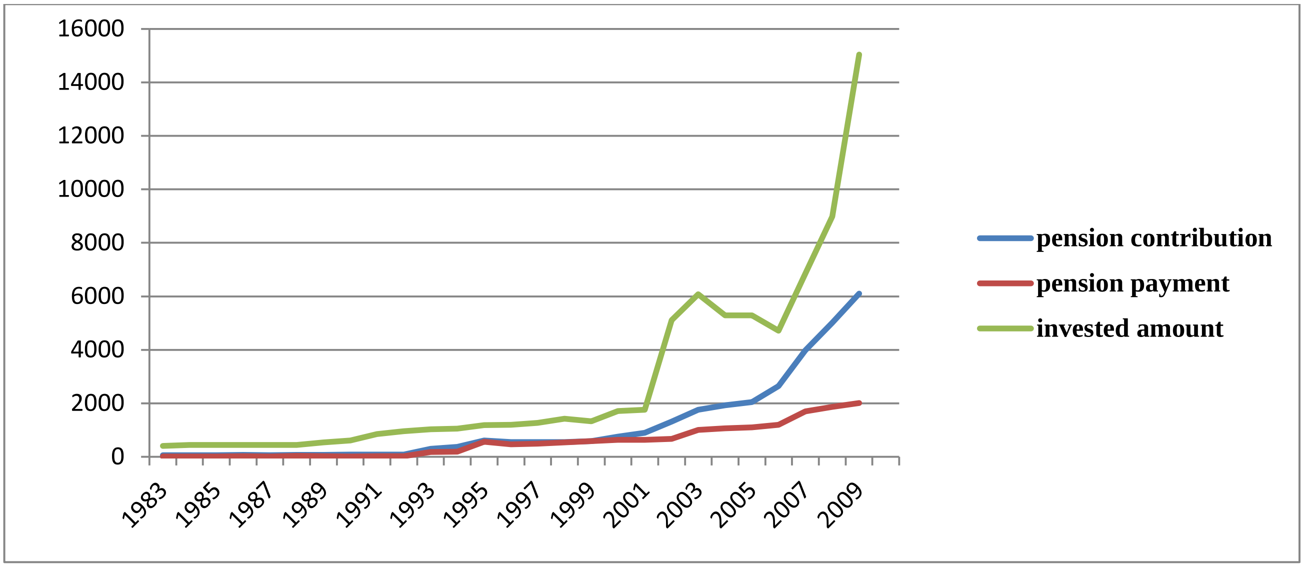
Table 4.18: The Contribution, Administration cost, Pension payment, Invested Amount and Return of PSSSA (1983- 2009E.C) in millions of ETB

Year	Contribution	Administration cost	Pension payment	Invested amount	Return
1983	64.68	3.37	8.395	411.84	3.82
1981	64.47	3.2	16.47	440.63	4.15
1982	65.21	3.88	14.76	440.78	3.96
1983	67.93	3.76	24.65	440.88	4.36
1984	58.74	4.17	14.51	440.88	4.39
1985	74.49	5.18	37.99	441.47	4.37
1986	76.34	5.71	22.27	545.37	19.03
1990	86.43	7.16	17.44	615.04	20.52
1988	85.39	7.6	24.01	849.23	30.28
1989	88.44	7.68	21.23	964.58	34.22
1990	304.89	6.37	184.3	1,029.52	35.96
1991	375.15	3.28	194.55	1,049.96	37.35
1992	609.71	2.78	559.82	1,183.77	38.97
1993	554.8	7.88	468.44	1,194.93	46.98
1994	549.98	6.37	488.71	1,269.94	58.39
1995	556.26	7.08	534.66	1,420.80	50.1
1996	583.09	7.7	588.31	1,327.04	49.2
1997	754.5	10.2	630.6	1,713.50	47.91
1998	902.7	14.6	637.1	1,760.91	34.63
1999	1,320.20	17.2	673	5,114.66	41.4
2000	1,759	20.7	1,007	6,085.34	52.1
2001	1,932	22	1,061	5,291.26	70
2002	2,042.40	31.4	1,096.90	5,287.49	84.65
2003	2,650	35.2	1,200	4,719.32	85.37
2004	3,990	50.6	1,700	6,856.23	87.3
2005	5,010	65.59	1,870	8,990.85	104.84
2009	6,100	74.7	2,010	15,043.58	163.38
Total	30726.8	435.36	15106.12	74929.8	1217.63

Source: own computation, 2018

The major activities of social security agencies of Ethiopia can be categorized into three: collection of pension contribution; pension payment for beneficiaries and investing the reserve money. As discussed above these activities are intertwined each other. In this section the paper deals with only one of their relations that are the impacts of the investment returns on the other activities of the fund. First, the trends of these variables are presented here under:

Figure 4.12: The Growth of Contribution, Payment and Invested Amount of PSSSA

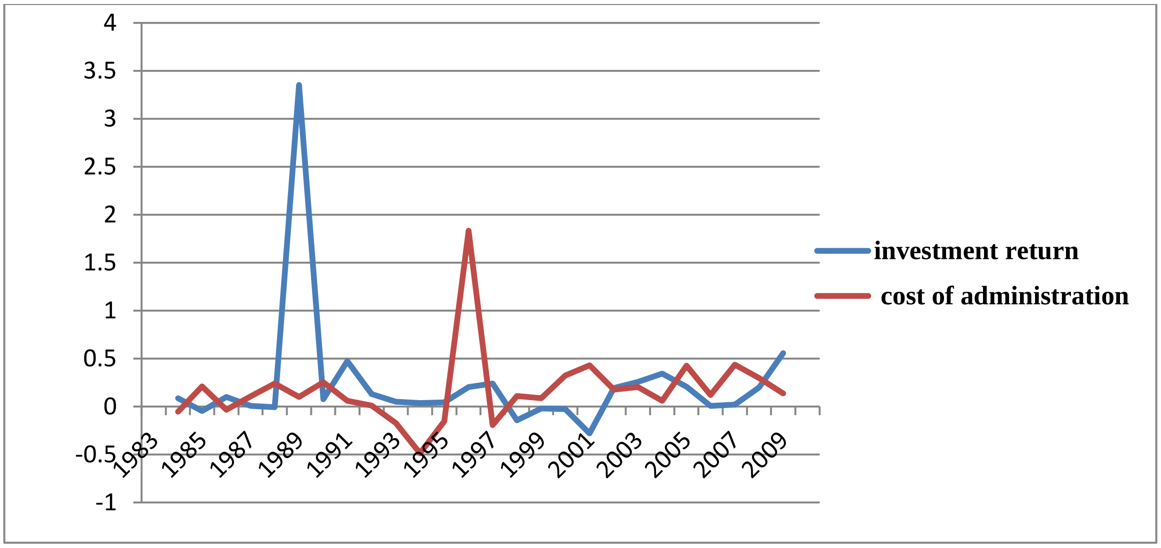


Source: own computation based on PSSSA's annual reports from 1983-2009E.C,2018

The amount of investment of the pension fund has been increasing in a faster rate than the pension payment and the collected contribution. It is due to the reason that the line of the invested amount depicted the accumulated investment over years where as both contribution and payment lines show only the annual amount. Until 1997 the amount of pension payment was very close to that of pension contribution. Then after the collection of money from employees and employers became deviates from the pension payment significantly. Increment of salaries and percentage increase of the contribution rate are the reasons for the higher growth of collected money. It helps the fund to be sustainable and to accumulate enough reserve for long period of time.

