

**THE IMPACT OF RISK MANAGEMENT ON PROFITABILITY
OF THE KENYA POWER AND LIGHTING COMPANY STAFF
RETIREMENT BENEFITS SCHEME**

By

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Declaration

I declare that the work presented here is my own except where acknowledged and that this research project is my original work and has not been presented for the award of any degree in any other university.

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

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Dedication

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Abstract

This study sought to establish whether risk management practices at the Kenya Power and Lighting Company Staff Retirement Benefits Scheme (KPLC SRBS) has had an impact on profitability of the scheme. The study employed an event analysis approach in evaluating changes in profitability of KPLC SRBS. The study evaluated the impact of a risk assessment exercise done by KPLC SRBS in year 2007 to determine whether the exercise and subsequent risk management practices had impacted on profitability of the scheme.

Secondary data was collected from the audited financial statements of KPLC SRBS from financial year 2004 to 2010. The data was grouped into two with the first group being data for three years prior to the risk assessment exercise of year 2007 and the second group being data for three years after the risk assessment exercise. To enhance objectivity in comparison of the two periods, data for year 2007, being the year that the risk assessment exercise was done, was not included in either group. Profitability as defined in the capital market theory was computed for each group.

Descriptive statistics were used to analyse profitability of these two groups and the results presented in tables and charts. The results were compared to determine whether the risk assessment exercise and subsequent risk management practices at KPLC SRBS had impacted on profitability. The study also computed percentage trend analyses for profitability and parameters affecting profitability for financial year 2004 to 2010 to determine their trends.

The study found out that the mean profitability for the period after the risk assessment exercise had increased as compared to the period prior to the risk assessment exercise. The study further found out that the standard deviation of profitability had decreased for the period after the risk assessment exercise as compared to the period prior to the risk assessment exercise. The study therefore concluded that the risk assessment exercise and subsequent risk management practices at the KPLC SRBS had a positive impact on profitability of the scheme by increasing profitability and reducing the volatility of profitability.

Table of Contents

Declaration	ii
Acknowledgements	iii
Dedication	v
Abstract	vi
Table of Contents	viii
List of Tables	x
List of Charts	xi
Abbreviation	xii
CHAPTER ONE	1
1.0 INTRODUCTION	1
1.1 Background	1
1.1.2 Retirement Benefits Industry	2
1.1.3 Kenya Power and Lighting Company SRBS	5
1.2 Statement of the Problem	7
1.3 Research Objective	10
1.4 Importance of the study	10
CHAPTER TWO	13
2.0 LITERATURE REVIEW	13
2.1 Introduction	13
2.2 Theoretical framework	13
2.2.1 Modern Portfolio Theory	14
2.2.2 Capital Market Theory	15
2.3 Overview of Retirement Benefits Plans	16
2.4 Investment Policies and Guidelines	18
2.5 Profitability	20
2.6 Risk Management	21
2.7 Risks Facing Retirement Benefits Schemes	24
2.8 Managing Risks Facing Retirement Benefits Schemes	28
2.9 Risk management at KPLC staff retirement benefits scheme	30
2.10 Empirical studies	34
2.11 Summary	36
CHAPTER THREE	37

3.0	RESEARCH METHODOLOGY.....	37
3.1	Introduction.....	37
3.2	Research Design.....	37
3.3	Data Collection	37
3.4	Data Analysis	38
	CHAPTER FOUR.....	39
4.0	DATA ANALYSIS, PRESENTATION AND DISCUSSIONS	39
4.1	Introduction.....	39
4.2	Profitability of KPLC SRBS prior to the risk assessment exercise	39
4.3	Profitability of KPLC SRBS after the risk assessment exercise.....	40
4.4	Mean and Standard Deviation for the two periods	41
4.4.1	Mean profitability	41
4.4.2	Standard deviation	42
4.5	Trend Percentage Analysis	43
4.5.1	Profitability trend percentage analysis.....	44
4.5.2	Net income trend analysis.....	44
4.5.3	Contributions trend analysis	45
4.5.4	Administrative expenses trend analysis	45
4.5.5	Trend analysis chart	46
4.6	Summary finding and interpretation of data	46
	CHAPTER FIVE	48
5.0	SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	48
5.1	Summary of findings.....	48
5.2	Conclusion	48
5.3	Policy recommendations	49
5.4	Limitations of the study	50
5.5	Suggestions for further research	51
	References.....	52
	APPENDICES	59
	Appendix 1: Data Request letter	59
	Appendix 2: Research Data	60

