

INVESTMENT PERFORMANCE OF PENSION; A CASE STUDY OF SSNIT
PENSION SCHEME

BY

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KNUST

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DECLARATION

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DEDICATION

This work is dedicated to my family..

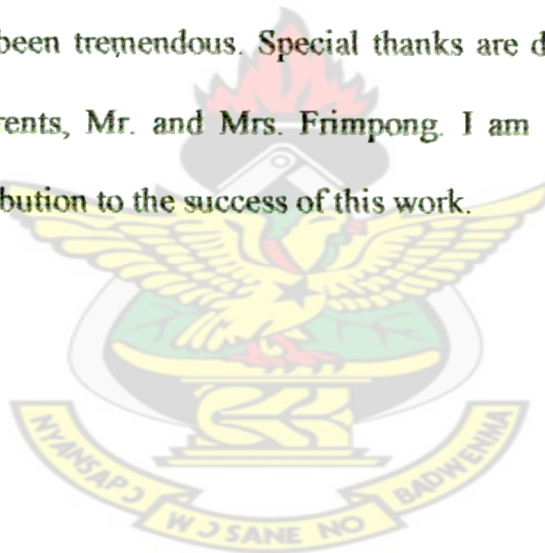
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ABSTRACT

Pension can be defined as a long term periodical cash benefits that Social Security Systems pay in case of invalidity, in old age and on the death of the bread winner. Pension fund is a pool of assets forming an independent legal entity that are bought with the contributions to a pension plan for the exclusive purpose of financing pension plan benefits. The main objective of a social insurance scheme, such as a pension fund, is to ensure economic security and protection for its members.

Based on this objective, there is the need for prudent investment of the funds collected to ensure long term sustainability of the scheme. This role carries with it an implied responsibility for the pension fund manager to select an investment strategy that balances risk and return appropriately for the citizens on whose behalf it is investing.

Therefore, various Boards of Trustees of SSNIT have designed and implemented different investment programmes during the fifteen-year history of the Scheme. The question asked and which this study sought to answer was, what have been the factors determining the investment decisions of the fund managers. Analysis of data revealed interest rate, inflation and general investment risks as the major factors determining the investment policies of SSNIT. The specific objectives were to identify the business objectives of SSNIT pension fund, identify its investment portfolios, identify the risk factors that influenced the choice of those investment portfolios, and to identify the returns on these investment in relation to the growth of the fund.

The study revealed that the Scheme's asset allocation targets are gradually being achieved. It is expected that this trend will eventually lead to the attainment of the Scheme's overall investment objectives. Not only have total real returns improved in

the recent past but also investment in various asset classes is closer to benchmark returns established under the guidelines. In some cases the Scheme's return has outperformed market benchmarks.

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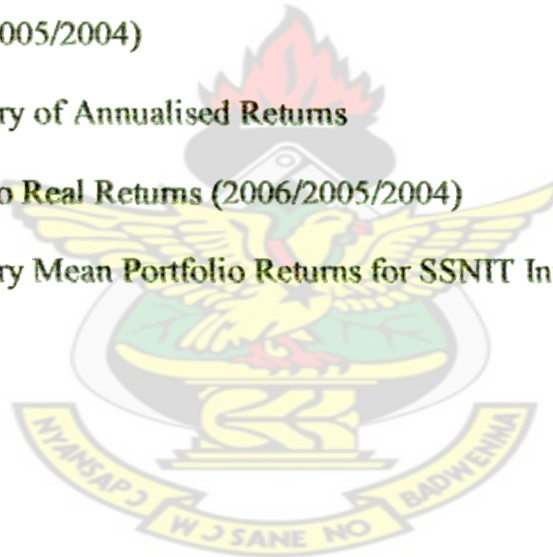
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CHAPTER ONE

GENERAL INTRODUCTION

1.0 INTRODUCTION

The ILO (1970) defines pension as a long term periodical cash benefits that Social Security Systems pay in case of invalidity, in old age and on the death of the bread winner. According to the ILO, there are three methods of affording protection. These are social insurance, public service or social assistance. The internet encyclopaedia, wikipedia, defines a pension fund as a pool of assets forming an independent legal entity that are bought with the contributions to a pension plan for the exclusive purpose of financing pension plan benefits. It can also be defined as a fund consisting of money contributed by the employer and/or the employees, plus earnings to provide pension benefits to retired employees of a corporation, government entity, or to other organizations. It is to provide for members' pension and lump sum benefits on their retirement or for their dependants' benefits on death before or after retirement, on a defined benefits basis.

Pensions in Ghana cover about 10% of the nation's workforce, mainly those employed in the formal sector. Consequently, the vast majority of workers in the informal sector have no coverage. Even though membership of the SSNIT Pension Scheme is open to workers in the informal sector on a voluntary basis, patronage has been very poor. At the end of 2005, Ghana had about 400,000 employees in the

public sector. There were approximately 73,000 pensioners under the SSNIT Scheme (Presidential Commission on Pensions, 2006).

The main objective of a social insurance scheme, such as a pension fund, is to ensure economic security and protection for its members. Planning for a comfortable retirement has traditionally not been approached by many Ghanaians as an important activity requiring serious financial planning. This attitude to retirement planning can be partly blamed on certain cultural values and practices within the traditional society. There is however renewed interest in the setting up of pension funds even by private organisation to achieve the same purpose (Presidential Commission on Pensions, 2006).

As funding of public pension schemes grow, governments increasingly are finding themselves in a role of fiduciary agent for their citizens. This role carries with it an implied responsibility for the public or the private pension manager to select an investment strategy that balances risk and return appropriately for the citizens on whose behalf it is investing (Musalem & Palacios, 2003). According to Iglesias and Palacios (2000), there are several factors that influence the investment decisions and strategies adopted by pension fund managers. This would mean minimising the pension cost to contributors and minimising the risk of benefit cuts to beneficiaries. The main objective of a social insurance scheme, such as a pension fund, is to ensure economic security and protection for its members in planning for a comfortable retirement. Pension fund aims to produce a high level of income with the possibility of capital growth if, for example, interest rates fall, by active investment in gilt-edged and other fixed interest investments, including money on deposit. The return is

derived mainly from an actively managed portfolio of gilts and other fixed interest investments, including money on deposit (Iglesias &Palacios, 2000). According to Woods (1989) pension funds aims to achieve a return on Fund assets which is sufficient, over the long-term, to meet the funding objective set out on an ongoing basis and also maximise return within acceptable levels of risk. The 'risk' inherent in a particular investment strategy can thus be related objectively to the probability of not achieving the stated business objective

Defined-benefit pension funds are exposed to a rise in interest rates. When interest rates rise, policyholders may wish to terminate their contracts to benefit from more attractive investment opportunities (Banque de France, 2005). High interest rate volatility makes the management of changes in the sensitivity of assets and liabilities more costly and more difficult if it is associated with a decline in market liquidity. Apart from the risk of fall or rise in interest rate, there is also the investment risk. No investment is riskless, not even government guaranteed since even that type of investment can be affected by devaluation of the currency. Pension fund investment can face risks such as capital risk, currency risk, liquidity risk and financial risk (Banque de France, 2005).

1.1 BACKGROUND TO THE STUDY

There is the need for pension fund managers to manage and invest funds prudently. In doing so it demands a deeper understanding and appreciation of all factors that might affect the investment. Also, due to the unstable nature of the economic environment,

marked by uncertainties, speculation and other external influences, fund managers need to be proactive in identifying all economic variables that are in play and which would positively or negatively affect the investment choices. In order to take sound decisions, pension fund managers need of course first to identify and then to quantify the risks facing the fund. The first step is to systematically structure these risks. Once this has been done and the fund manager therefore knows what the risks are, he then need to define the fund's risk attitude.

Many years ago, a company might make a promise to pay pensions without setting aside any funds to support this promise. As these arrangements became more formal, government regulations were established to ensure the promised pensions were available and required that companies put aside the necessary funds to ensure that pensions were paid. Once companies were required to set aside monies to fund their pension promises, it became attractive to invest these funds to earn a higher return that would lower the cost of providing pensions (Bookstaber & Clarke, 2000).

It is not so long ago that companies would put their pension funds in government bonds or life insurance company annuities. As inflation rose in the 1960s and 1970s, companies found that rising salaries and low fixed-income returns made their pension plans very expensive. They turned increasingly to investment in equities to obtain a higher return and lower the eventual cost of their pension plans. More sophisticated plans began to place funds in direct real estate investment, venture capital and mortgages. By the 1980s, pension plans were exploiting "non-traditional" investments in Leverage Buyout Funds (LBOs), hedge funds and even direct ownership of private companies (Bookstaber & Clarke, 2000).

Pension plans are usually considered "patient capital" because of their long time horizon. The type of investments undertaken by a pension fund depends on its objectives and constraints which are provided for in its "investment policy statement". Legislation demands a "prudent approach" of diversifying risk across a number of securities or asset types. Taking prudence into account, pension funds strive to achieve the highest practical return which lowers the cost of their pension "obligation" considerably (Merton, 1982).

The Social Security, Fund has the mandate of managing contributions of members. As part of their obligation, managers are to invest and make good returns on the investments made. These pension schemes have been in existence over a long period with many diverse investment portfolios. The study intends to look at these pension funds, their objectives and the investment policies that seek to fulfil these objectives.

1.2 RESEARCH QUESTIONS

The various stakeholders have found the identification of business objectives for the pension fund an instructive exercise. From the actuary's point of view, the setting up of business objectives provides a clear and identifiable yardstick against which the effectiveness of the investment strategy can be measured. The fund manager provides both tactical asset allocation and specialist management in the markets in which the fund is invested. In undertaking the study the researcher intends to seek for answers to the following questions: What are the business objectives of the SSNIT? What have been their investment portfolios over the past three years? What were the factors that influenced these investment choices? What have been the returns on

these investments and how have the investment decisions and choices been able to fulfil the objectives of these pension funds.

1.3 OBJECTIVES OF THE STUDY

The objective of the study is to look at interest rate and investment risks as factors that affect the investment decisions of these pension funds. The specific objectives are

- i To identify the business objectives of the pension funds under study.
- ii. To identify their investment portfolios,
- iii To identify the risk factors that influenced the choice of those investment portfolios, and
- iv To identify the returns on these investment in relation to the growth of the fund

1.4 JUSTIFICATION OF THE STUDY

The relevance of the study lies with the fact that results from the research will serve as guidelines in the design of investment policies by fund managers. Also the identification of the risk factors affecting the investment portfolios of these pension funds will enable managers to monitor their investments carefully and make the necessary changes as applicable to save the interest of public funds and contributors.

The research will provide the management of the pension funds enough information to design a risk management plan consistent with combination of benefit and contribution policies and funding and investment strategies that satisfy plan sponsors and plan members, both active and retired

1.6 SCOPE OF THE STUDY

The study was limited to the SSNIT pension scheme using the regional office as the target of the study. Content wise, the study was limited to finding the business objectives of the pension funds under study, identifying their investment portfolios, the risk factors that influenced the choice of those investment portfolios, and the returns on these investments in relation to the growth of the fund.

1.7 LIMITATIONS

The limitation of the study was the reluctance of the managers of the fund in releasing relevant information for the study. Another limitation was the short time frame given for the project.

1.8 ORGANISATION OF THE STUDY

Chapter one of the study is devoted to the general introduction. It presents background to the study, the research questions, objective of the study, justification of the study, methodology, scope of the study and limitations. Chapter two of the study is devoted primarily to the literature review where related literature about pension fund management and activities are discussed. Chapter three is devoted to the discussion of the SSNIT pension fund, the object of the study. Some of the issues that have been discussed include history, objectives, membership, contributions, benefits, investment portfolios etc. Chapter four is devoted to the analysis of the data that was collected, and finally, the last chapter, which is chapter five, has been used for the presentation of the research findings, conclusion and recommendations.

Chapter two

Literature Review

2.0 Introduction

This chapter of the study is devoted to the review of related literature on the subject.

2.1 Pension Funds

Pension funds may be defined as forms of institutional investor, which collect, pool and invest funds contributed by sponsors and beneficiaries to provide for the future pension entitlements of beneficiaries (Davis 1995a). They thus provide means for individuals to accumulate saving over their working life so as to finance their consumption needs in retirement, either by means of a lump sum or by provision of an annuity, while also supplying funds to end-users such as corporations, other households (via securitised loans) or governments for investment or consumption. The ILO (1970) defines pension as a long term periodical cash benefits that Social Security Systems pay in case of invalidity, in old age and on the death of the bread winner. Pension funds have grown strongly in recent years in many Organisation for Economic Co-operation and Development (OECD) countries as well as in emerging markets, both relative to GDP and compared to banks.

Since early withdrawal of funds is usually restricted or forbidden, pension funds have long term liabilities, allowing holding of high risk and high return instruments. Accordingly, monies are intermediated by pension funds into a variety of financial assets, which include corporate equities, government bonds, real estate, corporate debt (in the form of loans or bonds), securitised loans, foreign holdings of the

instruments mentioned above and money market instruments and deposits as forms of liquidity.

