

**THE IMPACT OF RISK BASED SUPERVISION ON THE FINANCIAL  
PERFORMANCE OF PENSION FUNDS IN KENYA.**

**BY**

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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE  
REQUIREMENTS FOR THE AWARD OF MASTER BUSINESS  
ADMINISTRATION DEGREE, SCHOOL OF BUSINESS, UNIVERSITY OF  
NAIROBI.**

**July 2012**

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## DECLARATION

This research project is original work and has not been submitted to any institution or university other than University of Nairobi for academic credit.

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## **DEDICATION**

To my parents who brought me up to what I am today, their relentless endurance and encouragement has been an invaluable inspiration. To Mercy, Fred and Charles for their unconditional support and patience through this project.

## **ACKNOWLEDGEMENT**

I wish to sincerely thank my supervisor Mr. Herick Ondigo for his continuous guidance and support. His thoughtful insights, constructive criticism and timely feedback navigated me professionally towards the successful completion of this project.

Special acknowledgements to the Retirement Benefits Authority, fund administrators and investment managers who provided data for analysis which formed a basis for this study.

Most importantly, my heartfelt gratitude to all my family members, friends and colleagues who have contributed immensely towards my academic excellence.

May God bless you all.

## **ABSTRACT**

Over the years, it has emerged that most pension schemes have not been keen in risk management. However, current trends in developed countries have inspired developing countries to consider various reforms aimed at improving the management of their pension funds thus leading to improved performance. A focus on outcomes and risks rather than rules, has clear resonance with the search for better regulation. This insight led to the launch of Risk Based Supervision by the Retirement Benefits Authority and consequently its adoption by the Retirement Benefits Sector in Kenya in 2011.

This study sought to establish the impact of Risk Based Supervision on financial performance of pension funds and the effectiveness of its implementation. A sample of 50 pension schemes was drawn from a population of 500 pension schemes that met the pre-defined criteria for study data. Primary data was obtained from fund administrators and principal pension officers. Secondary data was obtained from RBA and Fund managers of various pension schemes. Primary data was analysed using Ms Excel and secondary data was analysed using SPSS Statistical Package. Total contributions and fund values for each of the sampled schemes for each of the quarters before and after implementation of RBS were analysed.

This study has revealed that adoption of Risk Based Supervision has had a significant positive impact on the financial performance of pension funds. The study concludes by identifying the effectiveness of the implementation of Risk Based Supervision and other grey areas that have affected it. In light of the above findings, the study therefore recommends that Risk Based Supervision should be adopted by all pension schemes in Kenya and implemented fully. Further, more financial resources should be deployed and

intense training carried out to ensure that the main objective of better performance and risk management of pension funds is achieved.

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## LIST OF ABBREVIATIONS

APRA	Australian Prudential Regulatory Authority
DB Schemes	Defined Benefit schemes
DC Schemes	Defined Contribution schemes
FSB	Financial Services Board
IOPS	International Organisation for Pension Supervisors
IRB	Internal Ratings Based
HK	Hong Kong
RBA	Retirement Benefits Authority
RBS	Risk Based Supervision
SPSS	Statistical Package for Social Sciences
TPR	The Pension Regulator.
UK	United Kingdom

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

The world around us changes fast. Regulators try to keep pace with these changes by continuously issuing new regulations and guidelines and by intensifying supervision. In addition to external regulations, many financial institutions issue internal rules and codes of conduct (Basel, 2005). Regulators in different countries have adopted different approaches to risk based regulation and these have developed as regulators learn from the experience of others .While the frameworks vary in their complexity, they all have a central element, a focus on risks not rules (Black & Baldwin 2010).

The contribution of risk-based regulation is consideration of risk through all parts of the regulatory design and implementation process in a systematic framework. While regulators have always made allocation choices, partly to manage limited resources, risk-based regulation formalizes and provides consistent structure to the decision making process. It involves steps and components that require complex and strategic choices, different skills and capabilities, and clear governance and accountability arrangements (Sparrow 2000). Managing risk is not a static activity. Risks and their likelihood and impact need to be monitored to ensure both the risks and any response remains relevant. Some risks may disappear over time, new risks may emerge and this requires a dynamic response (Peterson & Fensling, 2011).

### **1.1.1 Risk Based Supervision**

Risk Based Supervision is defined as the adoption of supervisory mechanisms on financial institutions and development of internal controls that seek to prevent the occurrence of risk as opposed to the reconstruction after the occurrence of risk (Brunner, Hinz, Rocha, 2009). According to the Retirement Benefits Authority supervisory guideline 2010, the risk-based approach to supervision is an approach whereby the intensity of the work of a regulatory agency and the resources allocated to supervising individual schemes are in proportion to the size and risk of each scheme. The approach is borne out of the recognition of the need to have a more proactive approach to the regulation of the pension sector.

Risk Based Supervision demonstrates the benefits of moving away from an approach based on strict compliance, specific rules, and quantitative controls towards an approach that puts more emphasis on the identification and management of relevant risks. For a long time, regulators within the financial sector have used a rule based system and more or less relied on financial analysis using ratios as a tool of supervision. Subsequently, it has been realized that relying on financial ratios alone may not be an effective tool for preventing financial crisis in the pension schemes. This has led to the emergence of the risk based approach to supervision which is aimed at promoting transparency, providing early warning signals and encouraging the regulated entities to self-evaluate their position at regular intervals (Odera, 2010)

According to (Brunner et al., 2009), the pioneers of RBS in pension funds are Australia, Denmark, Mexico and the Netherlands. The main objectives of RBS is to ensure that

institutions adopt sound risk management procedure and hold appropriate levels of capital to ensure better returns to stakeholders (Hinz & Van Dam, 2006). (Brunner et al., 2009) recommends RBS of pension funds because it reduces the risk of underfunding, limits losses caused by adverse movements in asset prices, avoids risky investments and allocates the scarce supervisory resources efficiently. RBS thus results in improved products and lower operating costs for pension funds. According to (Thompson,2008), the risk based approach to supervision of pension funds entails forward looking, primarily risk based, consultative, consistent and in line with the international best practice. This form of supervision results in an improved efficiency and an intentional attempt to compel pension funds to achieve their objectives in a tolerable risk environment.

### **1.1.2 Financial Performance of Pension Funds**

From a financial perspective, pension scheme performance can be assessed by evaluating the increase in income streams. The main sources of funding for pension schemes are the contributions received. Increases in contributions arise when there is an increase in scheme membership, upward adjustments in salaries or changes in rules relating to contribution rates. The other source of income is the net returns made from the investment of these contributions. Net returns will increase where economic factors are favorable and where prudent investment decisions are made to diversify risks. An increase in income and reduction of expenses will lead to increase of the fund value. It is the increase in fund value that is used to determine the overall financial performance of a scheme. Pension schemes whose financial performance is healthy will generally be able

to safeguard and grow members funds thereby be able to meet financial liabilities to members who retire (Muingo, 2007).

### **1.1.3 Impact of RBS on the Financial Performance of Pension Funds**

Risk based regulation can lead to better performance through improved performance measurement and accountability as it reveals the sources of success and failure in regulatory decision making and evaluation can feed back into improvements to future decisions (Peterson & Fenslin, 2011). This approach may require more information to make decisions, but thus may achieve better decisions based on a more complete assessment of their consequences (Weiner 2010). Efficient pension fund governance and risk management improves performance of the fund and creates trust among the stake holders (Stewart, 2009). Therefore, with the adoption of RBS, it is therefore expected that the financial performance of pension funds will improve.