The fund sustainability should not solely depend on money from contribution. It is not always possible to raise the contribution rate to maintain the sustainability. In the time of crisis the other options which are cutting of benefits and increasing the entitlement age have devastating effects. As a result, investing on reliable assets considered as a golden way to sustain the strength of the fund status. In the Ethiopian case the investment return clearly conceived as one source of income for the fund. The interview revealed that the fund managers are also conscious to the investment performance so as to contribute the overall performance of the scheme. To start, the trend of contribution of investment returns for the fund status is presented as follows:

Figure 4.13: The Growth of Investment Return and Administration Cost



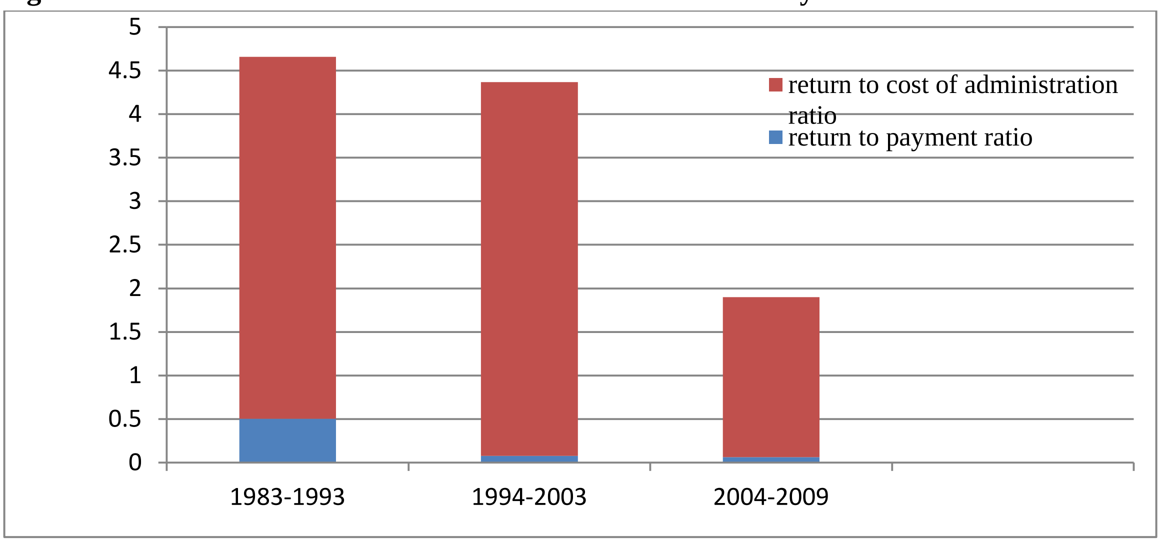
Source: own computation based on annual reports of PSSSA from 1983-2009E.C,

The growth of investment return and administration cost is portrayed in the above graph. To use the collected contribution only for pension payment purpose and not to administrative costs, the investment return must cover all costs other than the pension payment. For the last 27 consecutive years the agency was successful in this regard. In all years of the study period investment return surpass the amount of administration expenses. However, the growth rates of both variables have been fluctuating.

The comparison between the growth rate of the investment return and cost of administration become apparent when the analysis is presenting by classifying in three periods. From 1983 to 1993E.C the average annual return (20.6 million) from investment is 4 times greater than the administration cost of the agency (5.14 million). The average growth rate of the return was also twice greater than that of the administration expenses. From the mid of 1990s to the early 2000s the growth of investment return become slowdown even with few negative growth rates. Contrary to this, the administration cost was growing, on average, about 17.6% annually which was twofold of the growth rate of investment return. After the endorsement of the new proclamation both variables have been growing more than the rate in the preceding periods. The trend reveals the administration cost was increasing by increasing rate while the growth of return has been fluctuating continuously.

On the other hand, the issue of whether the investments return has contribution to pension payment or not is interesting. Obviously the ultimate goal of pension fund investment activities is to do good to beneficiaries on one way or the other. How PSSSA has been successful in this regard needs scrutinize. The below discussions have an answer for this question.

Figure 4.14: Return to Cost of Administration and Return to Payment Ratio



Source: own computation based on data from the Directorate of Monitoring and evaluation of PSSSA, 2018

It is readily observable that return to pension payment ratio was very low compare to return to cost of administration ratio. It implies though the investment return has good contribution to cover administration costs of the agency, its contribution to pension payment is trivial. The other point that can be detected from the graph is that not only the return to cost of administration but also the return to payment has been slowing in a greater degree. It shows the role of investment for the overall fund status has been retarding over time.

In the case of POESSA, the study covers the six years data from 2004-2009E.C. In spite of low level of pension payment the fund has been actively carried out the collection of pension contribution and investment activities.