Pension funds are typically sponsored by employers, such as companies, public corporations, industry or trade groups; accordingly, employers as well as employees typically contribute. Funds may be internally or externally managed. Returns to members of pension plans backed by such funds may be purely dependent on the market (defined contribution funds) or may be overlaid by a guarantee of the rate of return by the sponsor (defined benefit funds). The latter have insurance features in respect of replacement ratios (pensions as a proportion of income at retirement) subject to the risk of bankruptcy of the sponsor, as well as potential for risk transfers between older and younger beneficiaries, which are absent in defined contribution funds (Bodie, 1990a). For both types of fund, the liability is in real (inflation adjusted) terms. This is because the objective of asset management is to attain a high replacement ratio at retirement (pension as a proportion of final salary) which is itself determined by the growth rate of average earnings. Defined contribution plans have tended to grow faster than defined benefit in recent years, as employers have sought to minimise the risk of their obligations, while employees seek funds that are readily transferable between employers.

Bodie (1990a) further identifies certain key characteristics of pension funds which are common to other institutional investors. These include:

- ☐ Off of risk and return than for direct holdings;

- a premium on diversification, both by holding a spread of domestic securities (which may be both debt and equity) and also by international investment;
- a preference for liquidity, and hence for large and liquid capital markets, which trade standard or 'commoditised' instruments;
- ability to absorb and process information, superior to that of individual investors in the capital market. On the other hand, unlike bank lending, pension funds rely on public information rather than private, which links strongly to their desire for liquidity;
- large size and thus economies of scale, which result in lower average costs for investors. These may arise from, inter alia, ability to transact in large volumes which typically leads to a lowering of transactions costs. Investors share the costly services of expert investment managers and thereby save in advisory fees. Size also enables the funds to invest in large indivisible investments (although there is a tension with desire for diversification);
- countervailing power, which may be used to reduce transactions costs and custodial fees. This countervailing power also gives rise to ability to ensure the most favourable terms from capital market intermediaries on the one hand, and on the other gives a potential for improved control over
- companies in which they invest, thus reducing the incidence of adverse incentive problems.

2.3 Types of Pension Funds

Most pension schemes fall under one of the following broad categories, namely:

- Defined Benefit (DB) Scheme
- Defined Contribution (DC) Scheme

2.3.1 Defined Benefit (DB) Scheme

According to Clark *et al* (2004), a defined benefit (DB) scheme specifies the formula for the determination of benefit entitlements and employees are promised a 'guaranteed' or "defined" amount of pension. The cost of the Plan is determined on an actuarial basis, as the amount of money required to provide the given level of benefit to all employees on the Scheme. The Scheme specifies that the employee contributes a percentage of his earnings to help fund the benefit. The employer contributes the difference between the cost of providing the benefits as indicated by the actuary and the level of the employee's contribution.

The DB scheme provides a guaranteed pension, calculated on the basis of the member's salary in the final years of employment and the number of years of service. It may be based on the employee's final salary or the average of the salary earned over a number of years. Fewer years of contributing to the Scheme means a relatively small pension after the minimum qualifying years of service (Clark *et al*, 2004).

On the basis of this arrangement, it is expected that an employee, particularly a public servant, would remain in service for a long period of time and the employer accordingly, should accept a far reaching responsibility to provide for him or her. This view is consistent with the idea of pensions as a form of deferred earnings. In some schemes, the employee may not be required to contribute a specific predetermined amount or a percentage of salary on a monthly basis into the scheme.

The contribution rate is calculated as the contribution which in conjunction with the member's future contributions will be required to provide security for the defined benefits promised under the Scheme (Clark *et al*, 2004).

2.3.2 Advantages of DB Schemes

Clark *et al* (2004) identified several arguments in favour of a DB scheme. According to them these advantages include:

- (i) Maintenance of living standards: Since the pension level is related to the employee's earnings immediately prior to retirement, it is supposed to guarantee (with sufficient service), a standard of living in line with what the beneficiary was enjoying prior to retirement.
- (ii) Security: The investment risks and rewards associated with the pension promise and the payment of expected benefits at retirement rest with the Plan Sponsor (government/employer), rather than with the employee. The employer will usually make good any shortfall in the financing of the Scheme.
- (iii) It is easier to provide targeted benefits to participants by an adjustment of the benefit formula.
- (iv) Older employees can still receive adequate benefits, even after a few years of contribution (Johnson and Steuerle, 2004).

(v) There are cross subsidies/solidarity among members.

2.3.3 Disadvantages of DB Schemes

Arguments which may be made against a DB scheme include:

(i) Pensions are seen as deferred, not extended earnings: It is generally accepted that pensions represent deferred earnings; a portion of the remuneration package that is set aside or saved in order to provide for the individual's old age. If that is the case, it would be more appropriate that pensions are correlated with earnings all through the beneficiary's service, rather than with his/her earnings at retirement.

(ii) Manipulation of Final Earnings

There is a risk that the final salary principle may encourage manipulation of an employee's earnings for the purpose of achieving an excessively high pension.

(iii) Uncertainty of Costs

In a DB structure, the final cost of pension cannot be predicted. Detailed actuarial calculations, usually based on uncertain assumptions, are necessary to ascertain the long term cost. Employees do not need to worry about its financing, since it is the employer who bears the risk if the costs are higher than estimated.

(iv) Extra Fees

Extra fees are required for periodic actuarial valuations. This adds to the cost of administration and the tendency for scheme operators to avoid this important responsibility.

2.4 Defined Contribution (DC) Scheme

Under the DC plan, the employer and usually the employee make a predetermined contribution, expressed as a percentage of salary, into an account held on behalf of the employee, the individual investment fund. The contributions, less charges levied on them are invested in underlying investments, in assets such as stocks, bonds, property, etc. up to retirement. The level of benefits received at retirement is determined by the accumulated value of the assets in the pension fund into which contributions are made. This is sometimes referred to as the investment reserve. Thus the amount of retirement income that may be purchased with the account balance is unknown till the actual retirement date. The pension is determined directly by the size of contributions, the growth in investment returns and annuity rates at retirement.

It is also open to employees to make additional contributions to secure additional benefits. However, because the worker's benefit is tied to the rate of return on the assets in his or her account, a downturn in the value of assets at the point of retirement may greatly reduce the worker's retirement income.

Under the DC arrangement therefore, the participant bears the investment risk. Once a Plan sponsor makes the required contribution into the Fund, there are no other guarantees and the sponsor's obligation is settled, the liability of the plan sponsor being limited to the contribution to the plan.

There are two basic types of DC Pension Schemes. These are Money Purchase Pension Scheme and Profit Sharing Pension Scheme

2.4.1 Money Purchase Pension Scheme

This type of DC scheme is an employer sponsored arrangement where employer and employee contributions are defined. They may be fully employer paid or require employee contributions as well. The employer's contribution may be conditional to and/or vary with the employee's contribution. Contributions may be a fixed percentage of earnings, a fixed cedi amount, or a specified amount per year of service.

2.4.2 Profit Sharing Pension Scheme

A profit sharing pension plan is a type of DC scheme where employer contributions are linked to the profitability of the company. The employer's total annual contribution is determined using a formula related to profits. Allocation of profits among Plan Members may be based on a points system, where points are assigned in relation to service, earnings or on both. Investment earnings and forfeitures are allocated to employees in proportion to their account balances.

This type of plan may act to motivate employees and lead to increased productivity. However, the only drawback of this arrangement is that contributions are linked to profit and this increases the uncertainty associated with the level of retirement income. From the employer's perspective, costs are linked to the company's ability to pay.

2.4.3 Advantages of Defined Contribution Schemes

Arguments for adopting a DC scheme structure for a public sector pension scheme include:

- (i) allowing greater flexibility to public servants to tailor their retirement package to suit their own circumstances. For instance, an individual could decide to increase his or her level of contributions or pay a lump sum into the Fund, subject to Tax Laws, to meet changing needs;
- (ii) enabling public servants to make contributions towards additional benefits at retirement on the basis of earnings/allowances that would not be pensionable under existing arrangements, e.g. overtime;
- (iii) giving individuals the potential to benefit from the upside of the investment market, by providing them with a range of funds in which to invest their money;

- (iv) allowing the contributor to draw some money from the fund prior to retirement;
- (v) providing a more equitable arrangement for the public service, as it would more accurately represent income earned during the course of each person's whole career, not just salary at retirement, (*which favours those with favourable promotion progression*). In addition, defined contribution schemes tend to deliver a relatively higher benefit to those who experience a lower level of salary progression over their career;
- (vi) providing a clearer picture of year by year costs, thereby making budgeting easier for employers;
- (vii) transparency of defined contribution schemes and their closeness to other everyday financial transactions. This would mean that communications with scheme members are relatively straightforward;
- (viii) Plan Sponsor, the employer or the State avoids investment and mortality risks;
- (ix) Younger employees can accumulate substantial funds for retirement needs.

2.4.4 Disadvantages of Defined Contribution Schemes

Arguments which may be made against a DC pension structure for the public sector include:

- (i) employees, rather than employers, would be required to bear the investment and mortality risks associated with defined contribution schemes;
- (ii) for any individual, the amount of future benefits to be earned on retirement, would be difficult to quantify. On a broader level, there could be a concern that the contributions made would not be sufficient to provide the same level of benefits as under the existing scheme;
- (iii) in many cases, particularly for those retiring early and who experience high salary progression, benefits would not be comparable with existing arrangements. The final salary principle applicable in defined benefit schemes acts as a greater incentive for the employee to earn promotion, than a defined contribution scheme;
- (iv) Older employees usually cannot accumulate enough funds because of the shorter time remaining before retirement.

Vesting Period: An employee becomes vested in employer contributions made on his or her behalf after being a member of the Plan for a specified period, but generally not more than two years. The vesting policy is subject to pension standards legislation. If an employee terminates prior to that date, the benefit received will be based on the employee's contributions only. The employer's contributions that are forfeited in this situation are usually used to reduce the employer's cost.

2.5 Comparing Defined Benefit and Defined Contribution Schemes

The fundamental difference between a DB Scheme and a DC Scheme is the certainty of the former's benefits compared with the latter's exposure to market investment returns. Because future investment returns are not predictable and potentially may be highly volatile, the eventual benefits for individuals may vary significantly from projected outcomes.

The level of control over the management of the pension fund by individual employees can vary. In some cases, the individual cedes all day to day management to a Fund manager. In other models, the individual can exercise choice between different types of funds and can move funds from one to the other. In a DC Scheme, each individual has his or her own separate investment account which must be used to provide benefits for him/or herself. There are no cross subsidies between individual members, as in defined benefit schemes.

One of the most significant variables affecting the benefit outcome under a DC Scheme is the investment return achieved. This is reflected in the fact that at the end of a typical career of 30-40 years, as much as two thirds (67%) of the member's final retirement account could be made up of accumulated investment returns, with just one third (33%) made up of total contributions paid. Management of investment risks and who bears the investment risks, are issues of major importance.

Under a DC scheme, the participant bears all the economic and investment risks, even if all required contributions are made on schedule. DB schemes however, place

the risk of benefit delivery on the sponsor, who is the employer in the case of occupational pension schemes, or the State in the case of social security schemes.

A key point to emphasise is that allocation of risks and responsibility for the delivery of the promised benefits marks the important distinction between a DB and a DC scheme. A decision to move from DB to DC pension scheme involves the transfer of investment risks from the employer to the member.

2.6 Functions of Pension Fund

2.6.1 Clearing and settling payments

The role of pension funds is clearly not to facilitate exchange of goods, services and assets directly. This is because, unlike banks, money market funds, and to a lesser extent long term mutual funds, they do not offer liquid liabilities. Nevertheless, pension funds have had an important indirect role in boosting the efficiency of the financial systems, by influencing the structure of securities markets. This effect on micro-structure links to their demand for liquidity, i.e. to transact in large size without moving the price against them, anonymously, and at low transactions costs.

By demanding liquidity, pension funds help to generate it, firstly by their own activity in arbitrage, trading and diversification, secondly via the fact that liquidity is a form of increasing return to scale, as larger markets in which pension funds are active attract more trading, reducing costs and improving liquidity further. A third effect arises from funds' countervailing power as they press for improvements in market structure and regulation. These include deregulation and reduction in commissions, advanced communication and information systems, reliable clearing

and settlements systems, and efficient trading systems, all of which help to ensure that there is efficient arbitrage between securities and scope for diversification. They also demand adequate public disclosure of information and a market-oriented accounting system. In this regard, pension funds have considerable leverage as they are extremely "footloose" and willing to transfer their trading to markets offering improved conditions. This renders the market for securities trading services "contestable", regulation permitting. Any excess profitability is vulnerable to "new entry" by other markets; and markets need to innovate (e.g. by setting up futures exchanges or electronic trading) to retain pension funds' business.

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The resulting financial structure reduces volatility and bid-offer spreads and enables financial and non financial institutions to hold, obtain and transfer liquidity much more readily. Increases in liquidity should in turn be beneficial more generally to the efficiency of capital markets, and lead to a reduction in the cost of capital, as well as diminishing the role of banks⁸ in liquidity provision.