The main effects that regulation might have over financial institutions includes the ability to enhance growth and increase the scale of operations, improvement of financial performance, strengthening of financial practices, encouragement of good governance, improvement of control and reporting procedures, among others (Carrasco, 2006)

### **1.1.4 Overview of the Pension Industry**

Pension funds are the principal sources of retirement income for millions of people in the world (Sze, 2008). Retirement income accounts for 68% of the total income of retirees in Kenya (Kakwani, Sun and Hinz, 2006), 45% in Australia, 44% in Austria and 80% in France while in South Africa 75% of the elderly population rely on pension income (Alliance Global Investors, 2007). In the United States of America 82% of retirees

depend on pension income (EBRI, 2007). Global indices indicate that pension assets are important to any economy. Pension funds should therefore be managed efficiently as they are important contributors to the GDPs of countries and to ensure higher retirement income for pensioners.

The Retirement benefits sector in Kenya is composed of the National Social Security Fund (NSSF), Civil Servants Pension Scheme (CSPS), Occupational Retirement Schemes (ORS) and Individual Retirement Schemes. The coverage of pension schemes' in Kenya is approximately 15% of the work force. According to the Alexander Forbes Consulting Actuaries Scheme Survey 2011, the total pension industry assets stood at Kshs. 471 billion as at 30 June 2011. The amount was composed of Kshs 327 billion held by fund managers, Kshs 114 billion held by the NSSF and an additional Kshs 30 billion of property investments held by schemes but not under control of the fund managers.

The retirement benefits sector in Kenya is regulated by the Retirement Benefits Authority, a regulatory body formed under the Retirement Benefits Act, Act No. 3 of 1997 with the mandate to regulate and supervise the establishment and management of retirement benefits schemes and all the players in the pension industry, protect the interests of members and sponsors of retirement benefits sector, intervene for the public in case of any flaws. It also has a role to promote the development of the retirement benefits sector in Kenya and advise the government of any matter relating to retirement benefits. According to the RBA report for 2011, there are 26 registered administrators whose sole purpose is to administer pension schemes on behalf of the company, 17 registered fund managers who invest the assets of the scheme and 11 registered

custodians who keep safe custody of all securities held by the scheme. Service providers for the pension industry should strictly adhere to the RBA Act and the laws of Kenya.

## **1.2 Research Problem**

Although corporate governance has attracted much attention in the recent past, focus has not shifted to pension fund governance and credibility of pension systems as important determinants of pension funds (Beslet & Prat, 2005; Charmichael & Palacios, 2003; Ambatchsheer, 2001). Pension fund risk management is important since risk exposure to pension schemes tend to reduce returns on investments over the long run, creates uncertainty about the value of pension assets when pension liabilities become due and raises questions that impact on the governance aspect of pension funds when irregularities and market volatilities lead to losses in the pension funds (Maurer, Mitchell & Rogalla, 2009)

In a study conducted by (Muingo, 2007) on the impact of introduction of regulations into the retirement benefits sector in Kenya, it identified that financial performance of pension funds had improved over the period the regulations had been in force. However, this impact was still low thereby introducing a need for further regulation and supervision of pension funds necessitating introduction of more strategies to improve this performance to acceptable levels.

(Kihanya, 2005) investigated the effect of the RBA Act 2000 on the risk of investments held by pension funds in Kenya which was his main objective. His findings identified that pension funds were yet to comply with the investment guidelines with the RBA guidelines investment guidelines 2001. He also noted that investments done by pension

funds were now more stable and less risky as opposed to before the regulations came into place and that the risks of variability of returns had been reduced due to the professional advice.

A survey conducted into the framework for immunization by retirement benefit schemes in Kenya showed that there was a general consensus for the need of increased level of involvement of actuarial consultants in the setting of investments objectives and risk tolerance of pension schemes. This is because the level of risk that a scheme can take on is affected by the liability profile of the scheme at the time. The study also identified the need for sophisticated systems and specialists to undertake the highly involving active management strategies required as part of the immunization that is currently lacking in managing pension scheme risks (Kiwanuka, 2005).

Good risk management practices, governance and supervision of pension funds will enhance the security of pension funds and thereby enhance the confidence of most retirees. Given the dynamics of the pension industry and having in mind that it is not a fully developed industry in Kenya as compared to others e.g. insurance, banking, etc. thus more often than not subsidiary legislation has come in place trying to amend the existing act. This has resulted in a research gap as regulators try to catch up with the actual activities in the environment requiring high levels of supervision by industry mainly treasury and RBA (Macharia, 2010).

A study carried out on the implementation on RBS by the Central Bank of Kenya found out that bank supervisors considered the risk based methodology to have improved evaluation of risks among financial institutions, followed by a reduction in costs and

early identification of emerging risks (Momanyi, 2009). Despite the above benefits, it was also faced by many challenges including lack of proper training, skills and experience. He also identified a knowledge gap of a similar methodology in other financial sectors in order to improve financial performance due to improved risk management.

A similar adoption of RBS by the Retirement Benefits Authority is aimed at improving the sustainability and independence of pension schemes in Kenya. Additionally most studies have focused on the effects and the experience of implementing RBS but there appears to be a knowledge gap on the impact of the same on financial performance on pension funds and other financial sectors. This study therefore sought to answer the following research question, has the implementation of RBS had any impact on the financial performance of pension funds in Kenya?

### **1.3 Objective of the Study**

To investigate the impact of risk based supervision in the financial performance of pension funds in Kenya.

### **1.4 Value of the Study**

The findings of this study will be helpful to the regulator as it will contribute towards the formulation of better strategies that will be relevant towards implementation of RBS thereby facilitating a transparent, effective and efficient system of governing and administration of pension schemes in Kenya.

Secondly, pension fund institutions and various service providers in the pension industry will be able to evaluate and assess the current level of supervision and thus implement the

necessary changes based on the findings of this study to enhance early detection of risks and provision of solutions in a timely manner to improve financial performance of pension funds.

Thirdly, the findings of this study are aimed at enlightening trustees on best practices that will assist in improving financial performance and strengthening independence of their pension schemes as their primary role is to exercise their supervisory role in ensuring that the risks they face are effectively managed and controlled.

It will also preserve confidence of pensioners' in fulfilment of the promised security of financial claims; stability and integrity of the pension system thereby encourage them to save more for retirement.

Finally, researchers within the pension sector will also find the study resourceful as it will improve on their existing body of knowledge and provide a basis for research on the implementation of a similar methodology in developing countries.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter will discuss an overview of the literature reviewed providing a basis for the study and the concepts. The chapter also highlights theories guiding the study, previous studies conducted and new developments related to the study and provides an overview of key ideas for the study.

#### **2.2 Theoretical Review**

The theories outlined in this section provide an insight on how supervision has been carried out over the years on financial institutions and how they have moved towards the risk based approach.

##### **2.2.1 Official Supervision Theory**

This theory holds that private agents frequently lack the information, incentives, and capabilities to monitor powerful firms and financial institutions (Becker, 1968; Becker & Stigler, 1974). From this perspective a powerful supervisory agency will enhance corporate governance of financial institutions, improve the incentives facing institutional managers and administrators, and thereby boost the efficiency with which financial institutions intermediate society's savings. The official supervision theory assumes that governments have both the expertise and the incentives to ameliorate information, enforcement, and transaction costs and improve corporate governance of financial institutions.