Table 4.19: Income and Expenses of POESSA (2004-2009E.C) in Millions of ETB

Year	**Contribution**	**Administration cost**	**Pension payment**	**Invested amount**	**Return**	**Return to payment ratio**	**Return to administration cost ratio**
2004	550.51	16.28	-	563.31	0.92	-	0.06
2005	1,292.28	67.37	12.71	1,720.03	12.21	0.96	0.18
2009	2,205.75	77.34	21.25	3,745.23	31.63	1.92	0.41
2007	3,463.87	185.12	82.30	6,880.49	62.64	2.88	0.34
2008	4,726.10	261.42	145.12	11,216.25	107.79	3.84	0.41
2009	5,912.93	308.44	174.74	16,599.05	166.65	4.8	0.54
Total	18,151.44	915.97	436.12	40724.36	381.84	14.4	1.94
Average	3025.24	152.66	170.2	6787.39	63.64	2.88	0.36

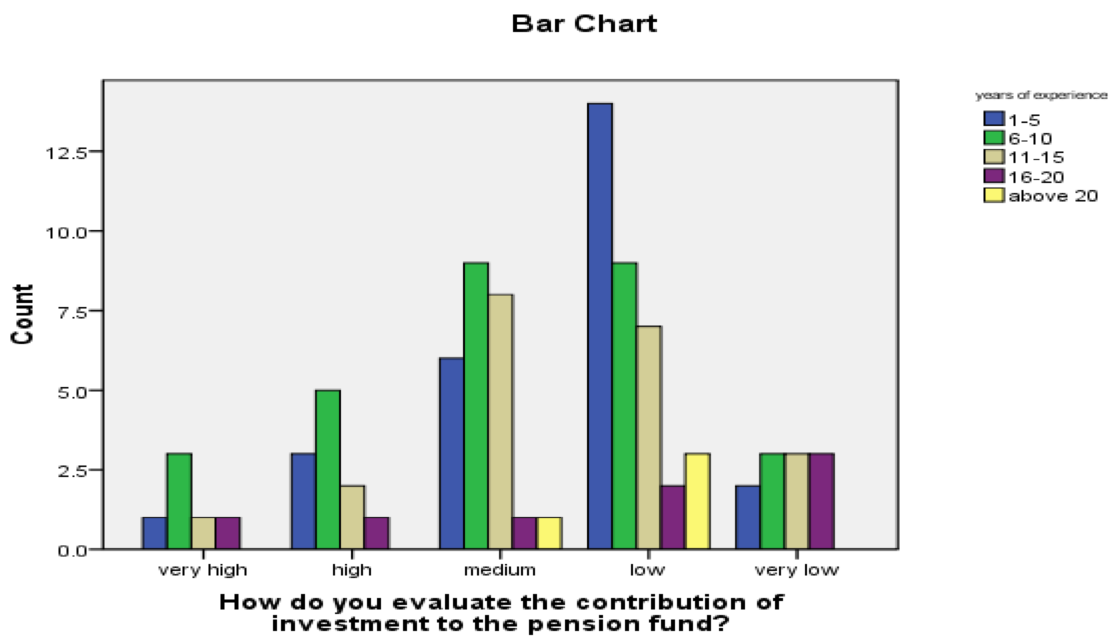
Source: own computation based on POESSA's annual reports from 2004 to 2009E.C,2018

The above table summarizes the six years information of POESSA's major activities. Since the scheme is in its initial stage the data may not show the reality. For instance the return to pension payment ratio is high and hence it seems the investment was performing well. However, it is nothing to do with high performance of the investment rather it is the result of low level of pension payment due to the existence of few numbers of peoples who are entitled for benefits. But this will be changed with times when the number of beneficiaries and hence the amount of benefit payment. Furthermore the lion's share of the collected contribution inevitably goes to pension payment. Consequently the growth of both the invested amount of money and the return level will be diminished.

Unlike PSSSA, this fund could exclusively cover its cost from the investment return. Only about 36% of the administration expenses were covered by investment earnings. Certain portion of the collected money has been utilized for the overhead cost of the agency. It hurts the fund unless the return from investment improved significantly. Nevertheless, it can be materialized only when the fund involves on more profitable and reliable investment areas besides the Treasury bill.

Related to this the respondents evaluate the contributions of return from investment to the funds' status in the following way:

Figure 4.15: Employees' Perception on Contribution of Investment to the Pension Fund



Source: survey data, 2018

From the graph it can be observed that about one-fifth of the employees have evaluated the contribution of investment return as either high or very high. But the little majority of the respondents (52%) thought the contribution is either low or very low. The remaining respondents are categorized themselves in the medium response.

Through the questionnaire, information about the growth of investment return compared to administration cost in view of employees was retrieved. The summary of these responses are presented below:

Table 4.20: The Evaluation of Increments of Pension Fund Investment Return Across the Education Level of the respondents

			Educational Level				Total
			below diploma	diploma	Degree	Masters	
Compare to its administration cost how do you evaluate the increment of the pension fund investment return?	Very high	Count	1	1	2	0	4
		% of Total	1.1%	1.1%	2.2%	.0%	4.3%
	High	Count	2	2	6	0	10
		% of Total	2.2%	2.2%	6.5%	.0%	10.8%
	medium	Count	5	7	6	2	20
		% of Total	5.4%	7.5%	6.5%	2.2%	21.5%
	Low	Count	2	15	24	2	43
		% of Total	2.2%	16.1%	25.8%	2.2%	46.2%
	very low	Count	0	3	13	0	16
		% of Total	.0%	3.2%	14.0%	.0%	17.2%
Total		Count	10	28	51	4	93
		% of Total	10.8%	30.1%	54.8%	4.3%	100.0%

Source: survey data, 2018

As the above cross tab indicated the little less than two-third of the respondents label the so far growth of investment return as low or very low compare to the growth of administration costs. And only about 15% of the employees respond high or very high for this question. Regarding to the education level it seems there is a tendency to respond low and very low when the level of education become higher and higher and vice versa. For instance, among the 4 master's holder respondents half of them label the increment as low with no respondent who chose high and above. Conversely, from the total of 10 least educated respondents, that is below diploma in this case, 3 of them mark their response as high or very high while the number of responses in the low and very low category is 2.

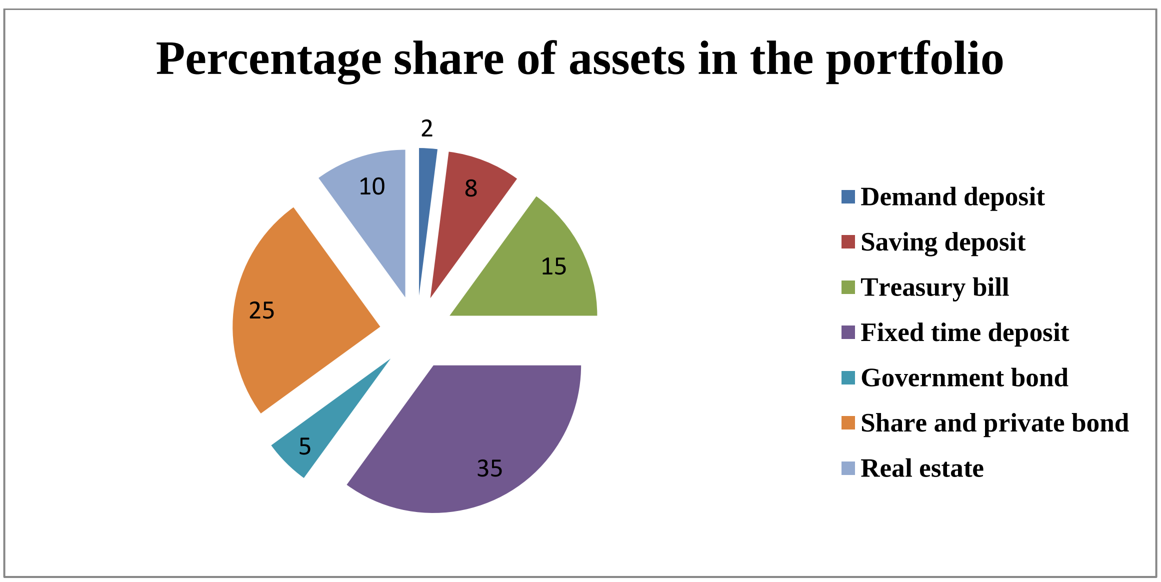
4.7 Opportunity Cost of the Existing Pension Fund Investment Regulation