2.6.2 Provision of a mechanism for pooling of funds and subdivision of shares

Pooling and diversification is a fundamental characteristic of pension funds, given their size and consequent economies of scale. In this context, one may note the mutually reinforcing development of securitisation of individual assets (such as loans), which has provided a ready supply of assets in which pension funds may invest instead of banks holding them on their balance sheets. In addition, participation costs to market activity may also be of major importance in determining the demand for services of pension funds.

The traditional theory of pooling suggests that transactions costs in securities markets, including the bid-ask spread and "minimum size investment barriers", make it difficult for households of average means to diversify via direct securities holdings. Meanwhile, risk incurred if diversification is insufficient is not compensated by higher return, because such risk is diversifiable to the market as a whole (*Sirri and Tufano* 1995). Historically, this either meant that individuals took excessive risks or were obliged to hold lower-yielding assets such as bank deposits.

The idea of participation costs complements that of transactions costs, and helps explain why pension funds have continued to grow even as transactions costs have come down. The basic idea is that there is a fixed cost to learning about a company, and also an ongoing cost to being active in the market and remaining up-to-date, which may discourage individuals from holding sufficient shares for adequate diversification (*Allen and Santomero* 1998). Furthermore, the skills needed to undertake risk management may be too costly for individuals to acquire (*Allen and Santomero* 1999).

Pension funds offer much lower costs of diversification¹⁰ by proportional ownership. Fees for managing investments can be as low as 25 basis points for company pension funds and 100 basis points for personal pension funds. One reason for this is that there are economies of scale in large transactions, related partly to the fixed costs involved. Pension funds can also offer the possibility of investing in large denomination and indivisible assets such as property which are unavailable to small investors. Furthermore, pension funds reduce the cost of transacting by negotiating lower transactions costs and custodial fees Professional asset management costs are

shared among many households and are markedly reduced as a consequence. The direct participation costs to households of acquiring information and knowledge needed to invest in a range of assets, as well as in undertaking complex risk trading and risk management are reduced (although costs of monitoring the asset manager remain). The net effect is that individuals are likely to switch to pension funds from direct holdings of securities and from bank deposits.

2.6.3 Provision of ways to transfer economic resources

The basic *raison d'être* of pension funds arises in the context of resource transfer over time. This function does not typically entail maturity transformation, as pension funds have matched assets and liabilities. Pension funds act in an unusual manner in this regard, in that they may increase the volume of saving¹¹ per se besides the disposition of household funds. At a micro level, company or other obligatory pension funds can implement enforced saving by deferring wages and salaries, thereby reducing risk of a low replacement ratio. At a macro level, the increase in saving is not usually one-to-one, as increased contractual saving via pension funds is typically partly or wholly offset by declining discretionary saving. The remaining effect probably results from liquidity constraints on some individuals (especially the young), who are unable to borrow in order to offset obligatory saving via pension funds early in the life cycle. It can also be anticipated that, even in a liberalised financial system, credit constraints will affect lower income individuals particularly severely, as they have no assets to pledge and also have less secure employment. Therefore forced pensions saving will tend to boost their overall saving particularly markedly (Bernheim and Scholz 1992).

Abstracting from the likely increase in saving and wealth, the growth of pension funds affects financing patterns owing to differences in behaviour from the personal sector who would otherwise hold assets directly, in pursuit of transfers across time. Portfolios of pension funds vary widely, but in most cases they hold a greater proportion of capital uncertain and long term assets than households, while households have a much larger proportion of liquid assets. These differences can be explained partly by time horizons. Also as noted pension funds compensate for the increased risk, by pooling at a lower cost across assets whose returns are imperfectly correlated. The implication is that pension funds increase the supply of long term funds to capital markets, and reduce bank deposits, even abstracting from changes in aggregate saving, so long as households do not increase the liquidity of the remainder of their portfolios fully to offset growth of pension assets. Research on household asset holdings at a micro level (such as *King and Dicks-Mireaux (1988)*) found little such offsetting.

As regards transfer across space, one may highlight the increased internationalisation of portfolio investment by pension funds. This has supplanted the bank-driven flows which were typical of the 1970s. Besides the growth of pension funds per se, this pattern has been facilitated by easing of portfolio regulations and abolition of exchange controls as well as persistent saving/investment imbalances between countries (notably the US and Japan). As in domestic markets, pension funds benefit from superior ability to handle information and lower average trading costs relative to individuals in carrying out such investment.

The possibility of international investment improves diversification relative to solely domestic portfolio investment which would leave pensions dependent on the

performance of the domestic economy. Crucially, to the extent national trade cycles are not correlated and shocks to equity markets tend to be country specific, the investment of part of the portfolio in other markets can reduce systematic risk for the same return. In the medium term, the profit share in national economies may move differentially, which implies that international investment hedges the risk of a decline in domestic profit share and hence in equity values¹⁴. And in the very long term, imperfect correlation of demographic shifts should offer protection against the effects on the domestic economy of ageing of the population. Indeed, there are strong arguments that investment from pension funds in OECD countries should flow to countries with younger populations, where investment demands exceed national saving. Moreover, when the emerging market countries subsequently age, they may be willing buyers for assets then being sold by pension funds from OECD countries.

2.6.4 Provision of ways to Manage Uncertainty and Control Risk.

Pension funds provide risk control directly to households via the forms of retirement income insurance they provide, an advantage which largely reflects the unusual (among financial intermediaries) link of pension funds to employers. To assist in undertaking this risk control function they diversify assets as noted above and also act in securities and derivatives markets to hedge and control risk. As institutional investors, pension funds are well-placed to use derivatives and other means of risk control; many innovations have been introduced or developed specifically to cater for their demand (*Bodie 1990b, 1999*).

On the liability side, *Bodie (1990a)* has formalised pension funds' function as a form of retirement income insurance. Insurance can be provided against an inadequate

replacement rate, social security cuts, longevity, investment risk and (in some countries) the risk that pensions will be eroded by inflation. Defined benefit funds are particularly rich in such features, although they are not entirely absent for defined contribution. On this view, pension funds are seen as insurance subsidiaries of the sponsoring firm, and not as an integral part of the balance sheet. He suggests this approach explains a number of features of pension funds, notably provision by the employer and the historical dominance of defined benefit schemes, as well as financial policies seemingly contrary to shareholders' interests such as ad hoc increases in benefits, mandatory membership and payouts being in the form of annuities.

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For both defined benefit and defined contribution funds, employer provision is partly explicable in terms of insurance aspects. Employers have superior information regarding current and future earnings, which are of key relevance to the employee's long term financial needs. They may have interests more in common with employees than have for example personal pension salesmen, given the need to maintain reputation in the labour market and - of particular importance - the fact managers and employees typically participate in the same scheme. Company pension funds, both defined benefit and defined contribution, are also superior to insurance companies as they can reduce longevity risk by avoiding some of the adverse selection problems of private annuity insurance.

These problems arise from asymmetries of information between private insurers and those buying annuities; only those with high life expectancy (i.e. bad risks) will tend to buy them, which induces increases in the price, and withdrawal of more of the

good risks. In the limit the market may cease to function, or at least be prohibitively priced. Pension funds avoid this problem by providing a company-wide pool of good risks and bad risks for the insurer, or alternatively by providing the annuities themselves (McGill, 1995).

For defined benefit funds, companies are large and long lived, with their own income flow, assets and ability to borrow, and can therefore act as a self-insurer and smooth out losses that would otherwise be incurred by cohorts of workers who retire when investment returns are low. Where funding rules permit, such smoothing may also arise via risk transfer to younger workers who implicitly accept temporary declines in the value of assets backing their claims while pensioners receive their rights in full. A further form of insurance provided by defined benefit funds is that against factor-share uncertainty (i.e. relating to the division of GDP between wages and profits), (see *Bodie et al* (1988)).

This is because they offer workers the ability to participate in an implicit security whose return is tied to the wage rate at the time of retirement, whereas defined contribution funds tie workers in to the returns on physical capital, with no stake in labour income during their retirement period.

On the asset side, risk management by pension funds links directly to the portfolio objectives (*Bodie 1990b, 1999*). For example, in order to maintain a balance between assets and liabilities in the context of minimum funding regulations for defined benefit funds, asset managers may adopt immunisation strategies such as writing call options on equities to convert them into short-term fixed-income securities for

matching purposes. Also, portfolio insurance (contingent immunisation) strategies are common means of hedging against shortfall risk. One means of achieving portfolio insurance involves holding assets in excess of the legal minimum in equities, reducing their proportion when the market value of pension assets falls, entailing use of index options and futures markets and of programme trading more generally (Vittas, 1998).

For all types of fund, use of derivatives may also be for controlling risk by increasing or reducing exposure to an asset class; and for cutting costs, where a large change of asset allocation is anticipated. There are uses in cash flow management, whereby positions may be adopted before assets are purchased (by buying futures and selling put and buying call options). Then there is tactical asset allocation; use of derivatives allows asset managers to change asset allocations more cheaply and rapidly than by selling or buying a large volume of assets. When managers are changed, options can be used to replicate the original position which assets are shuffled to reflect the new manager's portfolio preferences. This allows the shift to take place gradually, without incurring market liquidity problems. Finally, holding stock while selling a call option allows income enhancement (Albrecht *et al*, 2006)

2.7 Investment Policies

As funding of public pension schemes increases worldwide, governments are increasingly finding themselves in the role of fiduciary agents for their citizens. This role carries with it an implied responsibility for the public pension manager to select

an investment strategy that balances risk and return appropriately for the citizens on whose behalf it is investing.

The investment policy involves three main components: setting long-run performance targets; defining an acceptable risk tolerance; and setting parameters for short-term asset allocation. In addition, procedures to be followed with regard to the implementation of the investment policy must be clearly defined (Iglesias and Palacios, 2003).

According to Palacios (2005), the long-run targets and selection of a tolerance for risk involve strategic decisions. These strategic decisions are fundamental to the viability of the scheme as a source of income replacement in retirement. The long run strategies should identify whether the risk tolerance and performance targets are capable of producing outcomes that will meet the objectives of the scheme. This part of the investment policy should establish the broad shape of the portfolio and the risk parameters, which will govern investment decisions. Palacios (2005) concluded that the strategic part of the policy should also establish the Board's position on non-financial issues such as shareholder activism, socially- responsible investments and/or economically targeted investments.

In the case of a private sector investment fund the primary focus of investment policy is on the balancing of market risks and returns (Ilkiw, 2003). These risks include the risk of loss due to counterparty default (such as the bankruptcy of an issuer of debt or equity), the risk of loss due to movements in market prices (such as falls in equity prices, property prices, interest rates and/or exchange rates), and the risk of loss due

to operational failure (such as a failure of IT systems, settlement procedures or legal documentation). The case of a public pension fund is more complex. In addition to these private sector risks, public pension funds must also contend with the potential for them to dominate markets, and the temptation for governments to direct the investments of the funds for their own purposes including not only the temptation to use the fund to finance the government's own deficit, but also the temptation to provide credit directly to members for social reasons (Ilkiw, 2003).

In the private finance sector, the market risk dimension of investment strategies is increasingly being expressed in terms of comprehensive measures of risk, such as Value-at-Risk, rather than in terms of prohibitions, sectoral limitations or target ratios (Mitchell, 2002). While diversification is often an explicit consideration in public sector investment policies, the modern approach of using a comprehensive measure of risk automatically incorporates diversification. This approach has yet to reach far into the public sector, where investments are often handicapped by limited mandates and restrictions that militate against modern risk management practices¹⁴. These issues, as well as the specific public sector risk issues need to be addressed as openly as possible.

2.9 Investment strategies of Pension Funds

The investment strategies of pension funds are relevant not only from the perspective of retirement income but also because of their impact on the development of capital markets and the supply of capital for innovative enterprises. Such objectives merit attention on their own right. In addition, capital market development in turn affects the range of investment products and the extent of diversification of pension fund

portfolios. There is in essence a symbiotic relationship between pension fund investment and capital market development that may act to the benefit of participants in pension plans (OECD, 2002).

According to the OECD (2002), both governance structures and external regulations play a critical role in investment strategies. The former determines the investment objectives, strategies, and tools of fund managers, while the latter can affect the asset allocation of the portfolio. There is a long controversy on the extent to which different governance structures and investment regulations affect the investment strategies of pension funds and hence their performance.

A recent paper by Faccio and Lasfer (2000) shows that one of the most prominent cases of a failure of internal governance rules, combined with a lack of external regulations, is the Maxwell scandal in the UK. During the early 90s, the pension fund of the Maxwell group lent significant amounts to private companies owned by Maxwell and also held a significant portion of its portfolio invested directly in these companies. The fund managers, under the direction of Robert Maxwell, used the collateral from these loans to prop up the share price of the ailing group and further increased the fund's exposure to self-investments. As the group collapsed, a large percentage of the pension fund assets were lost (OECD, 2002).