List of Tables

Table 4.1:	Profitability for the period prior to the risk assessment exercise.....	39
Table 4.2:	Profitability for the period after the risk assessment exercise	40
Table 4.3:	Mean for the two periods	41
Table 4.4:	Standard deviation for the two periods	42
Table 4.5:	Profitability trend percentage analysis.....	44
Table 4.6:	Net income trend analysis.....	44
Table 4.7:	Contributions trend analysis	45
Table 4.8:	Administrative expenses trend analysis.....	45

List of Charts

Chart 4.1:	Profitability for the period prior to the risk assessment exercise.....	40
Chart 4.2:	Profitability for the period after the risk assessment exercise	41
Chart 4.3:	Mean for the two periods	42
Chart 4.4:	Standard deviation for the two periods	43
Chart 4.5:	Trend percentage analyses	46

Abbreviation

CMA -	Capital Market Authority
DB -	Defined Benefits
DC -	Defined Contribution
FI -	Financial Institution
IPS -	Investment Policy Statement
KPLC-	Kenya Power & Lighting Company
NSE -	Nairobi Stock Exchange
RB Act-	Retirement Benefits Act
RBA -	Retirement Benefits Authority
RBS -	Risk Based Supervision
RBR -	Retirement Benefits Regulations
TDR -	Trust Deed and Rules
SRBS-	Staff Retirement Benefits Scheme

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Risk management deals with identifying risk exposure, quantifying the risk exposure, evaluating alternative actions and finally managing the various risks hindering an enterprise from maximizing returns (Marx et al, 2003). Such risks include market risk, interest rate risk, foreign exchange risk, credit risk, liquidity risk, technology & operational risk, insolvency risk, sovereign risk and systemic risk (Saunders, 2008). Risk is defined as both an uncertainty and an exposure to that uncertainty and the presence of both elements is mandatory for risk to exist (Marx et al, 2003). Saunders (2008) has identified management of risks as one way of managing a financial institution. Saunders (2010) argues that effective risk management is central to the performance of any financial institution and that the main business of financial institutions is to manage risks. According to Chandan (2006), management is defined as the set of activities directed at the efficient and effective utilization of resources in the pursuit of one or more goals.

Profitability is the ability to earn profit while profit is defined as the positive gain from an investment or business operation after subtracting all expenses (Investorwords, www.investorwords.com). There are other several definitions of profit though they are all related to the above definition. Investopedia (www.investopedia.com) defines profit as a financial benefit that is realized when the amount of revenue gained from a business activity exceeds the expenses, costs and

taxes needed to sustain the business activity. Investopedia (www.investopedia.com) also defines profit as the money a business makes after accounting for all the expenses. Pandey (2006) defines profit as the difference between revenues and expenses over a period of time, which is usually one year. However, according to Pandey (2006), the definition of the term profit is ambiguous since it could be used to mean short or long-term profit, profit before or after tax, total profits or profit per share, total operating profit or profit accruing to shareholders. In this study, profit is taken as the total operating net profit after tax.

Firms are faced with various risks that cause their profitability to fluctuate. Some risk factors that firms face include interest rates, technology, exchange rates, changes in demand, taxes, costs and selling price. Firm managers are therefore required to develop strategies to manage these risks and hence the concept of risk management and the relationship between risk management and profitability (Pandey, 2006). Some of the strategies available include diversification and hedging. Diversification is a portfolio strategy designed to reduce exposure to risk by combining a variety of investments, such as stocks, bonds, and real estate, which are unlikely to all move in the same direction (Investorwords, www.investorwords.com). Hedging is the term used for reducing risk by using derivatives, which are financial instruments whose pay-off is derived from an underlying asset (Pandey, 2006).

1.1.2 Retirement Benefits Industry

Financial institutions (FI) are broadly classified into two categories namely depository and non-depository institutions (Meera, 2008). Non-depository institutions are further

divided into finance companies, mutual funds and contractual institutions. Retirement benefits schemes, which are also referred to as pension schemes, are classified as contractual institutions (Meera, 2008). Retirement benefits schemes are established to principally provide retirement benefits to members upon retirement and in some cases provide financial relief to dependants of deceased members. To achieve this, retirement benefits schemes establish pension funds to receive contributions from employers and/or employees, invest these contributions and ultimately pay benefits to qualified members (RB Act, 1997, Russell, 2006, Octagon, 2009). In a defined benefits scheme or final salary scheme, the pension fund is used to provide an actual pension, while in a defined contribution or money purchase scheme, the pension fund is used to purchase an annuity at a future date (Russell, 2006).