### **2.2.2 Political / Regulatory Capture Theory**

This theory argues that politicians do not maximize social welfare. They maximize their own welfare (Hamilton, et al., 1988; Buchanan & Tullock, 1962; Becker, 1983). Thus, politicians may induce financial institutions to divert the flow of credit to politically connected firms, or powerful financial institutions may “capture” politicians and induce official supervisors to act in the best interests of financial institutions rather than in the best interests of society (Becker & Stigler, 1974; Stigler, 1975; Rajan & Zingales, 2003). This political/regulatory capture theory suggests that direct official supervision of financial institutions may actually reduce the efficiency with which financial institutions allocate credit. Specifically, while powerful official supervision may increase the flow of credit to a few well-connected firms, the political/regulatory capture theory holds that powerful supervision will hurt the availability of credit to firms in general.

### **2.2.3 Independent Supervision Theory**

This theory argues that creating an independent agency is a useful mechanism for balancing market and political failures. This view holds that if supervisors are independent from the government and if supervisors have proper incentives, then this reduces the likelihood that politicians will use the supervisory agency to induce financial institutions to funnel credit to favoured ends. Similarly, if the supervisory agency is independent from financial institutions and if supervisors have proper incentives, then this lowers the probability that financial institutions will capture supervisors. Thus, the independent supervision view proposes a compromise to create a supervisory agency that has the resources to overcome information asymmetries but that is sufficiently independent so that it avoids political/regulatory capture. Under these conditions,

independent supervision can enhance the corporate governance of financial institutions and lower firms' external financing obstacles (Beck, Kunt & Levine, 2003).

#### **2.2.4 Private Empowerment Theory**

The private empowerment theory suggests that financial institutions supervisory strategies should focus on enhancing the ability and incentives of private agents to overcome informational barriers and exert corporate control over financial institutions and limit the power of official supervisors. Thus, the private empowerment theory seeks to limit the powers of the supervisory agency so that the government is unable to use financial institutions supervision to achieve political ends. Simultaneously, the private empowerment theory seeks to provide the supervisor with sufficient power to force accurate information disclosure so that private agents can more easily monitor financial institutions (Hay & Shleifer, 1998). Finally, a second component of the private empowerment view stresses incentives. Private creditors will more effectively exert corporate governance of financial institutions and therefore enhance corporate financing if the government does not distort incentives.

#### **2.2.5 Risk Based Supervision Theory**

The movement towards risk-based supervisory approaches can be traced to the development of early warning systems for banks. The earliest of these systems was the CAMEL system for risk rating adopted by the United States in the 1980s. In 1988 the Basel Committee on Banking Supervision implemented the Capital Adequacy Accord (Basel I) which provided a risk-based framework for assessing the capital adequacy of banks to cover credit risks. The development of this framework was an important step in the path towards risk-based supervision. It sought to ensure an adequate level of capital in

the banking system by applying weighting to credit exposures based on broad risk classifications (Basel I Accord, 1988)

In 1999 the Basel Committee began the process of replacing the Basel I Accord with a more contemporary guideline. The new framework known as Basel II is designed to encourage good risk management by tying regulatory capital requirements to the results of internal systems and processes. In this regard, the framework added two pillars to the model. The second pillar, the supervisory review process which allows supervisors to evaluate a banks' assessment of its own risks and assure themselves that the banks processes are robust and the third pillar, market discipline which ensures that the market is provided with sufficient information to allow it to undertake its own assessment of banks' risks. It is intended to strengthen incentives for improved risk management through greater transparency (Basel Committee on Banking Supervision, 1999)

The movement towards greater risk focus is being reflected in the insurance industry. The International Association of Insurance Supervisors (IAIS) is currently working to develop a common international framework for assessing the solvency of insurers. The current solvency framework in Europe dating from the early 1970s defines capital requirements for insurers in terms of solvency margins typically based on simple rules applied to technical provisions or premiums. At a regional level work is underway in Europe on the Solvency II project which aims to adopt a risk-based approach to capital requirements for insurance companies and introduce qualitative requirements for senior management, risk management, model validation and internal controls. There will also be recognition of internal modelling in collaboration with the actuarial profession (Brunner et al., 2009).

Solvency II will involve a three pillar approach similar to Basel II, introducing a supervisory review process and enhanced transparency. The first pillar will define the resources that a company needs to be considered solvent. It will define two thresholds for capital. The solvency capital requirement will set a threshold for supervisory action and a minimum capital requirement will provide a basis for stronger action or even withdrawal of the company's license to write new business. As with Basel II, the capital requirement can be calculated using either a simple standardized model or an internal model which has been approved by the supervisor. Pillar 2 will take into account qualitative measures of risk control focusing on risk management processes, individual risk capital assessment and aspects of operational risk, including stress testing. Pillar 3 will address disclosure requirements incorporating more consistent international accounting standards. In many European countries which operate DB pension schemes or guarantee arrangements which involve technical reserving, the rules applying to insurance companies may also apply to pension entities (Brunner et al., 2009).

### **2.3 Empirical Studies on Risk Based Supervision**

The RBS model originates primarily in the supervision of bank. It has in recent years increasingly extended to other types of financial intermediaries including pension funds, reflecting an increasing focus on risk management. Its application to pension funds has focused on developments particularly for defined contribution funds that transfer investment risk to fund members.

A study carried out in 2009 on 34 banks on the effectiveness and challenges facing the implementation of RBS as adopted by the central bank of Kenya identified that RBS requires supervisors to have abilities to effectively evaluate risk management systems and

practices employed by banks. Supervisors thus need to develop and implement robust risk techniques and criteria to avoid supervisory risk of failure to assess the risks accurately and timely (Barth, Caprio & Levine, 2002). The results from his research indicated that bank supervisors considered the risk based methodology to have improved evaluation of risks among financial institutions, followed by a reduction in costs and early identification of emerging risks in that order whereas improved reporting of focus assessment of financial institution was not much of an important benefit. However, he also identified various challenges during the implementation process. In his study, he found out that the challenge of competing demand for scarce resources was the most prevalent followed by competence in human resources and change in orientation of management thinking. The study also revealed that the highest costs were incurred in the training of staff and acquisition of information technology infrastructure (Momanyi, 2009)

A Study on adoption and implementation of RBS in Denmark Pension Regulatory Authority (Danish Financial Supervisory Authority, 2004), observed that a substantial amount of capital outlay is required at the commencement, training of supervision teams on new ways of supervision and acquisition of the appropriate software for data analysis and report generation is very crucial. This comes at a cost. The methodology is not cost effective and largely relied on supervisor's judgment. Further, the survey could not ascertain the basis of the assumptions adopted while arriving at a number of conclusions on the amount and level of risk unlike the traditional methodology that was prescriptive.

In a study conducted by (Njuguna, 2010) on the agency problems and the resolution mechanisms among pension schemes in Kenya, he recommended the effective

supervision of pension schemes citing that RBA should focus on plans which focus on legal compliance, financial control and supervision of managers. He further recommended increased resilience on modern and effective risk management; industry-wide risk management for pension funds and other institutions involved in the provision of retirement income should be promoted. In conclusion, he suggested that a study should be undertaken to establish the effectiveness of governance and supervision of retirement benefit schemes in Kenya.