Following this scandal, a self-investment limit of 5% was introduced and trustees were given the obligation to ensure such limits were adhered to. The 1995 Pensions Act also introduced fines for rule breaches by trustees, and eventual disqualification and emphasised the need for adequate governance standards and basic prudential

investment management principles. In particular, it introduced a requirement for independent custodians, less leverage by the employer over the trustees (more employee trustees), and better independent actuarial information for trustees (Wahal, 1996).

Fraudulent or imprudent practices such as those that characterised the Maxwell case also took place in the US before the introduction of ERISA in 1974. This legislation introduced explicit governance requirements on pension fund management and identified clearly both the responsibilities of trustees and the participants' right for class action.

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On a less dramatic scale, but equally relevant from the perspective of beneficiaries, is the extent to which external quantitative restrictions on asset allocation restrict the degree of diversification of investment portfolios into riskier assets and hence hamper pension fund performance. In this respect, Davis (1995) found that pension funds in countries that apply the prudent person approach rules to investment regulation tend to perform better than those in countries where quantitative restrictions are applied.

From a governance perspective, the distinction between closed and open funds can be useful when analysing the investment management strategies of pension funds. A few countries (e.g. the UK, Finland, the provinces of Ontario and Quebec in Canada) require the board or committee of a closed fund to adopt a Statement of Investment Policies. In addition, closed pension funds are subject to specific investment regulations. In the Netherlands, Japan, the UK, and the US the prudent person

approach is applied, while many other OECD countries apply specific quantitative restrictions.

An important contrast also arises between the investment management strategies of pension funds linked to defined benefit (DB) plans and those linked to defined contribution (DC) plans. In some countries, closed pension funds linked to defined benefit plans have more aggressive portfolios than those linked to defined contribution plans. This difference has been traced to the fact that plan participants bear investment risk in defined contribution plans. In the UK, for example, DB plans invest nearly 80% of their assets in equity, while DC plans invest no more than 25-30% in these financial instruments. In the US, meanwhile, while equity allocation in the overall portfolio is similar across DB and DC plans, the latter invest a large portion of their equity portfolio in company stock (McGill, 1995).

Open funds, especially those in new private pension systems in Eastern Europe and Latin America, also tend to be subject to specific quantitative restrictions. These include limits by asset class, limits by issuer and individual securities, as well as ownership concentration rules. These are used in all Latin American countries with mandatory private pension systems, as well as in Hungary, the Czech Republic, and Poland. In Hungary, open funds are subject to the same investment rules as closed funds.

A final important issue in investment strategies is the type of strategic management carried out. A difference is often made between active and passive asset management, where the latter involves the tracking of some market index and

therefore tends to be less costly than active strategies. Indexation to a market benchmark may also require an active role in corporate governance, especially among the large pension funds (OECD, 2002).

2.10 Interest Rate Risk

For funds with unhedged positions, interest rate risk (real or nominal) arises from three sources:

i. A large allocation to equities

Theoretically, the price of equities is derived from discounting future expected dividend payments, which implies a relationship between equity prices and the level of interest rates (or more precisely the level of real interest rates). Theorizing a positive correlation between equities and bonds seems reasonable, considering the impact of interest rates on corporate financial expenses (Moloney, 2006). But a correlation of around 0.2 to 0.3 between equities and medium dated fixed interest bonds of major developed markets, rather than a correlation of 1, would be consistent with past observations (correlations between equities and index-linked bonds have tended to be even lower). Moreover, this correlation is very volatile, depending on the particular observation periods chosen (Moloney, 2006).

Hence, investment in equities provides little direct protection against changes in interest rates and inflation, and therefore leads to interest rate risk.

ii. A mismatch between the duration of bond assets held and liabilities

Bond assets held by pension plans typically have a significantly shorter duration than underlying liabilities, for the following reasons:

- There's been a low supply of bond issues at long maturities.
- This strategy has been used as a protection against potentially rising yields.
- The shape of the yield curve leads, on average, to a low premium for holding very long-term bonds.
- Out-performance is often expected, over time, from active management of portfolios of short- to medium-term corporate bonds.

iii. Pension deficits, where they exist, are also a source of risk in that any shortfall effectively behaves as debt on the sponsor's balance sheet, which is not being matched by a corresponding asset

Even if the asset portfolio is invested in the correct proportions between the appropriate conventional and index-linked assets, there is still an interest rate exposure to the extent that the assets are less than the liabilities (Moloney, 2006).

2.11 Interest Rate and Pension Fund Investment

Pension funds currently form the second largest group of institutional investors worldwide with assets totalling an estimated USD 8.000 billion for OECD countries in 2003 (Fleuriet & Lubochinsky, 2005). Financial institutions started to realise the importance of interest rate risk in the 1980s in the wake of the failure of the US Savings and Loans institutions. Since then, theoretical and technological advances as well as progress in terms of prudential regulation have allowed financial institutions to refine their analysis and management of interest rate risk. The liabilities of

defined-benefit pension funds entail an interest rate risk, which, if not properly understood, could destabilise fund (Fleuriet & Lubochinsky, 2005).

The funds collected by the pension scheme stem from, on the one hand, contributions from companies (for private pension funds) and general government (for public pension funds), and, on the other, from employees. For defined-benefit pension funds, the options relating to liabilities on future pensioners are based on generally a percentage of the final salary (according to the age and length of working life, with a possible subsequent indexation). The liabilities of these funds are therefore dependent on the growth rate of wages, which complicates the asset allocation strategy as the minimum return required is not known *ex ante* (Babbel, 2001)

In the case of companies' dedicated pension funds, the asset structure of defined-benefit pension funds is determined by the company. Indeed, the company guarantees the benefits, even though in the medium term it might have to pass on the risks to the employees by reducing dividend payments in the event of the pension fund experiencing solvency problems (Babbel, 2001).

In the United States, equities are predominant in funds' portfolios, even though they only accounted for 58% at end-2002 (with 43% in US equities, and often a large share of the companies' own shares) compared with 66% at end-1999; bonds only accounted for 15% and money market instruments and other assets, 27%. In addition to their strong historical performance and the fact that purchasing their own shares provides a guaranteed source of income for companies, one of the other reasons that these investors place such a high share of equities in their portfolio stems from the

fact that they are allowed to use the expected return on their assets as the discount rate for their liabilities. Although the Securities and Exchange Commission issued reservations about the way liabilities have been discounted in recent years and recommended the use of highly-rated corporate bonds, in 2003, discount rates were often around 6% (*The Economist*, 2004) while AAA corporate bond yields averaged 5%. The stock market crash of 2000 resulted in a sharp fall in the value of their assets, which, combined with a decline in interest rates (which increases the value of liabilities), led to an under funding of many pension funds. For example, while the expected return on assets of US defined-benefit pension funds was 9% for 2000 to 2002, the actual return on assets was only 0.61% in 2000, -5.30% in 2001 and -6.55% in 2002, thus resulting in an overestimation of 38.24% in cumulative terms (Ryan and Fabozzi, 2003).

2.12 Interest Rate Risk Management Strategies

The choice between the different interest rate risk management strategies is based on a trade-off between, on the one hand, financial constraints (liquidity, transaction costs, etc.) and regulatory constraints (accounting or prudential), and, on the other, the efficiency of hedging. In this respect, the use of derivatives seems important both in the initial asset/liability strategy and in the subsequent dynamic adjustments of interest rate risk hedging (Smith, 1996)

2.13 Risk management principles

The constraint of defined-benefit pension funds stems from their long-term liabilities combined with the large number of embedded options it gives to policyholders. These institutional investors must structure their assets in order to reduce their

exposure to changes in interest rates and take account of embedded options. One of the key parameters of asset and liability management is the rate of return guaranteed contractually to policyholders; the level of this rate, which is contingent on regulations specific to each country, partly determines the extent of exposure to the risk of a fall in interest rates of defined-benefit pension funds (James *et al*, 2000).

By exercising its right to increase the instalments when its contract's guaranteed rate is higher than the market rate, policyholders reduce the profitability of the institution (which must then offer a higher rate of return than that of the market). According to IXIS-CIB (2005), a reform in France implemented in June 1995 precluded this risk, reducing the maximum guaranteed rate of return from 4.50% to 3.50% and setting a limit of 60% of the average yield on long-term government bonds. Moreover, since this reform, many new French life insurance contracts only offer capital guarantees. From this point of view, exposure to the risk of a decline in interest rates has become less significant. Similarly, in 1994, Finanstilsynet (the Danish financial supervisory authority) brought down the maximum rate of return that could be guaranteed to policyholders by life insurance companies and pension funds from 4.5% to 2.5% (and then to 1.5% in 1999). However, German insurance companies, which still guarantee a high return (between 3.25% and 4% according to their contracts), are more inclined to purchase products that allow them to hedge against a fall in interest rates. Due to the complexity of German regulations, insurers often use structured bonds for hedging interest rate risk. In theory, while they could use floors, a series of options enabling them to hedge against a decline in interest rates, German insurers are not authorised to apply collateral agreements, which are a prerequisite for all

OTC transactions. This prevents them de facto from using these types of financial instruments, as their counterparties would not be willing to bear this credit risk (Blome *et al*, 2007).

Defined-benefit pension funds is also exposed to a rise in interest rates. When interest rates rise, policyholders may wish to terminate their contracts to benefit from more attractive investment opportunities. Here again, the contractual obligations are decisive for assessing scale of this risk. This risk is not very significant for German insurers, as German regulations harshly penalise policyholders wishing to surrender their life insurance contracts before expiry. Furthermore, most life insurance contracts in Germany have a maturity of 20 or even 30 years. In France, however, a rise in interest rates is the main risk to which life insurers are exposed, as the minimum maturity of contracts is relatively low (8 years) and policyholders can terminate contracts without penalties after this time. A traditional hedging technique consists in buying caps, which are options that protect the buyer against a rise in interest rates.⁸ They are often indexed on the constant maturity swap (CMS) rate, or constant maturity bond rate – CMR): these are financial instruments in which a short-term interest rate (for example the six-month Euribor rate) is exchanged for a swap rate with a long constant maturity rate (*i.e.* 7 or 10 years). Lastly, in the Netherlands, regulations impose an indexation of returns on life insurance contracts on products such as seven-year constant maturity swaps, making the use of such derivatives by Dutch insurance companies particularly common (Babble, 2003; Blome *et al*, 2007).

More generally, in addition to managing risk, asset and liability management naturally takes profit considerations into account. Given that over the very long-term

equities have a higher risk/return profile than bonds, some insurance companies and pension funds favour equity investments. The regulatory framework is therefore a determining factor for the weight of equities in the asset mix across countries. For example, UK insurance companies are authorised to hold a higher percentage of equities than their counterparts in Continental Europe (Blome *et al*, 2007).

Furthermore, the structure of financial markets also influences the characteristics of assets held in the United Kingdom, the corporate bond segment is less developed than in the United States, which explains the lower weight of these instruments in the asset mix of life insurance companies (around 20%, or three times lower than for US life insurance companies) and the heavy weight of equities (over 40% in the United Kingdom compared with less than 5% in the United States) (IMF, 2004).

The limitations of such strategies nevertheless came to light when the Internet bubble burst in 2000, hitting those pension funds with high proportions of equities the hardest. A number of these institutions were then faced with a scissor effect: a decline in the value of their equities, recorded on the assets side of the balance sheet, and a fall in interest rates causing the present value of their liabilities, discounted using bond yields, to rise. This effect sometimes resulted in an under funding, or even the insolvency of these institutions, as was the case for some Anglo-Saxon pension funds (IMF, 2004).

CHAPTER THREE

METHODOLOGY AND PROFILE OF SSNIT PENSION FUND

3.0 Introduction

Chapter three of the study is devoted to the presentation of the methodology and the profile of the SSNIT pension fund which is the subject of the study.

In a world of stupendous technological and medical advances, social protection has become mankind's pre-occupation due to the vagaries of life. Well before the advent of Europeans, and the rise of modern states, traditional African societies realized the need to put in place measures to cater for the major contingencies through collective security and mutual help to one another (Kumado and Gockel, 2003).

Until recently, the extended family was the institution in Ghanaian communities that provided social and economic support to various family members at the appropriate times of need. Traditionally, the family was the critical focus in the provision of support when members become old and are threatened by economic deprivation, disability, and social isolation. In appropriate cases, the community as a whole provided the social net for those aged without a family (Kumado and Gockel, 2003).

The need for pension schemes to take care of the increasing population of the country became necessary resulting in the creation of the SSNIT pension scheme. The SSNIT Fund is the subject of discussion in this chapter.

3.1 METHODOLOGY

3.1.1 Sources of Data

Both primary and secondary sources of data were used in the study. Primary source was information that was taken from the manager of the SSNIT pension fund. This data included information about the pension fund's business objectives, investment portfolios and reasons for choice of those investments etc. The secondary source of data was information gathered about the subject matter from books, journals, and the internet.

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3.1.2 Sampling Technique

The non-probability sampling method was applied. This was the purposive sampling where a target group of managers and officials in charge of the various operations relevant to the study were interviewed.

3.1.3 Instrument of Data Collection

Quantitative data collection method was used. The study adopted the use of a survey questionnaire format. It was made up both open-ended and closed ended questions.