Hitherto the paper examines the historical performance of the pension fund performance with how it has been affected by the regulations which were guiding the investment activities. The contribution of the investment return to the fund status has also investigated. To do so the study employs the fund's internal investment policy of investment and examine what would be the performance of the fund if that guide was implemented. Other countries investment performances are also presented so that locating Ethiopian pension fund performance is not difficult. Lastly, the views of employees of social security agencies on the opportunity cost of the funds are discussed briefly.

As discussed above the Ethiopian pension fund has been dominated by the Treasury bill investment. It is also found that the return from Treasury bill was very low though its risk level was better. Indeed the rigid regulation of the fund has been affecting the fund negatively, as prior analyses revealed. However, the question will follow is that what would be the performance of the pension funds investment activities if the regulation was flexible? In other words, there should be comparison between the current performance and the potential if there are other profitable assets in the portfolio of the fund.

In the mid-1990s the Social Security Authority has developed the ideal portfolio guidelines for the pension fund investment yet it never been implemented. The guideline can be summarized as this in the following pie:

Figure 4.16: The Percentage Share of Assets in the Portfolio as of the Guideline of PSSSA in the 1990s



Source: PSSSA, 1994E.C

This was the planned portfolio mix of the pension fund. However, none of these assets have been investing as intended in the guideline. Instead only 5 of the total listed assets were in the portfolio and one of these (real estate) was ceasing without any return. The other asset that is share and private bonds was in investment partially. It is to mean only the private bonds were in investment by excluding the private bonds probably because of the absence of developed capital market. Nevertheless, the invested amount of share account less than 1%. The other assets which are government bond and time deposit collectively accounts little more than one fifth of the total invested amount. Here, the risk and return of the assets in the portfolio which have complete data are presented

Table 4.21: Evaluation of Assets' Return and Risk

Types of investment	Rate of return			Arithmetic Average	Geometric Average	Standard deviation	Coefficient of variation
	1983-1993	1994-2003	2004-2009*				
Treasury Bill	3.23	1.04	0.75	1.63	1.01	1.30	0.80
Time deposit	4.7	5.12	5.51	4.95	3.97	2.60	0.53
Government bonds	1.18	5.27	5.21	3.14	2.32	2.14	0.68
The portfolio	2.43	2.3	0.88	2.02	1.03	1.38	0.68

*It includes the data from POESSA

Source: own computation, 2018

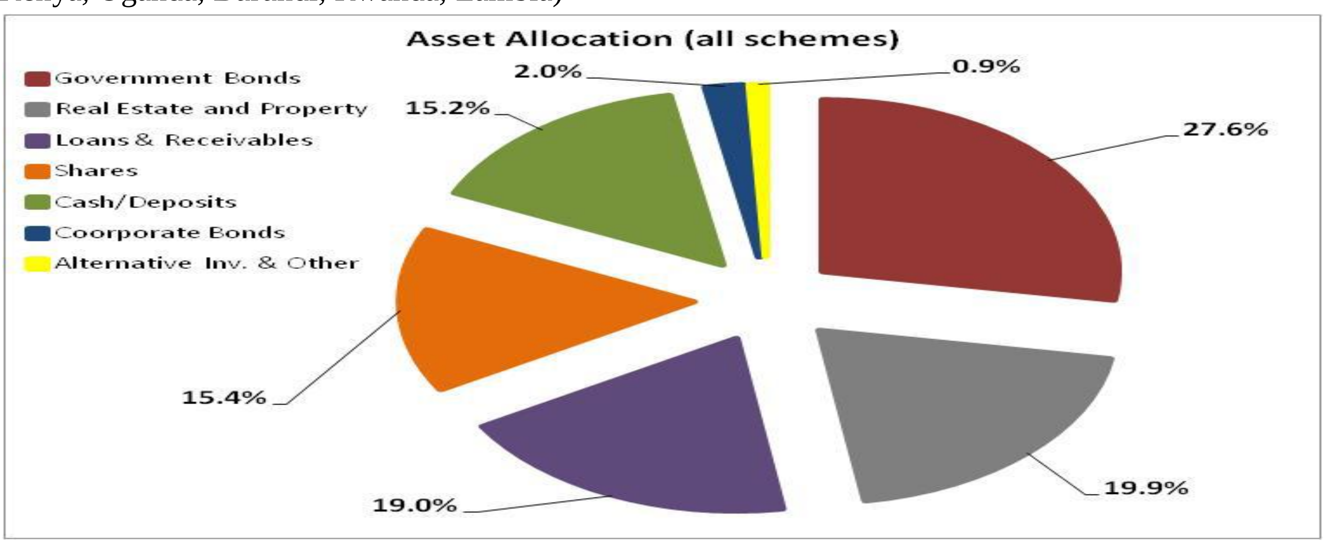
The above table provides the risk return relation among the three historically predominant assets of pension fund portfolio. From the 27 time series data it is noticeable that the rate of return of time deposit was considerably better than its counterparts. The government bond was the next best in providing better return for the fund. Treasury bill, though the lion's share has been invested on it, scores low rate of return. The fund managers' argument that the Treasury bill has great advantage if risk is considered is also far from the truth. As the coefficient of variation, the most acceptable measurement, of time deposit is in good position followed by the government bond. Still the Treasury bill is lagging behind according to this relative measurement of risk.

4.7.1 Other Countries' Pension Fund Investment Activities

Reviewing other countries' investment experiences allow to have the real picture of the position of Ethiopian pension fund investment. How the present pension fund regulation costs the fund performance can also be readily identifiable. For this purpose the study assess a number of countries' pension fund portfolios as well as their performance. The comparison primarily made with African countries which have more or less similar socio-economic conditions with Ethiopia.