In a study conducted by (Gitau, 2010) on strategies to improve pension fund efficiency in Kenya, he identified Risk based supervision as one of the key elements of pension regulation and efficiency. He also cited that pension funds in the United Kingdom are more operationally efficient compared to their OECD counterparts in Kenya as a result of adopting a risk based supervision approach that focuses more on the ability of the pension funds to abide by the trust documents and monitor their activities (Blome et al., 2007). In a communicative validation of his empirical findings using a focus group of 24 pension fund trustees to clarify the non-significant relationships among most of the investigated relationships, he sought to find out why the risk variable performed so poorly. The focus group identified that the respondents suggested that there were no guidelines relating to risk management for Kenyan pension funds only a liberal discretion is granted to fund managers.

In Chile, the superintendencia de Bancos instituciones Financieras (SBF) the banking authority, adopted RBS as a methodology of supervising banking institutions in the year 2000. The SBF adopted RBS methodology anchored on the Canadian model. The model emphasised on the solvency of the banking institutions and market discipline. In 2005,

SBF conducted a survey to determine the benefits and the challenges and whether the methodology of RBS achieved its intended objectives in supervising banks and micro finance institutions in Chile. The survey noted a huge increase in costs for the year 2000/2001. These costs were attributed to training of its bank supervision teams and consultancy fees levied. A significant proportion of the costs were also related to acquisition of new infrastructure. The IT infrastructure enabled Chilean Banking authority to collate and analyse filed bank returns in a timely fashion. The capital expenditures caused a massive budgetary distortion for SBF.

In addition, between 2000 to 2004 there was an improvement in solvency levels among banks in Chile. As banks assumed more risks the regulations required them to increase capital base to cushion them against the potential risks. Banks became stronger and started expanding their operation into other South American countries. Risk assessment of banks became sharper as problematic banks were identified early and SBF evoked prompt corrective actions. This process required highly trained bank inspectors to conduct the inspections. The SBF bank supervision department budget decrease by half in 2002/2003 financial year as most operations were automated and previous staff keying the returns were deployed. However, implementing RBS was not without challenges ranging from resistance to adoption of the methodology by long serving staff and dynamism in financial innovation. (Superintendencia De Valores y Seguros of Chile, 2006)

(Dan'ielsson, Jorgensen & de Vries,2002) studied the impact of risk based supervision on a financial institution's preference for alternative risk management systems. They modelled the bank as a principal-agent relation between a bank's board of

directors (principal) and a dedicated risk manager (agent), where the bank was subjected to risk regulation. They considered two alternative categories of risk management systems, one with fine risk monitoring and the other with coarse risk monitoring. These systems were based on the IRB and standard approaches, respectively. They then reached three main results. First, in the absence of regulatory supervision, financial institutions prefer the higher quality fine system, if the direct costs of such a system are sufficiently low. Second, the addition of regulation may cause the financial institutions to reverse this choice, i.e. financial risk regulation provides incentives for banks to implement a lower quality risk management system than they would in the absence of regulation. Finally, when the supervisor decides to affect the implementation of the system, he affects asset volatility and hence introduces procyclicality.

#### **2.4 Risk Assessment Criteria for RBS of Pension Schemes in Kenya**

Based on the RBA risk based supervisory guideline for 2010 and the IOPS 2007, the risk-based supervisory approach of the Retirement Benefits Sector in Kenya has been adapted from the Australian model. The goal is to measure the solvency of DB schemes and the investment risk of DC schemes, applying a risk score to each scheme which then determines the supervisory response.

In terms of risk measurement, the Retirement Benefits Authority has identified the following risks as the main areas for consideration. Counterparty default risk which arises from failures of a counterparty to meet its obligations, balance sheet and market risk which results to losses due to movements in interest rates and other market prices, operational risk which also leads to losses and arises from inadequate internal processes, people and systems either from the pension scheme or from service providers, liquidity

risk which arises from inability of an institution to meet its payment obligations as they fall due without incurring excessive cost, legal and regulatory risk which is the likelihood of adverse consequences arising from the failure of a pension scheme to comply with all relevant laws and regulations, strategic risk which affects the continued viability of an entity as a result of change in the operating environment, including internally driven change such as merger or introduction of new product line and contagion and related party risk which arises from a close association of a pension fund with that of another entity either directly through financial exposure or indirectly through reputation damage.

## **2.5 Risk Based Supervisory Process**

RBS is an on-going supervision process whereby risks of an institution are assessed and an appropriate supervisory plan designed and executed in an efficient manner. The risk assessment and supervisory process highlights both the strengths and vulnerabilities of an institution and provides a foundation from which to determine the level and extent of supervisory attention. The risk based supervisory framework also involves identifying significant operations or processes, risk identification and assessment of risk management, controls, mitigation plans, net risk and overall assessment (Financial Stability Institute Connect, 2008).

Based on the IOPS (2008) toolkit for RBS, the risk based supervisory process begins with monitoring which involves regular collection and analysis of a pension fund's specific information to enable routine checks to be undertaken and assess the risk profile to be able to plan for its supervisory approach. Once sufficient information has been gathered to assess a pension fund, a range of analysis which may cover legal compliance, financial strength, risk management market conduct, governance, disclosure, operations, and

performance may be carried out to identify the level of risk posed to the pension funds. Risk scoring systems, using consistently applied quantitative and qualitative factors will be used, assessing risk in the context of magnitude of potential impact as well as probability of occurrence. An overall risk score for the fund will be determined and depending on the outcome of the score this may trigger a further more in-depth investigation directing further supervisory action. The institutional profile should be updated continuously to keep track of significant developments that occur as the updating of the risk management plan is a dynamic process requiring frequent assessments at various stages of the supervisory process (Basel Committee of Bank Supervision, 2005)

## **2.6 Challenges Facing Implementation of Risk Based Supervision.**

A major challenge faced by most of the pioneers of implementing RBS was how to use and adapt existing models and approaches from other countries and sectors. The most fundamental experience was that one model or structure cannot be taken from another country and applied unaltered to another pension system. All countries are unique, with models requiring adaptation to each situation. For example, operational and legal risks are more challenging for developing countries (contagion/ counter party default risk etc.), which means they need to be built into their systems more robustly (Stewart, 2007).

Trying to adapt an intra-country model may be just as difficult, due to differences between sectors. For example, the Pensions Regulator (TPR) in the UK started by adapting an approach from the UK's Financial Services Authority. However, it quickly became apparent that this would not work for TPR as it would not be practical to score each of the thousands of pension schemes in the UK individually (TPR, 2007)

The BaFinmodel in Germany had a more successful experience in adapting the risk-based approach and stress test models which the integrated authority already applied in the banking and insurance sectors even though it was not an exact fit. However, the challenge was that once a model was built, it should not be considered as fixed in stone (Stewart, 2007). Another of the pioneers in risk-based supervision, Australia's APRA, experienced similar challenges when introducing their risk-based approach across a range of financial institutions. On top of the challenge of needing flexibility and time to adapt to the inevitable introducing problems, APRA also point out that even if the system is close to correct, time is still required to let it embed (APRA, 2008). Hong Kong focuses its risk-based approach on trustees, producing a risk profile for individual trustees for each scheme, and evaluating the risks of the trustees from different perspectives, including governance, capabilities, resources, control and operations (Hinz & Mataoanu, 2005)

The Financial Services Board in South Africa has kept supervision and compliance divisions separate, with a Head of Department to manage each. Although a general model for risk-based supervision has been adopted for the FSB as a whole, each department has been given the freedom to implement risk-based supervision in a manner that best suits the department's circumstances provided there is a broad adherence to the general model. With the introduction of Risk Based Supervision, it was recognized that the prevailing departmental structures would require restructuring, to create a specialist division. Accordingly the Pensions department was split into four sections: Licensing and Registration, Prudential, Risk Based Supervision and Enforcement, and Research and Policy (Stewart, 2007).