3.1.4 Analysis of Data

Data collected were subjected to statistical analysis using frequencies and tables. Also bar graphs were used to present the results of some of the data that was analysed.

3.2 The SSNIT Pension Scheme

The institution was established by the Social Security Act in 1965 (Act 279) which set up a Social Security Fund and provided for the payment of lump sums through a Provident Fund Scheme. In 1991 the Social Security Law (PNDCL 247) converted the Provident Fund Scheme to a Pension Scheme.

Over the years the institution evolved to a very decentralised institution to enable the collection of contributions and the payment of benefits at the district level. The institution operates a scaled premium scheme with the following contributions and benefits:

Contributions: All workers are expected to contribute 17.5% of their monthly salaries made up of 5% by the employee and 12.5% by the Employer. The self-employed are also encouraged to contribute but they contribute the whole total of 17.5% themselves.

Benefits: There are three basic benefits and these are old age pension, invalidity pension and death-survivors payment.

Indexation of Benefits:

Pension benefits are indexed annually using the average rate of increase in the contributions inflow for the previous year. This is to prevent any distortions in the financial equilibrium of the scheme.

The SSNIT pension scheme is a defined benefit social insurance scheme. The scheme is autonomous with a tripartite governing board of directors representing the government, employers and workers. The Social Security and National Insurance Trust of Ghana administers the scheme on behalf of the State. The main responsibilities of SSNIT are as follows:

- Register new members and collect insurance contributions from members.
- Keep, maintain and make available, up-to-date members' records of contributions to the scheme.
- Pay out social security benefits as they fall due.
- Invest the social security funds.

These responsibilities are carried out through a network of regional and district offices of SSNIT. The district offices are in direct contact with employers and workers.

Each district office has its database of contributors from which monthly posting are carried out for the update of the central database at the Head office of SSNIT (Tibuahson, 2003).

3.3 Membership of the Scheme

The SSNIT pension scheme, in principle, has a universal scope of coverage. However, the social security law (1991) specifies membership of the scheme to be compulsory for some groups of the working population and voluntary for other groups. Other employees are not allowed by the social security law to join the SSNIT pension scheme.

According to the social security law (1991), membership of the SSNIT scheme is compulsory for every person who has an employer-employee relationship with an identifiable employer. Membership of the scheme is however voluntary for self employed persons who opt to join the social security scheme. Those who are not allowed by the social security law to be members of the SSNIT pension scheme are officers and men of the Ghana armed forces, academic staff of the universities, missions and diplomatic corps. These groups of workers have their own respective pension arrangements. However, individuals employed by these establishments may opt to join the State pension scheme as voluntary contributors (Tibuahson, 2003).

SSNIT also has internal classification of its members. These are active members, inactive members and paid members. The active members are those on whose behalf SSNIT has received insurance contributions covering the last two years (that is, current year and the previous year). The inactive members are those whose social security accounts have not been credited with contributions covering the last two years. These are largely students and members who have been out of employment for more than two years. The paid members are those who have received social security benefits or on whose behalf SSNIT has paid social security benefits. These include members who have received interim benefits, lump sum payments, survivors' benefits as well as those currently on pension. The Information Technology and Communication Services (ITCS) Department of SSNIT, estimates that as at the end of November 2002, there were 624,076 active members, 1,891,522 inactive members and 318,831 paid members. Of the paid members, 52,294 are pensioners (ITCS,

2002). The normal retirement age for members of the scheme is currently 60 years for males and 55 years for females and other workers employed in hazardous areas.

However, members may opt for early retirement with reduced benefits between ages 55 and 59. Each member of the scheme is assigned a social security number that uniquely identifies him/her. There are two sets of social security numbers; the first set, which is numeric, contains eight digits and the second set is alphanumeric made up of thirteen digits. The 13-digit social security number contains the member's date of birth and a code representing the district of birth.

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3.4 Categories of Social Security Contributions

The SSNIT pension scheme is partially funded with social security contribution rates determined using the scaled premium method. Accumulated reserves are invested. The current contribution rate is set at 17.5% of insurable income (where "insurable income" is the gross salary before any tax deduction). The 4th actuarial review of the scheme carried out in 1999 projected that if the future follows the demographic and economic assumptions made in that review, then the current rate of

17.5% should be recalculated by the year 2016, assuming that the number of contributors remain constant at the 1999 figures. However, if the number of contributors were to increase by 3% per annum, then the scheme can maintain the current 17.5% contribution rate till the year 2050 (Government actuary's Dept., 2001). Non-retired members of the scheme are required by the social security law to pay monthly contributions to the scheme.

3.5 Mandatory Contributions

These are monthly insurance contributions from members of the scheme who have employer-employee relationships with identifiable employers. In this case, the 17.5% contribution rate is split into two, comprising 5% and 12.5% of employee's monthly insurable income paid respectively by the employee and the employer.

The employer is required to deduct and submit the contribution amounts due together with details of employees (referred to as "contribution report") whose social security accounts are to be credited with the contributions to the nearest office of SSNIT. Payments for each month are to reach SSNIT within fourteen days of the following month. Failure to meet this deadline may result in the payment of penalty. It is allowed to pay in the current year, social security contributions relating to previous years.

3.6 Voluntary Contributions

These are mostly social security contributions from self-employed persons who opt to join the State pension scheme. The voluntary contributor is required to pay the full contribution rate (17.5%) with respect to the declared monthly income from his/her profession, business or vocation. Voluntary contributors are required to pay their monthly contributions at the nearest office of SSNIT.

Current employees may also pay voluntary contributions for past years in which they did not contribute to the pension scheme. Similarly, members of the scheme who give up jobs or lose employments before reaching the normal retirement age may pay contributions at the voluntary rate for periods between termination of employment

and retirement. Such voluntary contributions may be necessary to enable them either to qualify for pension or to increase their pension rates.

3.7 Theoretical Framework of Pension Funds and Investment Risks

Pension funds provide risk control directly to households via the forms of retirement income insurance they provide, an advantage which largely reflects the unusual (among financial intermediaries) link of pension funds to employers. To assist in undertaking this risk control function they diversify assets and act in securities and derivatives markets to hedge and control risk. As institutional investors, pension funds are well-placed to use derivatives and other means of risk control; many innovations have been introduced or developed specifically to cater for their demand (Bodie 1990b, 1999).

On the liability side, Bodie (1990a) has formalised pension funds' function as a form of retirement income insurance. Insurance can be provided against an inadequate replacement rate, social security cuts, longevity, investment risk and (in some countries) the risk that pensions will be eroded by inflation. Defined benefit funds are particularly rich in such features, although they are not entirely absent for defined contribution. On this view, pension funds are seen as insurance subsidiaries of the sponsoring firm, and not as an integral part of the balance sheet. He suggests this approach explains a number of features of pension funds, notably provision by the employer and the historical dominance of defined benefit schemes, as well as financial policies seemingly contrary to shareholders' interests such as ad hoc increases in benefits, mandatory membership and payouts being in the form of annuities.

For both defined benefit and defined contribution funds, employer provision is partly explicable in terms of insurance aspects. Employers have superior information regarding current and future earnings, which are of key relevance to the employee's long term financial needs. They may have interests more in common with employees than have for example personal pension salesmen, given the need to maintain reputation in the labour market and - of particular importance - the fact managers and employees typically participate in the same scheme. Company pension funds, both defined benefit and defined contribution, are also superior to insurance companies as they can reduce longevity risk by avoiding some of the adverse selection problems of private annuity insurance.

These problems arise from asymmetries of information between private insurers and those buying annuities; only those with a high life expectancy (i.e. bad risks) will tend to buy them, which induces increases in the price, and withdrawal of more of the good risks. In the limit the market may cease to function, or at least be prohibitively priced. Pension funds avoid this problem by providing a company-wide pool of good risks and bad risks for the insurer, or alternatively by providing the annuities themselves.

For defined benefit funds, companies are large and long lived, with their own income flow, assets and ability to borrow, and can therefore act as a self-insurer and smooth out losses that would otherwise be incurred by cohorts of workers who retire when investment returns are low. Where funding rules permit, such smoothing may also arise via risk transfer to younger workers who implicitly accept temporary declines

in the value of assets backing their claims while pensioners receive their rights in full. A further form of insurance provided by defined benefit funds is that against factor-share uncertainty (i.e. relating to the division of GDP between wages and profits), (see *Bodie et al (1988)*). This is because they offer workers the ability to participate in an implicit security whose return is tied to the wage rate at the time of retirement, whereas defined contribution funds tie workers in to the returns on physical capital, with no stake in labour income during their retirement period.

On the asset side, risk management by pension funds links directly to the portfolio objectives (*Bodie 1990b, 1999*). For example, in order to maintain a balance between assets and liabilities in the context of minimum funding regulations for defined benefit funds, asset managers may adopt immunisation strategies such as writing call options on equities to convert them into short-term fixed-income securities for matching purposes. Also, portfolio insurance (contingent immunisation) strategies are common means of hedging against shortfall risk. One means of achieving portfolio insurance involves holding assets in excess of the legal minimum in equities, reducing their proportion when the market value of pension assets falls, entailing use of index options and futures markets and of programme trading more generally.

For all types of fund, use of derivatives may also be for controlling risk by increasing or reducing exposure to an asset class; and for cutting costs, where a large change of asset allocation is anticipated. There are uses in cash flow management, whereby positions may be adopted before assets are purchased (by buying futures and selling put and buying call options). Then there is tactical asset allocation; use of derivatives

allows asset managers to change asset allocations more cheaply and rapidly than by selling or buying a large volume of assets. When managers are changed, options can be used to replicate the original position which assets are shuffled to reflect the new manager's portfolio preferences. This allows the shift to take place gradually, without incurring market liquidity problems. Finally, holding stock while selling a call option allows income enhancement.

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CHAPTER FOUR

Analysis and Discussion of Results

4.0 Introduction

This chapter is devoted to the analysis of data collected from the field. In this section the annual reports covering 2004, 2005, and 2006 are subjects of the analysis.

The law allows the SSNIT to invest in all sectors of the economy in order to meet the scheme's current and future liabilities. The SSNIT makes direct investments of surplus funds to add value to contributions and sustain stable contribution rates over longer periods. The national economy provides SSNIT with investment opportunities in sectors such as financial, services, manufacturing, real estate (commercial and residential), tourism, transportation, infrastructure etc. The SSNIT Board sets the investment policy and decision guidelines.

SSNIT generates investment income that helps in financing the payment of benefits and the provision of services to its members. However the investment of the funds under its management is not without risk. They may yield negative returns and could disappear altogether if imprudently invested.

Therefore, various Boards of Trustees of SSNIT have designed and implemented different investment programmes during the fifteen-year history of the Scheme. A common attribute of these programmes is the recognition that investment policies influence the allocation and productivity of capital, and also helps in easing transitory demographic pressures. Therefore, provisions governing the investments

of the Scheme are carefully formulated, without leaving anything to arbitrary decisions.

Furthermore, investment guidelines and practices of the Scheme at various stages have been guided and influenced by market and prevailing regulatory environments. Investments are made with direct reference to risk factors such as inflation and investment risk and interest rates.

Assets are invested with the objective of earning a significant real return (over inflation) in the long-term. The measure of investment return includes dividend and interest income plus the change in the capital value of the assets. The long term objective is to earn a minimum real return of 2 per cent.

In pursuance of these objectives, the challenge according to officials is to avoid undue investment risk and excessive market volatility. Assets are managed in relation to projected cash flows, quality and diversification standards. Over shorter time periods (market cycles), the objective is to exceed the total rates of return achieved on market indices for similar categories of assets.

4.1 SSNIT INVESTMENT POLICY

The Trust's Investment Policy provides guidelines for investment of the Pension Funds in various sectors of the Ghanaian economy. The Investment Policy of the Trust takes into consideration the under-mentioned major requirements of investing Social Security Funds:

- a. **Safety** - Investments should be in low risk ventures.

- b. **High Yield** - The returns on the investment should be appreciable.
- c. **Liquidity** - Ensuring that a certain level of investment is maintained in cash assets to enable the Trust meet its obligations when they are due.
- d. **Maintenance of Assets Value** - Ensuring that the value of the investments are not eroded by inflationary economic environment.
- e. **Harmony with Public Interest** - Ensuring that some of the investments are geared towards the achievement of national economic development programmes as well as providing physical benefits to the public.
- f. **Diversification** - Ensuring that the portfolio mix is adjusted in the light of changing environmental circumstance.