Most of the countries assessed by this study have less rigid pension fund investment regulations than the Ethiopian. It does not mean that their regulation is without any restriction. Instead, their regulations permit to constitute different assets in the funds' portfolio. For instance, in Kenya the regulation limits the maximum possible percentage of assets in a fund's portfolio. Based on this system any pension fund can have investments at least in 7 different assets. The situations of other eastern and central African countries are roughly the same. To notice, the existence of developed capital market, like in the case of Kenya, helps to diversify the investment in different assets. The asset mix of 6 African countries' of the portfolio is summarized in the following pie.

Figure 4.17:Asset Mixes of Pension Schemes of Six Selected African Countries (Tanzania, Kenya, Uganda, Burundi, Rwanda, Zambia)



Source: theMuhanna Foundation, 2017

The above chart depicted the aggregate asset mixes of six selected African countries' pension schemes. All the countries allow a number of assets in the portfolio. The pie also shows the dominant area of investment for these countries was government bond. Investments on real estate and property, loan and receivables, shares and cash/deposit were the next major areas for the schemes with little difference in among them.

These kinds of pension fund investment regulations help funds to minimize risks through diversification. It is also augment the negotiating power of the fund in the market. That is, funds have enough options to shift if the return from a certain asset is not acceptable. However, in the case of Ethiopia the funds do not have a power like this. As a result, even though the rate of return from the Treasury bill has been continuously declining, they cannot shift into other profitable areas. How the difference in regulation of asset mix can have impact on the rate of return can be demonstrated from the following recent data on yields of Treasury bill in different countries.

Table 4.22: One Year Yields of the Treasury bill Across Seven African Countries

	Burundi	**Kenya**	**Rwanda**	**Tanzania**	**Uganda**	**Zambia**	**Ethiopia**
Yields of 1-year Treasury Bills in Year 2013	13.25%	11.00%	9.90%	14.95%	13.10%	12.50%	1.2%

Source: theMuhanna Foundation, 2017

Here the yields refer to the average of T-Bills issued in year 2017 in all the other 6 countries besides Ethiopia. The Ethiopian data refers year 2009 in Ethiopian calendar. The difference is apparently visible. The yield from Treasury bill is 10 times lower than the average rate of the other 6 countries' rate. In other words, if the rate was equal to at least the lowest of the six countries the total amount of earning from the Treasury bills in 2009 E.C would be about 1.8 billion birr which is 9 fold of the collective returns of the two Ethiopian pension funds from all assets a year. PSSSA would also cover more than two-third of all its yearly expenses just from returns of Treasury bills. But the Ethiopian pension fund not only lagging behind in one single asset. Rather its total portfolio rate of return is also very low compare to many countries. In the table below the investment returns of pension funds from Kenya, Tanzania and Uganda are presented.

Table 4.23: Four Selected African Countries Rate of Return

Country	**Scheme Name**	**Year**		
		2010	**2011**	**2012**
Kenya	**LAPTRUST**	11.2%	-1.1%	17.3%
Kenya	**NSSF**	18.5%	-	-
Tanzania	**GEPF**	10.4%	9.5%	11.6%
Tanzania	**NSSF**	9.4%	7.9%	-
Tanzania	**PPF**	5.4%	11.1%	9.9%
Tanzania	**PSPF**	8.7%	11.8%	9.3%
Tanzania	**LAPF**	10.5%	8.2%	-
Tanzania	**ZSSF**	10.8%	10.8%	-
Uganda	**NSSF**	7.0%	6.0%	10.0%
Ethiopia	**PSSSA**	1.80%	1.27%	1.17%
Ethiopia	**POESSA**	-	0.16%	0.71%

Source: theMuhanna Foundation, 2014

The above table shows the nominal investment rate of selected eastern African countries. Besides the schemes in Ethiopia, virtually all others have annual rate of return above 5%. For instance, the Kenyan schemes rate of return was between the range of -1.1% and 18.5%. In Tanzania the highest of the six years was 11.8% while it was 10% in Uganda. The highest of the Ethiopian scheme is even much lower than either the schemes rate of return in Tanzania or Uganda. The average of the six years PSSSA and POESSA performance was also far lower than any of the three countries.

Most of the schemes in the table have characterized by a considerable ups and downs over the six years period. Contrast to this, the PSSSA's return keeps to declining from year to year. One of the reasons for this situation is the adoption of the new rigid proclamation as it has discussed previously.

Here is also evidence that depict how great the opportunity cost of too much restrictive regulations of pension fund. In the following table some of non-OECD countries are selected based on the availability of data. The numbers in the table refers average rate of returns of five years from 2013 to 2017. Since the data is available as of Ethiopian calendar the Ethiopian pension funds rate of return from 2005-2009 E.C are also presented.

Table 4.24: Pension Fund Nominal and Real 5-Year Geometric Average Annual Returns in Selected Non-OECD Countries in per cent (2009-2013)

Country	**Nominal return**	**Real return**
Costa Rica	9.5	4.7
Hong Kong	7.9	4.1
Former Yugoslav Republic of Macedonia	7.7	5.5
Nigeria	7.1	-3.5
Albania	6.7	4
Bulgaria	5	2.8
Thailand	4.2	1.1
Liechtenstein	3.1	-
Ethiopia	1.47	-13.39