The Croatian supervisory authority, HANFA, is an interesting example of an authority which will have to introduce new primary legislation, secondary legislation and guidelines as it rolls out its risk-based supervisory method. Quantitative investment restrictions will be deregulated as risk-based supervision is rolled out, and HANFA will be helped by the fact that the pension funds in their country already having risk management systems in place which go far beyond current regulatory requirements. The supervisory authorities which are leading proponents of risk-based supervision have also undergone reorganization, to reflect the new functions undertaken and skills required (Stewart, 2007).

A study on RBS in Denmark (Danish Financial Supervisory Authority, 2004) identified that a substantial capital outlay for training and acquisition of new software for data analysis and report generation was required. The methodology was based on supervisors' judgment and the study couldn't ascertain the basis of assumptions adopted while arriving at a number of conclusions on amount and level of risk. APRA in Australia also warned against the danger of over-collection of data for all funds, whatever size.

## **2.7 Conclusion**

Risk-based supervision has become central to the better regulation agenda. A focus on outcomes, or on risks rather than rules, has clear resonance with the search for better regulation. Risk Based Supervision methods are gaining acceptance as they offer the prospect of advantages relative to other approaches. They provide a forward looking paradigm around which to provide supervision that offers the promise of reduced risk and potential efficiency gains. Risk based methods will enable better allocation of scarce resources thus improving performance. Evidence of the impact of risk-based based

supervision is yet to be established but preliminary conclusions can be drawn from the far it has gone. However, several challenges are being faced during its implementation and which should not by any means be underestimated (Brunner et al., 2009).

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter consists of the research methodology that was used in conducting the study. It outlines the procedure used in conducting the study which is basically the research design, population, data collection and methods of analysis which are described.

#### **3.2 Research Design**

The research study used a descriptive survey to gather information on other factors affecting the implementation of RBS by pension schemes. A comparative study was also used to compare the financial performance of the period before and after implementation of RBS in Kenya. A sample was selected to draw conclusions as the study population was large and this enabled the sample representative to reliably project the larger population.

#### **3.3 Population**

The population of the study comprised of 1,216 pension schemes as per the list of registered schemes on the RBA website as at 31 December 2011.

#### **3.4 Sample Design**

From a target population of 1,216 pension schemes, a total of 50 retirement benefits schemes registered by RBA were selected to form the sample. Stratified sampling technique was used to select the sample. The pension schemes were scaled down to a target population of 500 pension schemes based on pre-defined strata requirements of an asset base of Kshs. 100M, at least five years of existence since formal regulation came

into place and nature of the scheme. The schemes were then clustered and arranged in numerical order and then one out of every ten pension schemes was picked to ensure that each of the schemes had an equal chance of being selected.

### **3.5 Data Collection**

Both primary and secondary data was collected for the study. Primary data focused on the effectiveness and implementation of RBS by various pension schemes and was collected using questionnaires. The questionnaires contained both structured and semi structured questions and were administered through a drop and pick method to five pension administrators approved and registered by the RBA. This method was considered convenient and reliable as administrators could easily provide the information required for the pension schemes they administer.

Secondary data focused on the impact of RBS on financial performance of pension funds. This was obtained from each of the pension funds financial accounts, RBA database and various fund managers of pension schemes.

#### **3.5.1 Data Validity and Reliability**

Reliability is synonymous with repeatability and is the extent to which measures yield consistent results over time. The issues addressed to evaluate the validity of the study included the likelihood that a question would be misunderstood or misinterpreted and whether the instrument provided adequate coverage of a topic (Zikmund 2000). Information collected using questionnaires used standard procedures and similar questions to enhance consistency

A pilot study was conducted initially to identify errors and weak items in the questionnaire. The errors were then eliminated and the weak items were improved to provide greater clarity to the respondents. An expert opinion was also sought to verify the validity of the content. The final questionnaire was then used for data collection.

### **3.6 Data Analysis**

Data collected through questionnaires was proofread and edited for accuracy, completeness and consistency to ensure validity of the data collected. Quantitative data was then coded and summarised in a table to facilitate basic statistical analysis using the software package, SPSS version 19.

Descriptive statistics such as mean, frequencies and percentages were used to rank the effectiveness and implementation of RBS. Graphical representation using tables and pie charts was also used to summarize findings and important information such as relations and comparisons which could easily be interpreted. The paired t-test was used to analyse the specified secondary data variables for the study for the period before and after the implementation of RBS to establish whether they had any impact on the financial performance of pension funds. The specification variables in this context were total contributions and the fund value at the close of each of the quarters under study.

The specification variables for the sample selected for each of the quarters from July 2010 up to and including the quarter June 2012 were analysed. The average quarterly percentage increase for each of the specification variables was calculated for each scheme in the sample, both for the period prior to and the period after adoption of RBS. A test of significance i.e. paired T-test in this case, was used to find out whether there was a

significant difference in the average quarterly percentage increase in the two variables for the sample over the two periods. Based on this, a conclusion was made for the population of all the retirement benefits schemes.

The Null hypothesis was stated as  $H_0: \mu=0$ ; there is no significant difference between the average percentage quarterly increase in either of the data variables in the period prior to and period after adoption of RBS. The Alternative hypothesis or  $H_1$ : not equal to 0; there is a significant difference in the average percentage quarterly increase in the data variables in the two periods. A significance level of 5% for a 95% confidence interval was used I.e.  $\alpha = 0.05$ . The critical value for a sample of size 50,  $n=50$  and 49 degrees of freedom,  $d.f = n-1$  was calculated to interpret the results.

### **3.6.1 Analytical Model**

The paired sample t test was used to compare the means of the study variables for the period before and after adoption of RBS.

The test statistic t was obtained as follows:

$$t = \text{Mean of } d / \text{SE (Mean } d)$$

$d = \text{Average quarterly \% increase for period after RBS} - \text{Average quarterly \% increase for period before RBS}$

SE (Mean d) is the standard error of the mean difference obtained by  $\text{Stdev } (d) / \text{square root of } n$ .

This statistic follows a t-distribution with  $n-1$  degrees of freedom.

## **CHAPTER FOUR**

### **DATA ANALYSIS, FINDINGS AND DISCUSSIONS**

#### **4.1 Introduction**

This chapter describes how data was analysed; the present results and provides interpretation on the findings of the study. The tables and charts of findings is presented as follows, impact of RBS on financial performance of pension funds, grouping of pension schemes, investment structure, skills and competency, risk based supervision and other factors affecting the implementation of RBS.

#### **4.2 Analysis and Findings**

Data analysis was guided by two main objectives, to establish the impact of RBS on the financial performance of pension funds and assess the effectiveness and implementation of RBS in the Retirement Benefits Sector in Kenya. Both primary and secondary data were obtained for the same pension schemes to enhance consistency. Ten questionnaires were distributed to each of the five pension administrators who were requested for data. This was done via telephone, email contacts and visits to physical locations. A sample table for secondary data was emailed to the same administrators on excel worksheets organised into different tables for each of the study variables. Data received from questionnaires was then proofread and coded into a summarised table to facilitate analysis.