Prior to the enactment of the Retirement Benefits Act (RB Act) of 1997, the retirement benefits industry in Kenya was not centrally regulated and was bedeviled by a myriad of problems including dubious investment of members' funds (Kihunyu, 2005). The RB Act was enacted on 29th August 1997 following recommendations contained in a World Bank report of 1994 (Kihunyu, 2005). The RB Act established the Retirement Benefits Authority (RBA) to regulate and supervise the establishment and management of retirement benefits schemes, to protect the interest of members and sponsors of retirement benefits sector, to promote the development of the retirement benefits sector, to advise the Minister of Finance on the national policy to be followed with regard to retirement benefits sector and implement all Government policies thereto, and to perform such other functions as conferred on it by the RBA Act or any other written law (RB Act, 1997).

Subsequent to the enactment of the RB Act, the Minister of Finance issued regulations on 9th October 2000, commonly referred to as the Retirement Benefits Regulations (RBR). These regulations have been amended and updated annually. These regulations provide the parameters that retirement benefits schemes are required to observe in their operations. Kusewa (2007) notes that regulation of retirement benefits schemes has improved their financial performance and improved the average annual percentage increase in fund values implying that there has been more growth in the net assets of pension schemes in the period under regulation. She further notes that due to lack of regulation previously, many pension schemes' financial performance was poor and hence many schemes denied and/or delayed payment of benefits to members and members did not have recourse to mismanagement of their funds.

The RB Act requires that retirement benefits schemes be established under irrevocable trust and be managed by trustees appointed pursuant to provisions of the Trust Deed and Rules (TDR) of the respective retirement benefit scheme. A trust is defined as an equitable obligation binding a person (trustee) to deal with property over which he has control (trust property) for the benefit of persons (beneficiaries) of whom the trustee may be one of the beneficiaries and any one beneficiary may enforce the obligation (Octagon, 2009). Establishing a retirement benefit scheme as a trust shields the trust property from other properties of the person who establishes it. A person who establishes a retirement benefit scheme is known as a sponsor (RB Act, 1997).

In managing pension funds, trustees are required to appoint an investment manager(s) to advise and undertake investment on their behalf. The investment manager(s)

appointed by the trustees must be registered with the RBA and the Capital Markets Authority (CMA). The trustees are further required to develop and review at least once in every three years, an Investment Policy Statement (IPS), which guides the investment manager(s) in undertaking investment of pension funds (RBR, 2000). The IPS contains the investment objectives and specific risks facing the respective scheme. The principal investment objective of any scheme is achieving real positive investment return, which are investment returns above inflation, by employing strategies that maximize returns and effectively manage risks associated with such returns. Some of the risks faced by retirement benefits schemes include balance sheet and market risk, interest rate risk, legal and regulatory risk, operational risk, liquidity risk and strategic risk (IOPS, 2007).

1.1.3 Kenya Power and Lighting Company SRBS

The Kenya Power and Lighting Company (KPLC) Staff Retirement Benefits Scheme (SRBS) was established by KPLC under irrevocable trust, as required by law, with the effective inception date being 1st January 1970. The scheme objective is provision of pension and other retirement benefits to employees of KPLC upon retirement and relief to dependant of deceased members of the scheme (KPLC SRBS Trust Deed & Rules, 2003). For this purpose, the trustees of the scheme hold contributions and other sums from its members and KPLC, investments income and all lump sum representing the same, upon trust, for the respective members and disburse the same in accordance with provisions of the scheme's Trust Deed and Rules (TDR). The scheme is a defined benefits plan and has five trustees appointed by KPLC and two trustees elected by the members thus making the total of seven trustees. The

appointment complies with the statutory requirement that the sponsor of a defined benefits scheme appoints two thirds of the trustees while the members nominate or elect the remaining one third.