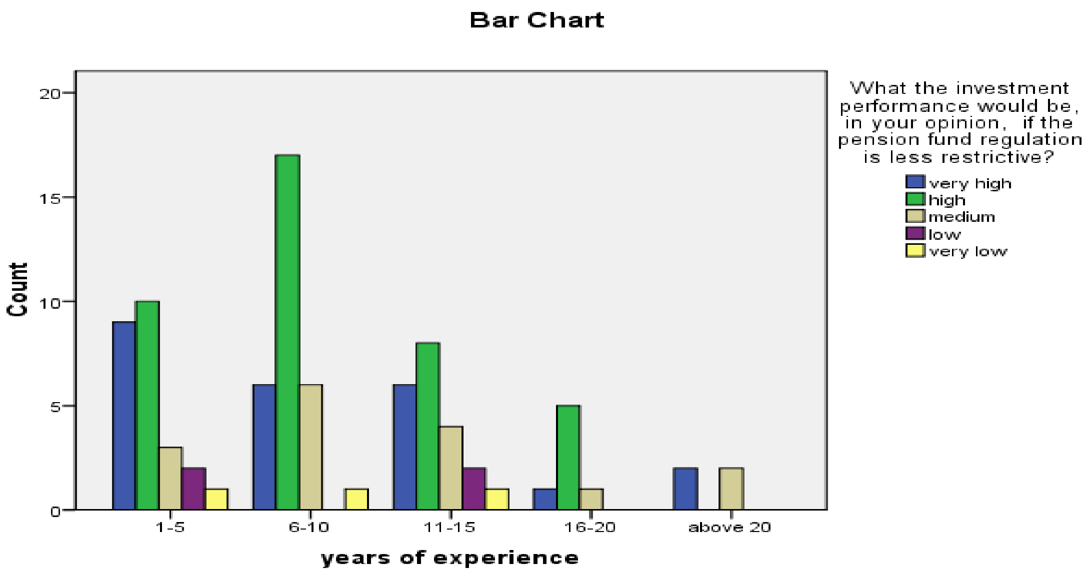
Source: OECD, 2017

The return rate is computed based on OECD's average IRR which is described in detail in the annex. IRR is the ratio of net investment income to the average of two consecutive years invested amount. However, due to absence of data on investment expenses that must be deducted from the total investment return the Ethiopian return rate is calculated based on the investment return before any deduction. As a result, the numbers which indicate the performances of Ethiopian pension fund investments are overestimated. Yet the conclusion that is drawn from this overestimated data is not dissimilar because of the over valuation.

The five year average rate of return depict the pension funds in Ethiopia have two difficulties. The first is that their performance for the last five years was very low compare to other countries average. As indicated in the nominal return column, the selected non-OECD countries are in the range between 9.5% (Costa Rica) and 3.1% (Liechtenstein). The Ethiopian schemes have an average even lower than the half of the lowest which 1.47%.

The other difficulty that can be observed from the table is that the inflation rate of Ethiopia has been a big challenge for the fund. As expected, the real return from pension reserve investment in all the countries is below their respective nominal return. Nevertheless, the extent of the difference between the nominal and the real return (that is inflation rate) differ from country to country. In countries like Bulgaria and Macedonia the difference was low (2.2%) and the inflation did also. Conversely, the Nigeria's average inflation rate was high (10.6%) and hence its real return became negative (-3.5%) while the nominal return was not bad (7.1%). The Ethiopian case is even worse since the average inflation rate of the five years was 14.86%. Related to this, the perception of the social security agencies' employees is also incorporated in the study. The following chart depicts their perception by categorizing them by the work experience they have.

Figure 4.18: Employees Opinion on Investment Performance if the Regulation is Less Restrictive



Source: survey data, 2018

From the above chart it can be seen that most of the respondents (73.5%) are favorable to the less restrictive pension fund investment regulation. More than 18% of the employees believe the investment performance would be medium if the regulation become less restrictive. Indeed, the vast majority of the respondents, irrespective of their work experience differences, have recognized the opportunity cost of the current pension fund investment regulation.

CHAPTER FIVE: Summary of Findings, Conclusions and Recommendations

5.1 Summary of Findings

Regulations, among other things, are determinants of performances of pension fund investment. The Ethiopian case also shows that the impact of regulations has great impact on the investment performances of social security schemes. Accordingly, this study aims to portray the interface between pension fund regulations and the investment performance of the social security agencies of Ethiopia. To achieve its objectives, the study has analyzed the return and risk level of the investment activities of PSSSA and POESSA. The contribution of the return from investment and opportunity cost of the existing regulation also assessed by examining financial documents and the view of employees.

5.1.1 The Investment Performances of PSSSA and POESSA

Though the Treasury bill was including in the portfolio after 1987, it continues as the chief area of investment for PSSSA until now. Moreover, it has been the only asset for POESSA for the last three years. The funds' portfolio deemed as far from optimality, in the view of most of the employees. One of the reasons for this situation is that both funds have not internal investment policies. Regarding to the return the study depicted it was in its climax in the mid-1990s whereas the period after the endorsement of the new proclamation is characterized by low return. It was found that the claim of the reports of the agencies about high investment performance is because of underestimated plans.

Majority of the employees also rejected the claim of the high return. The risk analysis revealed that the argument of the fund managers, that is, the Treasury bill is the best option to minimize risk is correct at least is without considering the effect of inflation. The better place of POESSA which has investment only on Treasury bill asserts this fact. But in real terms minimization of risk through investing on Treasury bill could not be realized.

5.1.2. The Effects of the Existing Pension Fund Regulations on the Investment

Though the rate of return from the Treasury bill has been declining from time to time the new pension proclamation specify it as a chief area of investment. The justifications for this decision are: to minimize risk; to achieve the goal of resource mobilization as of the GTP and to protect the pensioners from inflation. Nevertheless, the evaluation revealed that these arguments are not as sound as expected to restrict the investment. The paired samples tests show that the nominal return of the post proclamation period was significantly lower than that of before the proclamation. Conversely, the test on real return rate revealed no significant difference between these periods. This is due to high inflation in the 1990s and the continuation of PSSSA in investing on other assets besides the Treasury bill. Yet the comparison of the investment performance between PSSSA and POESSA through independent sample resulted significance difference and hence investing on the Treasury bill only can be devastating.

5.1.3. The Contribution of Investment Return to the Fund Status

The contribution of the investment return in the country level cannot be examined since there is no detail information on the issue. But the return has been helping to cover the administration costs of the fund. Its contribution for pension payment, yet, has been very low. The trend analysis also shows that the overall contribution of return from investment for the fund has been diminishing over time.

5.1.4. The Opportunity Cost of the Present Rigid Pension Fund Regulation

Due to the rigidity of the existing regulation the pension funds of the country have forgone huge returns. By the 'what if' scenarios the paper disclose how high the return from investment would be if the funds had been investing as of the investment guideline of the mid-1990s. Indeed, the funds have lost billions of money due to restriction on assets mix in the portfolio. Similarly, the comparison of Ethiopian funds investment performance with other countries exposed the opportunity cost of the current fund regulation and the advantages of less rigid regulations.

5.2 Conclusions

It can be concluded from the results that the performances of pension funds of Ethiopia were highly determined by the fund regulations. Throughout the period under consideration the funds' regulations prioritize the risk minimization objective. It is argued as essential not only because the money is entrusted but also to maintain the sustainability of the funds. In fact, the present status of the fund is far from crisis. But it is needed to fix the roof before the raining season of the schemes is coming. That is, to maintain the funds sustainability for a long period, the reserves must be invested on highly profitable and less risky area of investments.