##### **4.2.1 Impact of RBS on financial performance of pension funds**

Using Microsoft excel, percentage increases from one quarter to the next for the period under investigation were computed for both fund values and contributions for each

scheme in the sample. The average of the percentage increase between the quarters for which data was available was then computed for the period prior to 30 June 2011 and for the period after the same for each of the variables. This data was then input into SPSS version 19 and analysed to obtain the value of the test statistic t.

Findings for each of the data variables were as follows:

Table 4.2.1.1 Paired Differences for Quarterly Increases in Contributions

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 After - Before	1.294721%	4.356019%	.616034%	.056754%	2.532688%	2.102	49	.041

Source: Research Findings

The critical test value obtained by entering the table of critical values of t with 49 degrees of freedom and a level of significance of 0.05 is 2.0096 (as read from statistical tables)

T value for contributions = 2.102 as shown in table 4.2.1.1 above.

Therefore, since the calculated t value for the contributions is more than the critical value, the null hypothesis is rejected. The findings confirm the alternative hypothesis i.e. there is a difference in the average quarterly percentage increase in contributions in the period prior to and the period after adoption of RBS.

Table 4.2.1.2 Paired Differences for Quarterly Increases in Fund Values

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	After Before	.45057%	1.07476%	.15199%	.14513%	.75601%	2.964	49	.005

Source: Research Findings

The critical test value obtained by entering the table of critical values of t with 49 degrees of freedom and a level of significance of 0.05 is 2.0096 (as read from statistical tables)

T value for fund value = 2.964 as shown in table 4.2.1.2 above

Therefore, since the calculated t value for fund value is more than the critical value, the null hypothesis is rejected. The findings confirm the alternative hypothesis i.e. there is a difference in the average quarterly percentage increase in fund value of pension schemes in the period prior to and the period after adoption of RBS.

#### 4.2.2 Grouping of Pension Funds

Table 4.2.2.1 Fund values of pension schemes

Fund Value (Kes. In Millions)	Frequency	Percentage
<200	27	54%
201 - 400	10	20%
401 - 600	4	8%

601 - 800	3	6%
801 – 1,000	2	4%
>1,000	4	8%

Source: Research Findings

The above table indicates that most pension funds have an asset base of below Kshs. 400M which represents 74% of the total population. Only 8% represents pension funds with an asset base in excess of Kshs.1 Billion.

Table 4.2.2.2 Investment Structure of Pension Funds

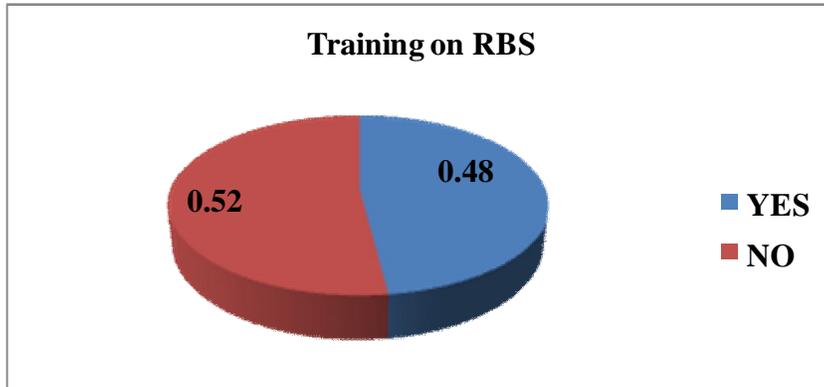
<b>Investment Structure</b>	<b>Frequency</b>	<b>Percentage</b>
Segregated Fund	17	34%
Guaranteed Fund	31	62%
Hybrid	2	4%

Source: Research Findings

Based on the findings of the above table, two thirds of the pension funds population are in a guaranteed arrangement. A very small percentage invests in the balanced portfolio while the remaining a third invest in segregated arrangements.

### 4.2.3 Skills and Competency

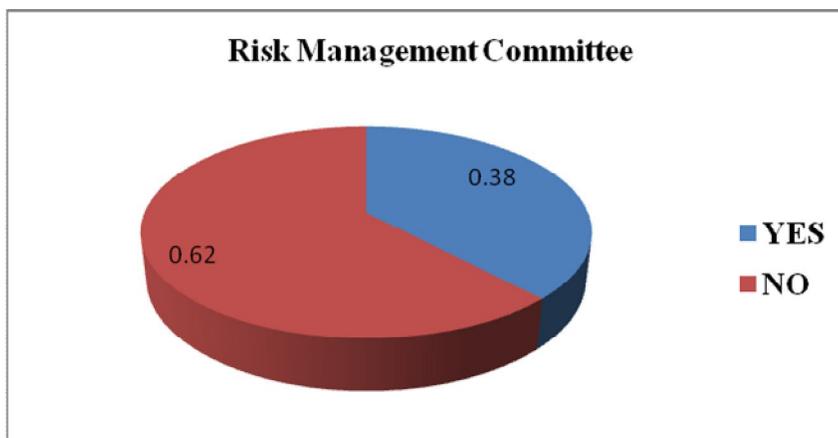
Chart 4.2.3.1 Training on Risk Based Supervision



Source: Research Findings

Only 48% of the trustees of pension schemes have received training on Risk Based Supervision while the remaining 52% which represent the majority have not.

Chart 4.2.3.2 Risk Management Committee in Pension Fund Management



Source: Research Findings

The above charts indicate that the adoption of Risk Management Committees in the implementation process is still lagging behind as only 32% of the population have adopted this.

#### 4.2.4 Risk Based Supervision

Table 4.2.4.1 RBS Preliminary Assessment

<b>Preliminary Assessment</b>	<b>Frequency</b>	<b>Percentage</b>
Risk Matrix	16	32%
Risk Foot Print	12	24%
Other Tool	5	10%
None	17	34%

Source: Research Findings

A good representative of the pension funds have adopted a tool for its preliminary assessment, totalling to 66%. The risk matrix is the most popular as it provides the most basic outline of the various risks and their relationship.

Table 4.2.4.2 Risk Based Supervision

<b>Risk Based Supervision</b>	<b>Mean</b>
Better evaluation of risks	3.48
Updating of risk assessment tool	3.10

Availability of Resources	2.38
Promote safety of funds	3.36

Source: Research Findings

From results shown above, RBS has led to better evaluation of risks thus promoting the safety of pension funds. It has also enhanced updating of the risk assessment tool to a good level but the availability of resources to reinforce the same are still unavailable.

#### **4.2.5 Other Factors affecting the Implementation of RBS**

Table 4.2.5.1 Factors Affecting Implementation of RBS

<b>Implementation of RBS</b>	<b>Mean</b>
Change Management	2.34
Implementation Costs	4.18
Skills and Expertise	3.28
Frequent monitoring of scheme risks	2.98
Competing demands for scarce resources	3.84

Source: Research Findings

Other factors have also affected the adoption of risk based supervision. High implementation costs pose the biggest challenge on the process followed by competing demands for scarce resources. Skills and expertise is available but at a moderate level

thus leading to poor monitoring of scheme risks. Management of the change process has been neglected yet it forms the core of risk management.