KPLC SRBS was however closed to new members on 30th June 2006 following an actuarial advice arising from an actuarial deficit contained in an actuarial report of an actuarial valuation done as at 31st December 2005. KPLC then in line with provisions of the scheme's TDR gave notice to the scheme on 18th June 2003 of its intention to discontinue making contributions to the scheme. Closure of the scheme meant that contributions for future service for both members and KPLC were discontinued though KPLC was required to make contributions to finance the actuarial deficit, which stood at Kshs. 2.74 billion by 31st December 2008. However, by 31st December 2010, the actuarial deficit had been fully paid and the scheme had an actuarial surplus of Kshs. 363 million (KPLC SRBS Defined Benefits Financial Statements, 2010). Closure also meant that accumulation of pensionable service ceased on 30th June 2006 while pensionable emoluments do not increase at the actual annual KPLC salaries rates but are capped at the lower of the actual annual salaries increase or 5% (KPLC SRBS Second Deed of Amendment, 2010).

According to Alexander Forbes Financial Services (2007), retirement benefits schemes can be classified according to their total assets. Large schemes are those with assets in excess of Kshs. 500 million, medium schemes are those with assets in excess of Kshs. 100 million but below Kshs. 500 million while small schemes are those with assets below Kshs. 100 million. As at 31st December 2010, the total assets of KPLC

SRBS were Kshs. 11.32 billion (KPLC SRBS Defined Benefits Financial Statements, 2010) making the scheme qualify to be classified as a large scheme.

In 2007, the KPLC Staff Retirement Benefits Scheme undertook a comprehensive risk assessment to identify and prioritize the risks impacting on the achievement of the scheme's strategic objectives. The assessment was done by an external consultant, KPMG, and was based on various workshops and interviews held with six trustees and three scheme staff. The aim of the assessment was to develop a risk based internal audit plan. The workshops and interviews provided information on the scheme's vision and strategy, business process objectives, likelihood of key risks and their impact on the scheme's vision, strategies and objectives, the scheme's management's assessment of the effectiveness of the processes and controls that the scheme has established to manage risks (KPLC SRBS Business Risk Assessment, 2007). This exercise formed the basis of risk management at the KPLC SRBS. The KPLC SRBS having undertaken a risk assessment exercise and subsequently implemented risk management strategies and further being a large scheme, with 4,201 active members and 4,576 pensioners/beneficiaries (KPLC SRBS DB Financial Statements, 2010) was considered a representative scheme for this study.

1.2 Statement of the Problem

Retirement benefits schemes being financial institutions occupy a fiduciary position in discharging their financial intermediation role. The main challenge of a retirement benefit scheme is to match its assets to its liabilities. Scheme assets are principally investments arising from contributions while the liabilities are principally the

retirement and other benefits due to the qualified members and dependants of deceased members. Contribution rates are determined by actuarial scientists based on the anticipated benefits, as provided in the retirement benefits schemes' rules, while the investment return is affected by prevailing economic factors, portfolio construction and risk management. A retirement benefit scheme must at all times strive to remain solvent by ensuring that the value of its assets exceeds its liabilities (Raichura, 2010).

In supervising the retirement benefits industry, RBA has adopted the Risk Based Supervision (RBS) model, which is a shift from the previous compliance model that focused on the compliance status of retirement benefits schemes (Nzomo, 2009). The RBS, which is a more proactive approach as compared to the former model, was adopted from the Australian model that aims at measuring the solvency of defined benefits schemes and the investment risks of defined contribution schemes by applying a risk score to each scheme which then determines the supervisory response (IOPS, 2007). RBA adopted RBS to better understand the management, characteristics and risks in schemes, ensure improved governance, transparency and accountability in schemes, achieve higher returns at low risk resulting from reduction in schemes' failures and achieve greater development, innovation and confidence in the industry (Nzomo, 2009). Arising from the regulatory paradigm shift, it is necessary to understand whether retirement benefits schemes in Kenya stand to benefit from the regulatory framework of RBS, which aims at enhancing risk management practices and systems in retirement benefits schemes with the expected benefit of improved investment returns to retirement benefits schemes. RBA notes

that the supporting professionals are in the market though pension funds risk management systems are weak (Nzomo, 2009).

Risk management and profitability studies on financial institutions have predominantly focused on the banking industry. Such studies include a study on credit risk management and profitability in commercial banks in Sweden by Hosna et al, (2009), a study on the relationship between credit risk management and profitability of commercial banks in Kenya by Muthee (2010) and a study on the relationship between credit risk management practices and profitability of micro-finance institutions in Kenya by Buttit (2010). The few studies done on risk and performance of retirement benefits schemes in Kenya have not focused on risk management and profitability. Such studies include a study on risk & returns of real estate hold in pension funds investment portfolios in Kenya by Kinyanjui (2004), a study on the effects on RBA Act on risk of investments held by pension funds in Kenya by Kihunyu (2005) and a survey into the framework for immunization by retirement benefits schemes in Kenya by Kiwanuka (2005).