Though the funds have been emphasizing risk minimization objective, they ignore the inflation risk. As a result, the investment performances of the fund in most years were negative in real terms. The effect of inflation on the fund status was found to be high. Consequently, in the process of choosing asset mix of the portfolio the schemes must takes in to account the impact of inflation. In other words, the return from the pension fund investment should be at least as high as the yearly inflation rate of the country. Indeed, the risk related with the high returns should not be a source of refraining from diversifying the portfolio since risk can be minimized through diversification and/or insuring the pension risk.

It was revealed that the current regulations of the fund have high opportunity costs for the fund. By the comparison with other countries' performance it has proved that the investment performances of the pension funds under considerations were very low. It has also proved that the contribution of the return form investment to the fund status could not extend from covering the administrative costs of the fund.

To sum up, the most important reason for the poor performances of Ethiopian pension funds is found that the regulations which guided investment activities. The present regulation is too much restrictive to achieve high return with acceptable level of risks as the modern theories' of portfolio advocates. The other threat for the fund is inflation which can be overcome by achieving high return. Therefore, the need of sound and less restrictive regulation is urgent so that the funds can maintain its sustainability.

5.3 Recommendations

In line with the findings of the study the study recommends the following important points:

First, unlike many other countries the pension fund regulation of Ethiopia lacks clarity and rigorousness. Thus, the regulation should be detail and comprehensive. That is the regulation expected not only to specify area of investment but also to give authority to a specified body; to clarify the discretion of fund managers to investment decisions and to set up the ideal mix of assets in the portfolio.

Second, including the regulations on investments the scheme members must be consulted on issues which have impact on them. Since they are affected by the last result, members' positions regarding to any planned action of the fund should be considered. As other countries experiences affirm members of the schemes (employees, employers, retirees and the government) should be represented in the decision making body of the social security agencies.

Third, the regulation on asset mix of pension fund investment must be based on researches and not by rule of thumb. Theories of portfolio management must be assessed by taking into account the country's unique feature. Accordingly, rather than restricting the investment on one assumedly risk free asset, the composition of assets which have inversely related risk behavior helps to achieve both high return and tolerable risk.

Fourth, the investment activity of the pension fund must be done with transparency. Other schemes in other countries have trend to expose the investment performance of the fund to the public. Revealing financial statement of the fund in magazines, newspapers and in the internet is very common. It helps the members of a scheme to have information about how the investment activities are going on. It in turn influences the fund managers to show the utmost responsibility in the decision of investing the trusted money.

The risk minimization of the pension funds can be achieved via insuring the risks related with the investment activities. As other countries' experiences demonstrated pension risk can be minimized, if it is not avoided, through transferring the risks to insurance companies. It can be done with either domestic or foreign insurance companies. Thus, the pension fund regulations expected to contain ways of minimizing risks such as this one rather than limiting the area of the fund quantitatively.

Lastly, the reports of investment performances from PSSSA and POESSA should be rigorous and complete. It means the agencies should not totally depend on comparing what is planned with what is achieved. Instead, it is better to employ other internationally acceptable return and risk measurements such as HPY, IRR, standard deviation and coefficient of variation. It enables to understand the weakness and achievements of the funds' investment activities.

5.3 Suggestions for Further Research

This study has emphasized only on one of the factors (pension fund regulations) which have influence on the performance of pension fund investment. Thus studies with the aim to identify determinants of pension fund investment would reveal other important factors.

The comparison of the Ethiopian pension fund investment with that of other countries can be analyzed in a broader way.

It is suggested that other researchers could examine the effects of the absence of well-developed capital market on the investment performance of Ethiopian pension fund.

The potential and advantageous of investing the pension reserves on foreign market can also be a good research area. Many pension schemes have investment on abroad. The modern portfolio theory also supports to invest on assets in the overseas so as to minimize risks. Thus it is interesting to test whether this theory can be materialized in the case of Ethiopia or not.

Some argue that the monopoly of pension funds by the state results poor performance of the investment. Accordingly they advocate private pension enterprises since their efficiency were better than their public counterparts in many cases. Therefore, the prospects of private pension enterprises and their possible effects on the investment performance require further research.

Finally, it is suggested to conduct studies which compare the investment performances of the pension schemes with that of insurance companies of the country. Since both groups are in the same socio-economic conditions, it helps to identify the major factors that affect the investment performances of the fund.

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Annex: I
Maximum Percentages of Allowed Investments in Assets Categories in selected African countries

Country	Equity	Real Estate	Bonds	Bank Deposits	Retail Investment Funds	Private Investments	Loans
Kenya	□□Listed in Kenya/Ug./Tanz.: 70% □□Unlisted: 5%	30%	□□Government/publ. bonds: 90% (Kenya/Ug./ Tanzania) □□Corporate bonds (grade crediting): 30%	□□Cash: 5% □□Fixed Deposits & CDs: 30%	as per underlying investments (equity/bonds)	10% subject to approval	Not allowed
Tanzania	15% (of which private equity is 5%)	30%	Government Bonds: 20%-70%	30%	licensed collective schemes 30%	Priv. Equity: 4%	Individual Loans not allowed *
Uganda	□□Quoted in East Africa: 70% □□Private equity in East Africa: 15%	30%	□□Government bonds in East Africa: 80% □□Corporate: 30%	□□Cash: 5% □□Fixed Deposits & CDs: 30%	-	-	-
Zambia	5%-70%	30% (not outside the republic)	at least 5% (max 7.5% of the same company)	2.5%-20%	10%	Not allowed	-

Annex II

OECD-CALCULATED AVERAGE RATE OF INVESTMENT RETURNS

Methods for calculating the average investment returns (IRR) of pension funds vary greatly from country to country, hindering international comparability of these statistics. With a view to increasing data comparability across countries, the OECD therefore decided that it would be worth applying the same calculation method for IRR across countries, which would be calculated by the OECD, using variables already collected as part of the Global Pension Statistics' framework. In order to reach a consensus on the most appropriate formula for the IRR calculation, an electronic discussion group was created, composed of selected country experts.

Drawing on preliminary consultations, the OECD Secretariat proposed five formulas to the electronic discussion group for comments. A consensus has been reached within the group and subsequently endorsed by the OECD Task Force on Pension Statistics on the following formula for the average IRR, in each year N:

$$CalculatedaverageIRRN = \frac{NetInvestmentIncomeN}{(TotalInvestmentN-1 + TotalInvestmentN)/2} \times 100$$

Net investment income comprises income from investments, value re-adjustments on investments and income from realized and unrealized capital gains and losses. It includes rents receivable, interest income, dividends and realized and unrealized capital gains, before tax and after investment expenses.

Because countries may use a different calculation method for the average IRR, it should be noted that there may be discrepancies between the OECD-calculated average IRRs and the ones published by these countries.