### **4.3 Interpretation of Findings**

Data analysis shows that the calculated values for both the fund values and contributions were slightly higher than the critical test for the sample reviewed. This indicates that indeed RBS has had a positive impact of the financial performance of pension funds. This is mainly due to the fact that better risk evaluation led to improve on mitigation strategies thus increasing the level of returns. However, although there was an improvement in the financial performance of pension funds after adoption of RBS, it's quite clear that the impact is not as intense. This therefore means that the extent of adoption of RBS is still at its preliminary stages and there is still room for improvement and exploration to an acceptable level.

Most pension funds have a guaranteed investment structure as observed in our findings. This is mainly because most pension funds have are still growing and therefore not large enough to be invested aggressively. Furthermore, most pension schemes are cautious on capital preservation and therefore risk exposure is kept at a minimum level to ensure that these reserves are not depleted. 4% invest in a balanced portfolio to maximise during good years and smoothen their reserves during downturns but is mainly associated with funds that are in the middle level of growth to help protect against large losses. This strategy is important for long term investments such as retirement portfolio's to create stability and try to lower changes in the value of investments. The remaining who have invested in segregated arrangements have been in the market for quite a while and have therefore accumulated a larger pool of funds. This has given them an edge to be able to

invest aggressively as they can easily be able to cushion negative returns due to their diversified portfolio.

The survey on skills and competency indicate that a larger percentage of trustees have not received training and the support of risk management committees is even much lower. This could have been brought about by lack of proper planning and resources to manage the process and the general lack of appreciation and understanding in the industry on the role of trustees and professional advisors. These results therefore indicate that the extent of expertise in risk management is less than desirable. This could have grievous implications on collective decision making and the role of fund advisors as the approach to problems of the scheme is very critical and therefore requires a shared responsibility with other representatives.

Preliminary assessment reveals that most pension schemes have adopted a methodology towards risk based supervision of their pension schemes. This is highly recommendable as risk management requires a tool that will assist in frequent identification of risks, monitoring and formulation of strategies in mitigating the identified risks. Further, the findings indicate that RBS has led to better evaluation of risks as they can easily be identified and updated through the risk assessment tool. All these improvements have led to the main objective of promoting the safety and soundness of pension funds. Though the adoption of RBS has had a positive impact on management of pension funds, there are many other factors that hinder its implementation and mainly stem from inadequate resources. These challenges should not be underestimated as the required skills and capabilities require integration of work groups and resources in improving the efficiency of RBS.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter concludes the research study. It provides a discussion on the findings which are based on risk based supervision and draws conclusions for the same. It further highlights the limitations of the study and recommendations for policy aimed at enhancing adoption of risk based supervision in the retirement benefits sector. The final section of this chapter, suggests areas for further research

#### **5.2 Summary**

Due to lack of proper risk mitigation strategies and monitoring, most schemes financial performance has been wanting. Further members were not aware of the high risks there funds were exposed to. The regulator and the state stepped into the plight of its citizens by introducing the risk management model which is expected to translate to better financial performance. The findings of this research project indicate that the financial performance of pension funds in Kenya was better in the period under which RBS was adopted. The improvement in the average quarterly percentage increase in contributions and fund values indicate that pension funds have become better managed and there has been more growth in the net assets of pension funds following the adoption of RBS.

However, the impact is still low. Further, the level of skill and expertise as per the findings is still at a moderate level and monitoring of scheme risks is unsatisfactory. This therefore means that there is room for improvement in the foreseeable future. In addition, the findings of this study also serve to indicate that the objectives for which RBS was

adopted have been achieved to an extent with respect to the financial performance of pension funds. Nevertheless, using experience from other countries as indicated by IOPS, industry players need to consider and continuously strive to use the guide as provided by the regulator.

### **5.3 Conclusions**

This study provides some illumination towards the importance of risk management of pension funds. It further indicates that the financial performance of pension funds have improved over the period in which RBS was adopted notwithstanding all the limitations that have come as a result of this. This improvement may be attributed to the positive fundamental change brought about by risk based supervision holding other economic factors constant. In conclusion, the adoption of RBS faces various challenges which should not overlooked. Enhancement of enabling factors such as governance, evaluation and incorporation of a systematic and transparent framework into the risk based process could assist in making informed decisions on the allocation of resources.

Though risk management of pension funds is very important, RBS is not designed to solve problems. It's largely aimed at identifying risks and assessing the ability of a pension fund to mitigate such risks. Nevertheless, risk management should be a priority to all managers of pension funds mainly because the public requires an assurance of sustainable income at the point of retirement.

#### **5.4 Recommendations for Policy**

Introduction of statutory requirements for codes of practice aimed at enhancing governance procedures and decision making in terms of trustee certification and formation of risk management committees will go a long way to underscore the importance of skill and competency in enhancing risk management.

Introduction of risk based audit by the regulator within specified time periods to monitor the progress of pension funds and ensure compliance in all aspects and crafting of pension laws that have strict penalties on members of the board who fail to adhere to the provisions of the regulator on risk supervision and management.

#### **5.5 Limitations of the Study**

Most of the respondents were unsure about the confidentiality of data upon being exposed to the researcher. Availability of more data would have given a better representation of the population given analysis of a larger sample.

Besides risk supervision and management, the growth of pension schemes can be influenced by other factors which were not considered during the study. Increases in scheme membership, growth of the economy, change in regulations and withdrawals by members from the scheme. All these could have increased or lowered the fund values and contributions of the schemes thereby affecting the financial performance of pension funds.

The study could also have sought the opinions of other stakeholders' i.e. Custodians, retirees, actuaries' etc. to have a wider perspective of the study.

## **5.6 Suggestions for Further Research**

There is scope for further research in the following areas in regard to RBS.

Its impact on the governance structure of pension funds as recent studies in the financial sector have consistently advocated for corporate governance as a major aspect of risk management.

A study on the impact of RBS on the financial performance of other financial sectors and how it compares to the retirement benefits sector.

Evaluation of the various risks facing pension funds from different perspectives, including governance, capabilities, resources, control, financial growth and operations to identify the most prevalent.

A cost benefits analysis on the adoption of RBS to minimise on the costs and derive maximum benefits.

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## **APPENDIX I: LETTER OF INTRODUCTION**

Ruth W. Njuguna

University of Nairobi

P.O Box 30197 - 00100

Nairobi.

Email: [ruthnjuguna19@gmail.com](mailto:ruthnjuguna19@gmail.com)

Dear Respondent,

### **RE: MBA RESEARCH PROJECT**

I'm a postgraduate student undertaking a Master of Business Administration degree at the University of Nairobi. In partial fulfilment of the course requirements, I'm currently carrying out a research on "THE IMPACT OF RISK BASED SUPERVISION ON THE FINANCIAL PERFORMANCE OF PENSION FUNDS IN KENYA".

As one of the respondents, I kindly request that you fill the attached questionnaire to enable me complete the research. The information you provide for this research will be treated with utmost confidentiality and is purely intended for academic purposes.

Your cooperation in completing the questionnaire will be highly appreciated.

Yours Faithfully,

Ruth Njuguna

STUDENT

Herick Ondigo

SUPERVISOR

## APPENDIX II: QUESTIONNAIRE

This questionnaire seeks to collect information on the effectiveness and implementation of RBS among various pension funds in Kenya. Collected information will be used for academic purposes and will therefore be treated with utmost confidentiality.

### PART A - GENERAL INFORMATION

#### 1. Fund Value(tick $\checkmark$ )

Please indicate below the fund value of your pension scheme (Kes.in millions).