4.2 Investment Objectives

In the development of the policy guidelines, the two major objectives with the associated sub-objectives were:

1. To maintain a long term optimum Fund ratio through realisation of real returns on investments
 - a. Maintains a portfolio mix which ensures low risk on investments
 - b. Ensure adequate liquidity to enable the Trust meet its obligations when due.
2. To make investments which are development oriented:
 - a. Though visible benefit (e.g.. Housing, Transportation)
 - b. Contribution to Economic Development (e.g. Export Processing Zones, Tourism, Production)

- c. Galvanize investment in the informal Sector (e.g. Construction of Industrial Estates and Markets)
- d. Conceptualise and initiate socially oriented investments with reasonable returns (e.g. Building Hospitals and Recreational Facilities)

4.3 Investment Portfolio of SSNIT

The investment of the Trust has been grouped into:

a. Fixed Income Investments

These involve investment whose returns are pre-determined or known at the time of making the investment. The components of this portfolio were Treasury Bills/Notes, Fixed Deposits Call Monies, Registered Stocks, Social Security Bonds, HFC Index-linked Bonds, and Students' Loan.

b. Non-Fixed Income Investment

Investment in this category has long gestation periods and is more susceptible to fluctuations in the economy's performance. However, these investments which can lead to appreciation in the values of the investment asset are development oriented and can assist with job creation. These were Properties, Commercial, and Residential.

c. Equity Investment

In terms of equity investment, the Trust was found to be a major player on the Ghana Stock Exchange. Currently, the Trust has invested in 18 out of the 23 listed companies. Apart from these, the Trust has invested in 52 companies in the

Financial, Manufacturing and Service Sectors of the economy. This information is presented in tables 4.1, 4.2 and 4.3 respectively.

Table 4.1 Unlisted Equities in the Manufacturing Sector

| No. | Name | Percent Holding |
|------------|-----------------------------|------------------------|
| 1 | WAHOME STEEL CO. LTD | 41.23 |
| 2 | SIAT (GHANA OIL PALM DEV.) | 30.00 |
| 3 | GICEL | 100.00 |
| 4 | GULF CONSOLIDATED CO. LTD | 42.00 |
| 5 | SUBRI PLANTATION LTD | 13.40 |
| 6 | TEMA LUBE OIL COMPANY LTD | 24.00 |
| 7 | BRIDAL TRUST INTERNATIONAL | 40.00 |
| 8 | GRANITE & MARBLES | 51.00 |
| 9 | OBOTAN DEVELOPERS LIMITED | 55.00 |
| 10 | B.M.K PARTICLE BOARD LTD | 45.00 |
| 11 | BESSBLOCK CONCRETE PRODUCTS | 40.00 |
| 12 | GHANA HOSTELS LIMITED | 100.00 |
| 13 | ASIANA HOLDINGS LIMITED | 60.00 |
| 14 | GHANA PIONEER FARMS LIMITED | 46.00 |

Source: SSNIT Annual Report, 2004

Table 4.2 Unlisted Equities in the Financial Sector

| No. | Name | Percent Holding |
|------------|-------------------------------|------------------------|
| 1 | GHANA INTERNATIONAL BANK | 15.00 |
| 2 | VENTURE CAPITAL FUND CO. LTD. | 16.00 |
| 3 | METROPOLITAN & ALLIED BANK | 18.60 |
| 4 | THE TRUST BANK | 33.10 |
| 5 | MERCHANT BANK GHANA LTD | 55.00 |
| 6 | EXPORT FINANCE COMPANY LTD | 12.50 |
| 7 | EXIM GURANTEE COMPANY LTD | 5.00 |
| 8 | PRUDENTIAL BANK | 10.00 |
| 9 | SECURITIES DISCOUNT CO. LTD | 59.00 |
| 10 | CONSUMER CREDIT LTD | 81.00 |
| 11 | CONSOLIDATED DISCOUNT HOUSE | 5.36 |
| 12 | FIRST ATLANTIC MERCHANT BANK | 10.00 |
| 13 | NATIONAL TRUST HOLDING CO. | 25.00 |
| 14 | ECOBANK TRANSNATIONAL | 1.63 |
| 15 | AFRIKA WOMEN'S BANK | 20.00 |

Source: SSNIT Annual Report, 2004

Table 4.3

Unlisted Equities in the Services Sector

| No. | Name | Percent Holding |
|-----|----------------------------------|-----------------|
| 1 | NOVOTEL HOTEL LIMITED | 5.00 |
| 2 | PLANT POOL | 20.00 |
| 3 | TRUST HOSPITAL | 100.00 |
| 4 | KUMASI CATERING REST HOUSE | 40.00 |
| 5 | HOTEL INVESTMENTS (GH) LIMITED | 45.00 |
| 6 | SSNIT GUEST HOUSE | 100.00 |
| 7 | AMBASSADOR HOTEL | 57.00 |
| 8 | ACCRA RECREATIONAL COMPLEX | 30.00 |
| 9 | MAKOLA MARKET CO. LTD. | 90.00 |
| 10 | GOLDEN BEACH HOTELS (GH) LIMITED | 70.00 |
| 11 | OGUAA HOTELS | 78.00 |
| 12 | TRUST LODGE | 100.00 |
| 13 | ACCRA ABATTOIRS | 36.60 |
| 14 | KUMASI ABATTOIRS | 39.98 |
| 15 | METROPOLITAN MALLS | 45.00 |
| 16 | GHANA HEALTHCARE LIMITED | 100.00 |
| 17 | VANEF CONSORTIUM LIMITED | 92.50 |
| 18 | VIRTUAL PRIVATE NETWORK LTD | 40.00 |

Source: SSNIT Annual Report, 2004

Table 4.4

Listed Equity on the Ghana Stock Exchange

| No. | Name | Percent Holding |
|-----|------------------------------|-----------------|
| 1 | ASHANTI GOLDFIELDS CO. LTD | 0.16 |
| 2 | BRITISH AMERICAN TOBACCO | 14.08 |
| 3 | UNILEVER GHANA LIMITED | 5.28 |
| 4 | GHANA COMMERCIAL BANK | 17.52 |
| 5 | ENTERPRISE INSURANCE CO. LTD | 6.27 |
| 6 | STANDARD CHARTERED BANK | 12.71 |
| 7 | MOBIL OIL GHANA LIMITED | 7.73 |
| 8 | FAN MILK LIMITED | 1.25 |
| 9 | GUINNESS GHANA LIMITED | 15.45 |
| 10 | ACCRA BREWERIES LIMITED | 11.13 |
| 11 | SSB BANK LIMITED | 21.61 |
| 12 | HOME FINANCE COMPANY | 24.81 |
| 13 | MECHANICAL LLOYD CO. LTD | 11.64 |
| 14 | SUPER PAPER PRODUCT COMPANY | 4.17 |
| 15 | GHANA BREWERIES LIMITED | 7.09 |
| 16 | ALUWORKS LIMITED | 24.90 |
| 17 | PRODUCE BUYING COMPANY | 20.00 |

Source: SNIT Annual Report, 2004

In general the investments of the fund are grouped into Fixed-Income Investments and Non Fixed-Income Investments. Fixed Income Investments are those whose returns are predetermined or known at the time of making the investment. The Fixed Income Investment may include the following category of investments. These are Treasury Bills, Fixed Deposits, Bonds, Bank Deposits and Corporate Loans.

In general this category of investments has been short term in nature. In addition to this is the fact that the economy of Ghana has been running fairly high inflation over the years and as such with the exception of index linked bonds this type of portfolio could suffer from capital erosion over longer term.

The results from actuarial projections indicate that liquidity is not a problem for the young scheme and as such more emphasis needs to be placed on longer term investments to meet the future liabilities of the pension scheme.

The other is the Non Fixed Income Investments These investments are variable in the value of their returns and tend to have longer gestation periods but in the long term have the advantage of capital appreciation, developmental in nature and generally create jobs within the economy. Included in this category are the following:

- Equities (Both listed and unlisted)
- Properties (Both commercial and residential)
- Unit Trusts
- Special Economic & Social Utility Schemes

The Equities comprise of shares traded on the Ghana Stock Exchange and other shares in companies that are not quoted on the Exchange. The GSE is relatively young and the opportunity for buying large volumes of shares as the Fund would want to purchase are not readily available in the companies that have the good potential for high performance.

The market is only now beginning to evolve but the Fund is one of the major players on the GSE.

On Properties, the Trust has invested in both commercial and residential properties as a major aspect of the longer-term investment. The returns from the completed commercial sector properties are very high and those under completion are expected to boost the returns even further. Returns from the residential properties in the middle to low income sectors are low and as a result of this a new policy was evolved to sell these properties and replace this aspect with a special scheme for the housing sector (Home Finance Scheme)

4.4 SSNIT Asset Mix

The asset mix of SSNIT comprises of listed and unlisted equities, fixed income, real estate and economically targeted investments (ETI). The Trust had targeted different amounts of its total investment funds into the above listed asset mix. The highest investment share of 51% was devoted to fixed income, followed by listed equities with 25%, 15% for real estate, 5% for ETI and 4% for unlisted equities. However, data collected revealed that there was always difference between the targeted investment share and the actual for the years under review as indicated in table 4.5. The reasons given for the variance recorded for the years under preview were

economic conditions prevailing in the particular year. Factors such as inflation, interest rate and the general performance of the stock market, which in itself is determined by the general performance of the whole economy, were cited as reasons for the variations.

4.5 Performance measurement indicators

The table below presents the performance measurement indicators for all investments made by SSNIT. All investment returns are measured against these indicators in assessing the performance of all investments by the Trust.

Performance measurement

| <u>Asset Class</u> | <u>Allocation</u> | <u>Performance Benchmark</u> |
|----------------------------|-------------------|--|
| <u>Equities</u> | | |
| Active Public Equity | 25% | 150-200 basis points over the Ghana Stock Exchange (GSE) Index |
| Unlisted portfolio | 4% | 20 – 25% Return on Equity |
| <u>Fixed Income</u> | | |
| GOG Bonds linked) | 1% | 5% Real Return (Inflation |
| Third Party Lending basis | 4% | Bank of Ghana Prime + 100 points |
| Corporate Debt | 2% | Average comm. Bank Base Lending Rate – 150 bps |
| Students’ Loans | 12% | 1 Year Treasury bill rate |
| Real Estate | 15% | 1 year Treasury Bill +200 basis points |
| Money Market | 32% | 91-Day Treasury Bill rate |
| SPI/ETIs | 5% | Cost Recovery (Minimum) |

Table 4.5 Summary Asset Mix 2004/2005/2006 (Actual vrs Target)

| Asset Class | Target Mix | Re-Bal Range | 2006 | | 2005 | | 2004 | |
|-----------------|---------------|--------------|------------------|----------|------------------|----------|------------------|----------|
| | | | Actual Asset Mix | Variance | Actual Asset Mix | Variance | Actual Asset Mix | Variance |
| Listed Equity | 25.0% | +/-10% | 23.9% | 1.1% | 22.2 | 2.8% | 31.0% | -6.0% |
| Unlisted Equity | 4.0% | +/-3% | 5.9% | -1.9% | % | -3.8% | 5.3% | -1.3% |
| Fixed Income | 51% | +/-4% | 59.9% | -8.9% | 7.8% | -7.0% | 51.9% | -0.9% |
| Real Estate | 15.0% | +/-7% | 9.5% | 5.5% | 58.0 | 4.4% | 10.3% | 4.7% |
| ETI | 5.0% | +/-0% | 0.7% | 4.3% | % | 3.6% | 1.5% | 3.5% |
| Total | 100.0% | | 100.0% | | 100.0 % | | 100.0% | |

Source: SSNIT Annual Report

The Investment portfolio is mostly locally invested and structured into short, medium and long term investments. Foreign earnings which are quite small are invested in fixed deposits overseas as and when received. The main categories of the investments are Government stocks, bonds, equities, residential and commercial properties, loans and short term cash deposits. The composition of the Scheme's Investment portfolio is listed in the table below.

Table 4.6 SSNIT Investment Portfolio (2006/2005/2004)

| | 2006 | | 2005 | | 2004 | |
|------------------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|
| | Portfolio (%) | Rate of Return (%) | Portfolio (%) | Rate of Return (%) | Portfolio (%) | Rate of Return (%) |
| Short Term investments | 38.5 | 12.1 | 33.3 | 16.7 | 32.6 | 15 |
| | 41.0 | 18.7 | 42.4 | -5.8 | 44.9 | 63 |
| | 10.3 | 10.3 | 12.3 | 15.1 | 10.7 | 19 |
| Students Loans | 0.7 | - | 1.4 | 0 | 1.50 | 0 |
| Associated Units | 9.5 | 14.5 | 10.6 | 17.9 | 10.3 | 18.1 |
| Properties | 100.0 | | 100.0 | | 100.0 | |

Source: SSNIT Annual Report

4.6 SSNIT investment Portfolio Performance

The total investment income realized in the Financial Year 2006 was ₦1,313.3 billion. This represented an increase of 71.5% as compared to the 2005 investment income of ₦765.6 billion. The nominal return on SSNIT's investment portfolio increased from 5.4% in 2005 to 15.7% in 2006. After accounting for inflation, the portfolio posted a real return of positive 4.3% (see Table 4.7), showing a recovery from the negative 8.4% real return made in 2005.

However, comparing 2005 and 2004, there was a decrease of 6.38% as compared to the 2004 investment income of ₦817.4 billion. The main reasons for the dip were the unimpressive performance of listed equities and considerable decline in interest rates in 2005. The stock market posted an overall return of negative 29.85%. Interest rates on benchmark 91-day T-bills over the period under review fell from 19.09% to 11.77%. The considerable investment holdings in fixed income instruments also affected the overall investment yield. The overall investment portfolio yield for 2005 was 5.4% and 34.4 in 2004.