It is to be taken into consideration that IRRs may be given before administration costs. Pension funds tend to charge members a fee to cover all their administrative costs. However, different pension systems charge fees in different ways. The magnitude of the fees varies across countries and depends mainly on the concentration in the market (the level of competition between pension funds).

Questionnaire to Respondents

Dear respondents

My name is KidusHagos. I am a post graduate student in St. Mary's University School of Graduate Studies MBA in Accounting and Finance. I am conducting a research on the topic entitled. The interface Between Pension fund Regulations and Investment Performance: The Ethiopian Experience to fulfill the requirements for Master of Arts degree in Accounting and Finance. The purpose of the questioner is therefore, to collect data for the master thesis.

Hence, I would like to request your kind cooperation to fill out the questioner as complete and objectively as possible. Your response will only be used for academic purpose and your identity will not be disclosed to anyone anywhere. Thank you in advance for your cooperation.

KidusHagos ----------------------------

May 2018

Addis Ababa

I. Respondent Profile

1.1 Sex

Male ☐ Female ☐

1.2 State your highest educational qualification.......................

1.3 What is the name of your employer? ....

1.4 Which department/unit do you work? ....

1.5 How many years have you worked for this company? ....

II. To What extent the investment performances of Ethiopian social security agencies has been effective?

2.1 To what extent do you agree with the statement that the investment activity of the agency so far is effective?

A. Strongly agree ☐ B. Agree ☐ c. Neutral ☐

D. Disagree ☐ E. Strongly Disagree ☐

2.2 Do you think that the agency's portfolio is in its optimal level?

A. Yes ☐ B. No ☐

2.3 How do you evaluate the trend of the investment performance of the agency? It has been

A. very high ☐ B. high ☐ C. medium ☐

D. low ☐ E. very low ☐

2.4 Does the agency's investment performance achieve its organizational objectives?

A. Yes ☐ B. No ☐ C. To some extent ☐ D. I have no idea ☐

2.5 In which area the fund is investing more, currently

A. Treasury Bill ☐ B. Government bond ☐ C. Share ☐

D. Time deposit ☐ E. other, specify ……………………………

2.6 In your opinion, which of the following area of investment is more effective based on risk and return criteria?

A. Treasury Bill ☐ B. Government bond ☐ C. Share ☐

D. Time deposit ☐ E. other, specify……………………

III- How government regulations has been affecting investment activities of pension funds of the country?

3.1 Do you think that the endorsement of proclamation number 714/715 has significant effect on the performance of pension fund investment

A. Yes ☐ B. No ☐

3.2 If your response to question number 2.1 is 'yes' in which direction the effect is

A. Positive effect B. Negative effect

3.3 To what extent do you agree that the proclamation helps to earn high investment return?

A. Strongly agree ☐ B. Agree ☐ c. Neutral ☐
D. Disagree ☐ E. Strongly Disagree ☐

3.4 In your opinion does the aim of the existing pension fund regulation that is minimizing risk is achieved?

A. Yes ☐ B. No ☐

3.5 If your response to question number 2.4 is 'no' what is the reason ……………………………………………………………………………………………………
……………………………………………………………………………………………………

3.6 How do you evaluate the role of the current pension fund regulation to the sustainability of the fund?

A. very high ☐ B. high ☐ C. medium ☐

D. low ☐ E. very low ☐

3.7 Does the agency's investment activity is in line with proclamation 714/715?

A. Yes ☐ B. No ☐ C. To some extent ☐ D. I have no idea ☐

3.8 If your response to question number 4.2 is 'no'/ 'to some extent' please explain why?..
....

3.9 Do you ever recognize any attempt of researches on profitability and feasibility of alternative investment areas by your department?

A. Yes ☐ B. No ☐

3.10 Is there any investment policy that guide your pension investment related works

A. Yes ☐ B. No ☐

3.11 If your response to question number 4.3 is 'yes' which factors are taking in to account in the policy? (Possible to tick more than one option)

A. pension proclamation ☐ B. ISSA's investment guidelines ☐

C. financial laws of the country ☐ D. organizational objectives ☐

E. other, specify……………………………………

3.12 Is there any attempt by your agency to include ISSA's guidelines in investment decisions?

A. Yes ☐ B. No ☐ C. To some extent ☐

3.13 Besides pension proclamation 714/715, please indicate any regulation, if there any, that has effect onthe investment decision of the fund

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IV What is the opportunity cost of the current pension fund investment of the country?

4.1 Do you think that the investment area restriction of the existing pension regulation is reasonable?

A. Yes ☐ B. No ☐

4.2 If your response to question number 5.1 is 'yes' please indicate what are the advantages ofthisrestriction

……………………………………………………………………………………….......................

....

4.3 If your response to question number 5.1 is 'No' please explain your reason…………………………………………………………………………………………

…………………………………………………………………………………………………

4.4 What is your position on the argument that this restriction is essential to maintain the sustainability of the fund?

A. Strongly agree ☐ B. Agree ☐ C. Neutral ☐

D. Disagree ☐ E. Strongly Disagree ☐

4.5 What would be, in your opinion, the investment performance if the pension fund regulation is less restrictive?

A. very high ☐ B. high ☐ C. medium ☐

D. low ☐ E. very low ☐

IV To what extent the return from investment contributes to the pension fund?

5.1 How do you evaluate the contribution of investment to the pension fund?

A. very high ☐ B. high ☐ C. medium ☐

D. low ☐ E. very low ☐

5.2 What is the current status of the pension investment regarding to maintain the necessary liquid asset?

A. very high ☐ B. high ☐ C. medium ☐

D. low ☐ E. very low ☐

5.3 compare to its outflow how do you evaluate the increment of the pension fund investment return?

A. very high ☐ B. high ☐ C. medium ☐

D. low ☐ E. very low ☐

5.4. Please describe the Loop hole of the current Ethiopian pension fund regulation…………………………………………………………………………………………
…………………………………………………………………………………………………

Thank you

Annex IV: Interview for Social security fund managers

1. Does the invested pension fund so far earn a sufficient return?
2. What are the challenges of the investment activities of the fund?
3. How do you evaluate the current pension fund regulation regarding to its effect on the investment performance of the fund?
4. Explain the reason why the existing pension fund regulation is restrictive
5. Describe the forgone advantages of less restrictive pension regulation
6. How do you describe the contribution of the investment return to the current status of the fund?
7. What are the merits and demerits of the current Ethiopian pension fund regulation compare to that of other countries?
8. Regarding to pension fund management regulation, what do you recommend to maintain the sustainability of the fund

Thank you