< 200	201 – 400	401 – 600	601 - 800	801 –1,000	1,000 <
1	2	3	4	5	6

#### 2. Scheme Investment Structure(*Tick Appropriately*)

Segregated

Guaranteed

Hybrid

### PART B – SKILLS AND COMPETENCY

#### 3. Have any of the trustees received training on Risk Based Supervision?

Yes

No

#### 4. Does the scheme have a risk management committee?

Yes

No

## PART C –RISK BASED SUPERVISION

*These questions intend to identify the extent of adoption of risk based supervision from the risk focus to impact.*

5. In conducting the preliminary assessment, has the scheme adopted

a. Risk Matrix

b. Risk Foot Print

c. Other Tool

d. None

**[1] – NOT AT ALL; [2] – TO A LESS EXTENT; [3] – TO A MODERATE EXTENT; [4] – TO A LARGE EXTENT; [5] – TO A VERY LARGE EXTENT.**

*Please indicate the extent to which you agree or disagree with the following statements under each category below: (Tick appropriately)*

6. Has RBS led to better evaluation of risks?

[1]

[2]

[3]

[4]

[5]

7. Is the risk assessment tool for the scheme updated frequently?

[1]

[2]

[3]

[4]

[5]

8. Are there enough resources to assist in mitigation of risks identified?

[1]

[2]

[3]

[4]

[5]

9. Is RBS effective in promoting safety of pension funds?

[1]

[2]

[3]

[4]

[5]

**PART D – OTHER FACTORS AFFECTING IMPLEMENTATION OF RBS**

Please tick appropriately based on the following scale:

**1-Very Low; 2- Low; 3- Medium; 4-High; 5-Very High**

10. To what extent have the following factors affected the implementation of Risk Based Supervision in your pension scheme?

No		1	2	3	4	5
12.1	Change Management					
12.2	Implementation Costs					
12.3	Skills and Expertise					
12.4	Frequent monitoring of the scheme risks					
12.5	Competing demands for scarce resources					

\*\*\*\*\* THANK YOU FOR YOUR CONTRIBUTION \*\*\*\*\*

**APPENDIX III: Average Quarterly Percentage Increase in  
Contributions**

<b>Index</b>	<b>Average Quarterly % Increase Before Risk Based Supervision</b>	<b>Average Quarterly % Increase After Risk Based Supervision</b>
<b>PF1</b>	1.910%	2.800%
<b>PF2</b>	0.109%	1.500%
<b>PF3</b>	2.000%	2.430%
<b>PF4</b>	3.600%	-1.470%
<b>PF5</b>	3.320%	4.231%
<b>PF6</b>	-1.531%	2.610%
<b>PF7</b>	4.700%	0.000%
<b>PF8</b>	0.900%	5.200%
<b>PF9</b>	-1.230%	3.420%
<b>PF10</b>	0.010%	3.320%
<b>PF11</b>	6.350%	8.790%
<b>PF12</b>	2.270%	5.200%
<b>PF13</b>	-2.560%	3.100%
<b>PF14</b>	2.500%	-0.364%
<b>PF15</b>	6.970%	9.240%
<b>PF16</b>	2.116%	5.457%
<b>PF17</b>	2.006%	2.912%
<b>PF18</b>	0.114%	1.560%
<b>PF19</b>	5.260%	2.527%
<b>PF20</b>	2.880%	-1.609%
<b>PF21</b>	4.536%	4.160%
<b>PF22</b>	5.975%	4.784%
<b>PF23</b>	5.485%	0.000%
<b>PF24</b>	3.945%	8.808%
<b>PF25</b>	-1.360%	4.992%

<b>PF26</b>	0.011%	3.453%
<b>PF27</b>	7.568%	11.416%
<b>PF28</b>	2.384%	5.408%
<b>PF29</b>	-2.788%	5.024%
<b>PF30</b>	4.425%	-0.379%
<b>PF31</b>	8.419%	13.770%
<b>PF32</b>	0.122%	6.835%
<b>PF33</b>	-2.106%	2.999%
<b>PF34</b>	0.120%	1.607%
<b>PF35</b>	5.230%	2.603%
<b>PF36</b>	3.174%	-3.717%
<b>PF37</b>	4.763%	4.285%
<b>PF38</b>	8.474%	6.928%
<b>PF39</b>	7.309%	0.000%
<b>PF40</b>	5.992%	10.282%
<b>PF41</b>	-1.528%	2.142%
<b>PF42</b>	0.011%	3.556%
<b>PF43</b>	4.796%	13.818%
<b>PF44</b>	2.503%	5.570%
<b>PF45</b>	-1.027%	8.745%
<b>PF46</b>	10.396%	-0.390%
<b>PF47</b>	6.889%	7.183%
<b>PF48</b>	4.128%	8.130%
<b>PF49</b>	2.211%	3.089%
<b>PF50</b>	1.126%	1.655%

## APPENDIX IV: Average Quarterly Percentage Increase in Fund Values

Index	Average Quarterly % Increase Before Risk Based Supervision	Average Quarterly % Increase After Risk Based Supervision
<b>PF1</b>	1.12%	1.48%
<b>PF2</b>	1.11%	1.33%
<b>PF3</b>	4.08%	3.43%
<b>PF4</b>	1.80%	2.78%
<b>PF5</b>	2.52%	2.91%
<b>PF6</b>	-0.53%	1.06%
<b>PF7</b>	2.20%	3.57%
<b>PF8</b>	3.63%	4.91%
<b>PF9</b>	2.03%	2.45%
<b>PF10</b>	2.08%	2.42%
<b>PF11</b>	4.19%	5.01%
<b>PF12</b>	0.74%	1.85%
<b>PF13</b>	2.70%	3.06%
<b>PF14</b>	2.70%	3.14%
<b>PF15</b>	1.64%	1.08%
<b>PF16</b>	3.42%	4.61%
<b>PF17</b>	1.93%	2.12%
<b>PF18</b>	1.03%	1.54%
<b>PF19</b>	3.16%	2.64%
<b>PF20</b>	1.27%	2.93%
<b>PF21</b>	3.60%	4.76%
<b>PF22</b>	1.07%	0.78%
<b>PF23</b>	1.63%	1.49%
<b>PF24</b>	6.99%	5.28%
<b>PF25</b>	1.33%	1.44%
<b>PF26</b>	1.21%	2.56%
<b>PF27</b>	6.80%	7.82%

<b>PF28</b>	2.50%	3.27%
<b>PF29</b>	2.03%	3.04%
<b>PF30</b>	5.95%	6.81%
<b>PF31</b>	2.36%	3.09%
<b>PF32</b>	0.01%	-0.45%
<b>PF33</b>	7.97%	8.47%
<b>PF34</b>	1.38%	2.41%
<b>PF35</b>	-0.79%	1.02%
<b>PF36</b>	2.43%	3.38%
<b>PF37</b>	1.69%	-1.11%
<b>PF38</b>	1.12%	-0.61%
<b>PF39</b>	3.23%	2.76%
<b>PF40</b>	1.17%	2.02%
<b>PF41</b>	4.76%	4.78%
<b>PF42</b>	6.23%	5.02%
<b>PF43</b>	7.68%	9.61%
<b>PF44</b>	4.75%	4.29%
<b>PF45</b>	7.13%	6.10%
<b>PF46</b>	9.84%	11.60%
<b>PF47</b>	4.50%	5.64%
<b>PF48</b>	6.01%	8.77%
<b>PF49</b>	8.76%	10.96%
<b>PF50</b>	5.52%	4.85%