Table 4.7 Five-Year Trend in Portfolio Returns

| | Mean (2002-2006) | 2006 | 2005 | 2004 |
|-----------------------|------------------|------|------|------|
| Nominal Return (%) | 23.9 | 15.7 | 5.4 | 34.4 |
| Average inflation (%) | 15.9 | 11.0 | 15.1 | 12.7 |
| Real Return (%) | 6.9 | 4.3 | -8.4 | 19.2 |

Source: SSNIT Annual Report

Table 4.8 Summary of SSNIT Investment Portfolio Performance (2006/2005/2004)

| Investment | 2006 | | 2005 | | 2004 | |
|-------------------|------------|---------------------|------------|---------------------|------------|---------------------|
| | Prop. (%) | Wt. Avg. Return (%) | Prop. (%) | Wt. Avg. Return (%) | Prop. (%) | Wt. Avg. Return (%) |
| Listed Equity | 23.9 | 0.9 | 22.2 | -5.6 | 31.0 | 22.9 |
| Unlisted Equities | 6.0 | 6.0 | 7.8 | 0.2 | 5.3 | 0.2 |
| Fixed Income | 59.9 | 7.3 | 58.0 | 9.1 | 51.9 | 9.3 |
| Real Estate | 9.5 | 1.5 | 10.6 | 1.9 | 10.3 | 2 |
| ETI | 0.7 | - | 1.4 | - | 1.5 | - |
| Total | 100 | 15.7 | 100 | 5.4 | 100 | 34.4 |

Source: SSNIT Annual Report

*Prop. – Proportion

Despite the dips and ebbs, the annual yields on the portfolio over the past five and three years (up to and including 2005) were 4.9% and 7.7% respectively (table 4.8).

This shows continuous improvement in portfolio performance.

Table 4.9 Summary of Annualised Returns

| | 1-year (2005) | 3-year (2003-2005) | 5-Year (2001-2005) |
|-----------------------|---------------|--------------------|--------------------|
| Nominal Return (%) | 5.4 | 27.2 | 26.1 |
| Average Inflation (%) | 15.1 | 18.0 | 20.2 |
| Real Return (%) | -8.4 | 7.7 | 4.9 |

Source: SSNIT Annual Report

The nominal return on SSNIT's investment portfolio increased from 5.4% in 2005 to 15.7% in 2006. After accounting for inflation, the portfolio posted a real return of positive 4.3% (Table 4.9), showing a recovery from the negative 8.4% real return made in 2005.

The significant increase in the nominal portfolio return from 5.4% in 2005 to 15.7% in 2006 was due mainly to extraordinary gains of ₵599.0 billion, arising from the revaluation and subsequent listing of Ecobank Transnational Incorporated (ETI) shares on the Ghana Stock Exchange and partly to improved dividend and interest incomes received from other investments.

Table 4.10

PORTFOLIO REAL RETURNS (2006/2005/2004)

| Return | 2006 | 2005 | 2004 |
|-------------------|------|------|------|
| Nominal | 15.7 | 5.4 | 34.4 |
| Average Inflation | 11.0 | 15.1 | 12.7 |
| Real | 4.3 | -8.4 | 19.2 |

Source: SSNIT Annual Report

The ten, five and three-year geometric mean returns presented in the table below provide the long, medium and short term view of the investment portfolio performance.

Table 4.11 **SUMMARY MEAN PORTFOLIO RETURNS FOR SSNIT INVESTMENTS**

| | 10-Year Mean (1997-2006) | 5-Year Mean (2002-2006) | 3-Year Mean (2004-2006) | 2005 | 2006 |
|----------------|-------------------------------------|------------------------------------|------------------------------------|-------------|-------------|
| Nominal Return | 24.7% | 23.9% | 17.9% | 5.4% | 15.7% |
| Avg. inflation | 19.5% | 15.9% | 12.9% | 15.1% | 11.0% |
| Real Return | +4.3% | +6.9% | +4.4% | -8.4% | 4.3% |

Source: Annual Report 2006

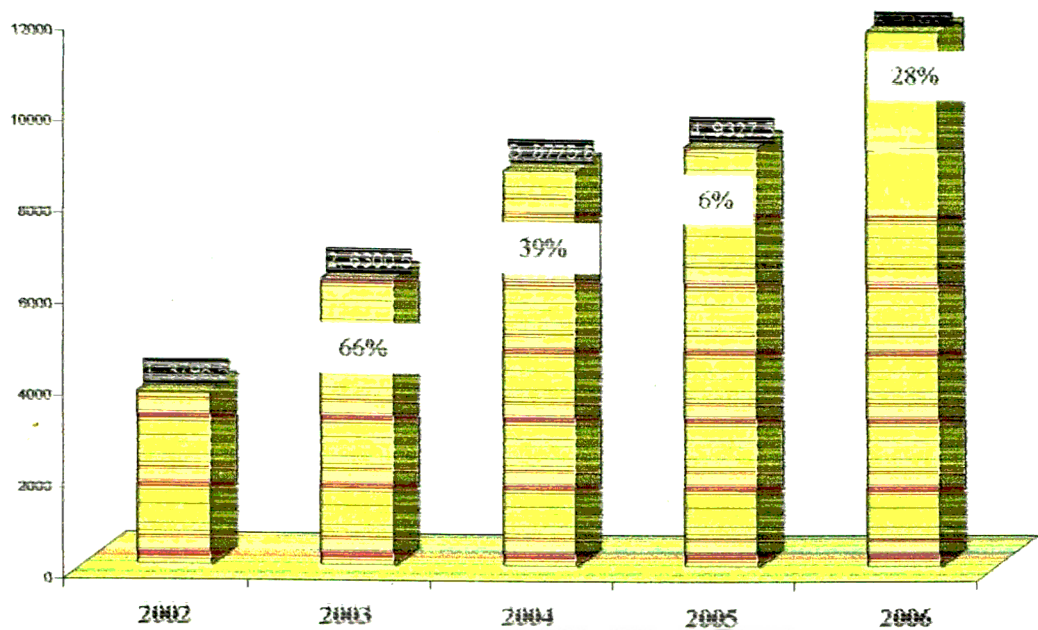
According to an actuarial valuation prepared in 2004, at 2% positive real return on the investment, the Scheme would be sustainable over a 50-year period (i.e. 2004-2054), if the number of contributors were to increase at a minimum of 3% per annum.

It is pertinent to note that, on the average, SSNIT's Investment portfolio real returns have exceeded the actuarially determined benchmark real return over the long, medium and short term (table 4.10).

The total investment portfolio of SSNIT as at December 2006 grew by about 28% from ₦9,327.5 billion to ₦11,952 billion in 2006.

Fig. 4.1

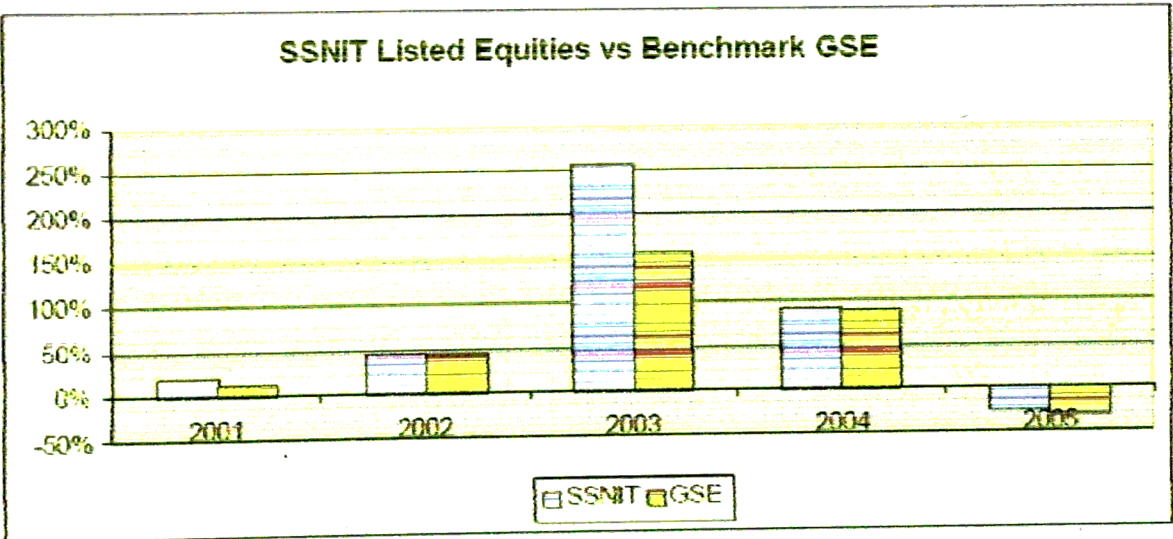
Growth of SSNIT Fund



Source: Annual Report 2006

Data gathered also revealed that the scheme’s listed equities had on several years outperformed the benchmark which the Ghana Stock Exchange index (GSE Index). Figure 4.1 compares the performance of the scheme’s listed equities and GSE Index benchmark for 2001 to 2005. There are however, some instances where the GSE recorded negative real rates of return because of the high rate of inflation in the national economy.

Fig. 4.2 The Scheme’s Listed Equities Have Outperformed the Benchmark (GSE Index)



Source: SSNIT Annual Report

According to SSNIT, there were problems getting interim evaluation of unlisted equities. In advanced financial systems however, most of a pension fund's assets can be marked-to-market thereby providing interim evaluation of the quality of investment decisions. That is not possible with unlisted equities in a less-developed market. Perhaps that is why real estate, which is visible and easier to value than private equity or indeed large loans to unlisted companies, let alone more complex instruments such as asset-backed securities, has historically played such a major role in the investment portfolios of SSNIT, although it must be duly noted that SSNIT has decreased its investments in property from 31 % in 2000 to 11 % now.

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CHAPTER FIVE

Summary of Findings, Conclusion and Recommendations of the Study

5.0 Introduction

Chapter five, the final chapter of the thesis is devoted to the summary of findings from the analysis of data, conclusion of the study and the suggested recommendations for fund managers and policy formulators.

The study sought to achieve the general objective of looking at interest rate, inflation and investment risks as factors that affect the investment decisions of these pension funds. The specific objectives were to identify the business objectives of the pension funds under study, identify their investment portfolios, identify the risk factors that influenced the choice of those investment portfolios, and to identify the returns on these investment in relation to the growth of the fund. It was based on these objectives that analysis was made on data collected from which the following findings are made.

5.1 Summary of Findings

After careful analysis of the data, the following findings were made. It was found that SSNIT had put in place well structured investment guidelines that have been the anchor of all their investment decisions. There are also well documented investment policies and objectives that sought to provide them with a solid investment vision aimed at maximising returns and in the interest of contributors. Investment managers have full discretion to manage their portions of the assets subject to the provisions of the

SSNIT Pension Scheme. The major economic risk that SSNIT had over the period under review were growth rate of the economy, interest rate and inflation. These factors had affected the investments of SSNIT variously. It was also found that SSNIT had invested in all sectors of the economy, including the financial, services, manufacturing, real estate (commercial and residential), tourism, transportation, infrastructure etc. There is also a social responsibility aspect of their investment where they have invested heavily in student loans and provision of housing for the populace.

Furthermore, investment guidelines and practices of the Scheme at various stages have been guided and influenced by market and prevailing regulatory environments. Investments are made with direct reference to risk factors such as inflation and investment risk and interest rates. Assets of SSNIT had been invested with the objective of earning a significant real return (over inflation) in the long-term. The measure of investment return included dividend and interest income in addition to the change in the capital value of the assets. The long term objective was to earn a minimum real return of 2 per cent.

Analysis of the data revealed that SSNIT had two major investment objectives. The first was to maintain a long term optimum Fund ratio through realisation of real returns on investments. Through this, they sought to maintain a portfolio mix which ensures low risk on investments and also ensure adequate liquidity to enable the Trust meet its obligations when due. The second objective was to make investments which are development oriented through visible benefit such as housing and transportation, contribution to economic development in export processing, tourism and Production. They also sought to galvanize investment in the informal Sector through the construction of industrial estates and markets, and finally, conceptualise

and initiate socially oriented investments with reasonable returns (e.g. Building Hospitals and Recreational Facilities).

The investment portfolios of SSNIT included, fixed income, non-fixed income, equity investments both listed and unlisted, properties (both commercial and residential), unit Trusts and special economic and social utility schemes. The Investment portfolio is mostly locally invested and structured into short, medium and long term investments. Foreign earnings which are quite small are invested in fixed deposits overseas as and when received.

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In terms of performance, there was an increase in investment income of 71.5% from the previous year, from Gh. ₵76.56 million in 2005 to Gh. ₵131.33 million in 2006. There was a nominal return from 5.4% in 2005 to 15.7% in 2006. However, the real return was 4.3% after accounting for inflation. The year 2005 had generated a negative return of 8.4%. This was mainly due to unimpressive performance of listed equities which in itself was due to bad performance of the economy, and also decline in interest rate over the same period.

5.2 Conclusion

The main objective of a social insurance scheme, such as a pension fund, is to ensure economic security and protection for its members. As funding of public pension schemes grow, governments increasingly are finding themselves in a role of fiduciary agent for their citizens. This role carries with it an implied responsibility for the public or the private pension manager to select an investment strategy that balances risk and return appropriately for the citizens on whose behalf it is investing. There are several factors that influence the investment decisions and strategies

adopted by pension fund managers. Pension funds aims to achieve a return on Fund assets which is sufficient, over the long-term, to meet the funding objective set out on an ongoing basis and also maximise return within acceptable levels of risk.

The high degree of uncertainty engendered by Ghana's history of expansionary fiscal policy and high inflation continues to play a role in undermining the functioning of the financial sector. This uncertain economic environment has made SSNIT reluctant to venture to far into a market which lacks depth, however, without leadership from major investors, the market institutions can not develop, nor the professional expertise that will promote product development, enhance governance and extend the pool of investors active in Ghana.

Notwithstanding the unfavourable economic environment, SSNIT has become far and away the largest financial institution in Ghana, some 60% larger than the largest bank, with assets now in the region of Cedis 10 trillion, SSNIT is something around 10% of GDP. In terms of what is "real" in financial markets, the pension sector occupies a very important role. Not only is SSNIT large, but it is at present almost the only source of long term "risk" capital in Cedis. Banks can lend, but SSNIT can invest. The rate of return obtained by banks, the success of their investment strategy, is primarily realized by the banks shareholders (SSNIT among them), the interest rate received by savers from their bank deposits is largely determined by monetary policy; the ability of SSNIT to pay pensions, without calling on Government support, is determined by the success of its investment strategy.

SSNIT has been a positive catalyst in the development of the capital market in Ghana. It is currently the largest financial institution in Ghana and the leading source

of funds for long term projects. The Scheme's asset allocation targets are gradually being achieved. It is expected that this trend will eventually lead to the attainment of the Scheme's overall investment objectives. Not only have total real returns improved in the recent past but also investment in various asset classes is closer to benchmark returns established under the guidelines. In some cases the Scheme's return has outperformed market benchmarks. Over the last few years there has been a more disciplined approach to investing; a well-structured investment portfolio; improvement in current and projected funded ratios; and a greater SSNIT social responsibility to the citizens of Ghana through undertaking certain economically targeted investments such as building schools, provision of healthcare services and establishment of industrial parks.

5.3 Recommendations

Based on the research findings the following suggestions are hereby being recommended.

Training

There should be comprehensive training programmes for investment staff. This will enable investment staff to be abreast with modern investment practices increase investment returns since there is more room for improvement. This will also serve the purpose of avoiding mismanagement and misapplication of investment funds.

Performance measurement

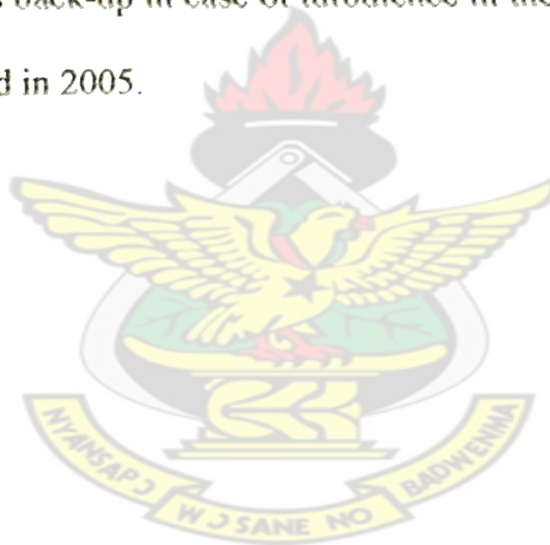
The fund should upgrade and improve upon its performance measurement reporting. There should be carefully defined sectoral benchmarks against which the performance of investment managers shall be measured.

Outsourcing

The outsourcing of certain investment activities which has already begun with properties management should be pursued further.

Expansion in Investment Portfolios

The Trust should consider investing in foreign economies especially in short term financial market to serve as back-up in case of turbulence in the Ghanaian economy, such as that which happened in 2005.



Bibliography

Act of Parliament (1991). *Social Security Law, 1991 (P.N.D.C.L. 247)*. (Available at the SSNIT Library).

Albrecht P., J. Coche, R. Maurer, R. Rogalla (2006), "Investment Risks and Returns of Hybrid Pension Plans: Sponsor and Member Perspectives" Mannheim Finance Working Paper 2006-01, Center for Finance University of Mannheim, L7, 3-5, D-68131 Mannheim. <http://www.finance.uni-mannheim.de>; retrieved on 25th May, 2009.

Babbel D. F. (2001) *Asset-liability management for insurers in the New Era: focus on value*, *The Journal of Risk Finance*, Fall, pp. 9-17

Banque de France • Financial Stability Review • No. 6 • June 2005

Blome, S. *et al.* (2007), "Pension Fund Regulation and Risk Management: Results from an ALM Optimisation Exercise", *OECD Working Papers on Insurance and Private Pensions*, No. 8, OECD Publishing.

Bodie Z (1990a), "Pensions as retirement income insurance", *Journal of Economic Literature*, Vol 28, 28-49.

Bodie Z (1999), "Investment management and technology, past present and future", paper presented at a Brookings-Wharton conference entitled "The effect of technology on the financial sector", 23 September 1998.

Bodie Z and Davis E P, eds. (2000), "The foundations of pension finance", Edward Elgar, (forthcoming)

Bodie Z, Marcus A J and Merton R C (1988), "Defined benefit vs. defined contribution plans: What are the real trade-offs?", in eds. Bodie Z, Shoven J B and Wise D A, "Pensions in the US economy", University of Chicago

Bodie Z. (1990b), "Pension funds and financial innovation", *Financial Management* Autumn 1990, 11-21.

Bookstaber, R. and R. Clarke (2000), "Option Portfolio Strategies: Measurement and Evaluation," *Journal of Business*, 469-492.

Bookstaber, R. and R. Clarke (2000), "Option Portfolio Strategies: Measurement and Evaluation," *Journal of Business*, 469-492.

Clark, R., and J. Sylvester Schieber. (2004) "Adopting Cash Balance Pension Plans: Implications and Issues." *The Journal of Pension Economics and Finance* 3(3): 271-295.

Davis, E.P. (1995), *Pension funds, retirement income security and capital markets, an international perspective*, Oxford University Press.

Dei H. (2001), *Public Pension Fund Management in Ghana*

Dei, G. Henry, (1993), "Implications For Social Security Of Structural Adjustment Policies In English-speaking Africa", in *The Implications For Social Security Of Structural Adjustment Policies*, Studies And Research No. 34, International Social Security Association, Geneva

Faccio, M. and Lasfer, M. A. (2000), Do occupational pension funds monitor companies in which they hold large stakes, *Journal of Corporate Governance* 6(2000) 71-110.

Gockel, A.F., (1996), *The Formal Social Security System In Ghana*, Friedrich Ebert Foundation, Accra, August, 1996.

Government (UK) Actuary's Dept. (2001). *Report of the Fourth Actuarial Review of the SSNIT Pension Scheme*. Social Security and National Insurance Trust, Ghana.

Iglesias, A. and R. Palacios (2000) "Managing Public Pension Reserves: A Review of the International Experience." World Bank Pension Reform Primer Working Paper series. Washington DC: World Bank - www.worldbank.org/pensions. Retrieved on 14th May, 2009

Iglesias, A. and R. Palacios (2000) "Managing Public Pension Reserves: A Review of the International Experience." World Bank Pension Reform Primer Working Paper series. Washington DC: World Bank - www.worldbank.org/pensions. Retrieved on 14th May, 2009

International Monetary Fund (2004) *Global Financial Stability Report, World Economic and Financial Surveys*, April and September

ITCS Dept. of SSNIT (2002). *Monthly Report for November 2002*. Social Security and National Insurance Trust, Ghana.

IXIS-CIB (2005) *Quels impacts de la réforme des fonds de pension aux Pays-Bas? , Special report*, 31 January

James, E., Smalhout, J., and Vittas, D. (2000), *Administrative Costs and the Organisation of Individual Account Systems: A Comparative Perspective*, forthcoming in *Private Pension Series*, Vol. 2, OECD: Paris.

Johnson, R. W., and E. Steuerle (2004) "Promoting Work at Older Ages: the Role of Hybrid Pension Plans in an Aging Population." *The Journal of Pension Economics and Finance* 3(3): 315-337.

Kumado K. and A. F. Gockel (2003), *A study on social security in Ghana*, A study commissioned by the TUC.

Lachance, M.-E. and O. S. Mitchell. (2004). "Understanding Individual Account Guarantees." In *The Pension Challenge: Risk Transfers and Retirement Income*

Security. eds. Olivia S. Mitchell and Kent Smetters. Oxford University Press: 159-186.

McGill, D. M. (1995). *Pensions: Problems and Trends*. Richard D. Irwin Inc.

Merton, R.C.[1982], "The Return and Risk of Alternative Put Option Portfolio Investment Strategies," *Journal of Business*, 1-55.

Merton, R.C.[1982], "The Return and Risk of Alternative Put Option Portfolio Investment Strategies," *Journal of Business*, 1-55.

Moloney M. (2006), *Managing an unwanted Risk for Defined Benefit Pension Funds*, Mercer Investment Consulting Dublin.

Musalem, A. R. & R. J. Palacios (2003), *Public Pension Fund Management - Governance, Accountability, and Investment policies: Proceedings of the Second Public Pension Management Conference, May 2003- World Bank - www.worldbank.org/pensions*. Retrieved on 14th May, 2009.

Ryan (R.) et Fabozzi (F.) (2003) *The pension fund crisis revealed*, *Journal of Investing*, Fall 2003, pp. 43-48

Smith, M.P. (1996), Shareholder activism by institutional investors: evidence from CALPERS, *Journal of Finance* 51, 227-252.

The Economist, October, 30th 2004, p.88)

Tibuahson K. (2003), *A Review of The State Pension Scheme In Ghana: A dissertation submitted for the award of Master of Science in Actuarial Science*, City University, London.

Vittas, D. (1998), "Regulatory Controversies of Private Pension Funds." Policy Research Working Paper 1893. Washington, DC: World Bank.

Wahal, S. (1996), Pension fund activism and firm performance, *Journal of Financial and Quantitative Analysis* 31, 1-23.

Woods I. W. (1989), *The Actuary's role in determining pension fund investment strategy: A Report presented to the Staple Inn Actuarial Society*.

www.academyofcg.org/codes-glossary.htm).

www.academyofcg.org/codes-glossary.htm).

APPENDIX

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY COLLEGE OF ART AND SOCIAL SCIENCES SCHOOL OF BUSINESS

MASTERS IN BUSINESS ADMINISTRATION

QUESTIONNAIRE

Information given in this questionnaire is strictly for academic purposes only.
The information shall be treated with the maximum confidentiality to safeguard
the interest of the Fund.

TO BE COMPLETED BY FUND MANAGER

1. What is your position on the management team?.....
2. What is the type of pension plans that the pension fund is linked to (defined benefit or defined contribution)
3. What are the general objectives of the Fund?

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4. What are the investment portfolios of the fund?

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.....

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5. What are the investment objectives of the fund?

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.....
6. What influences the choices of investment portfolios?
.....

7. Does the management have the power to undertake any investment on behalf of the Fund? 1. Yes [] 2. No []

8. What is the role of the board in the investment decisions of the management?
.....
.....
.....

9. Does the board determine the amount that is invested in any venture?

1. Yes [] 2. No []

10. What percentage of the fund is invested at any given time?.....

11. What factors determine the investment decisions of the management?
.....
.....
.....

12. Does the fund invest in equities? (refer to page 3)

13. What percentage of the investment fund is invested in equities? (refer to page 3)

14. Has the fund ever invested in hedge funds? (refer to page 3)

15. If yes, what percentage was/is invested in hedge funds?

16. If no,
why?.....
.....
.....

17. Has the fund invested in fixed income securities? (refer to page 3)

18. If yes, what is the percentage?

19. If no
why?.....

20. What is the asset liability management strategy adopted by the fund?

.....

.....

.....

.....

21. How are benefits calculated for beneficiaries?

.....

.....

.....

Investments

| Type of Investment | Specify | | % of Funds invested | No. of years in this investment |
|-------------------------|---------|--|---------------------|---------------------------------|
| Hedge Funds | | | | |
| Fixed income securities | TB | | | |
| | FD | | | |
| | BD | | | |
| | CL | | | |
| | B | | | |
| Currencies | | | | |
| Derivatives | | | | |
| Equities | | | | |
| Short Investment | | | | |
| Long Investment | | | | |
| Real estate | | | | |

TB-Treasury Bills; **FD**-Fixed Deposits; **BD**-Bank Deposits; **CL**-Corporate Loans; **B**- Bonds