Other studies on retirement benefits schemes have focused on the implication of regulatory compliance. Ndirangu (2002) studied on the implications of Retirement Benefits Act (1997) on investment performance of provident pension funds in Kenya, Wanyama (2002) studied on pension schemes and provident funds investment portfolios in Kenya – implications of investment guidelines under Retirement Benefits Act (1997) and Regulations (2000). Mutua (2003) undertook a survey of the extent of compliance with the Retirement Benefits Act by retirement benefits schemes in Kenya. Wanjuki (2004) studied on the effects of the RBA (No 3 of 1997) on the

management of insured retirement benefits schemes in Kenya. Kusewa (2007) studied on the impact of regulation of the retirement benefits sector on the financial performance of occupational pension schemes in Kenya while Karisa (2008) undertook a survey of the impact of the Retirement Benefits Act, 1997 on pension funds investment portfolio. The researcher did not find any study on the impact of risk management on profitability of retirement benefits schemes in Kenya and this qualified as the knowledge and research gap for this study. This study therefore sought to look into the impact of risk management on profitability by answering the question “what is the impact of risk management on profitability of the Kenya Power and Lighting Company Staff Retirement Benefits Scheme?”

1.3 Research Objective

To establish the impact of risk management on profitability of the Kenya Power and Lighting Company Staff Retirement Benefits Scheme.

1.4 Importance of the study

1.4.1 Retirement Benefit Authority

This study will help RBA understand whether the introduction of the RBS framework will promote establishment of risk management systems and practices in retirement benefits schemes, boost prudent investment of pension funds and encourage schemes to employ best management practices in anticipation of improved investment returns.

1.4.2 Government of Kenya

The Government of Kenya will better understand that its policies of developing the retirement benefits industry, through the enactment of the RBA Act and subsequent establishment of RBA, have contributed to profitability of retirement benefits schemes in Kenya.

1.4.3 Capital Markets Authority

The Capital Market Authority (CMA) will understand that arising from RBA's supervisory paradigm shift, from compliance based to risk based supervision, further development of the capital markets will be required to provide more investment diversification vehicles.

1.4.4 Trustees and Managers of Retirement Benefits Schemes

Trustees and managers of retirement benefits schemes will appreciate that risk management has impact on profitability and prudent risk management should therefore be embraced for improved profitability.

1.4.5 Members of Retirement Benefits Schemes

Members of retirement benefits schemes will better understand the risks that face their schemes and ultimately the risks that face their retirement benefits. They will further

understand that prudent management of risks can improve profitability and thus ensure the safety of their retirement benefits.

1.4.6 Academicians

Academicians will appreciate that risk management has positive impact on profitability of retirement benefits schemes in a similar manner as it does to other financial institutions mainly banks. This study will also contribute to existing literature on risk management and profitability in retirement benefits schemes as well as provide research gaps to future researchers.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter looks at the theoretical framework guiding this study, risk management, overview of the retirement benefits plans, investment policies and guidelines, profitability, risk management, risks facing retirement benefits schemes in Kenya, managing the risks facing retirement benefits schemes, risk management at KPLC staff retirement benefits scheme, empirical studies relevant to this study and concludes with a summary of the chapter.

2.2 Theoretical framework

There are several risk management theories that have been advanced with some models being based on the theories of the firm. Such theories include financial theory, agency theory, stakeholder theory and new institutional economics (Klimczak, 2007). Financial economics approach to corporate risk management has so far been the most prolific in terms of both theoretical model extensions and empirical research. This approach builds upon classic Modigliani-Miller paradigm (Miller and Modigliani, 1958) which states conditions for irrelevance of financial structure for corporate value. This paradigm was later extended to the field of risk management. This approach stipulates also that hedging leads to lower volatility of cash flow and therefore lower volatility of firm value (Klimczak, 2007). This study was however guided by the modern portfolio theory and the capital market theory.

2.2.1 Modern Portfolio Theory

Modern portfolio theory (MPT) is a theory of investment which attempts to maximize portfolio expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets. Portfolio theory deals with the value and risk of portfolios rather than individual securities. It is often called modern portfolio theory or Markowitz portfolio theory (Moneyterms, moneyterms.co.uk). The key result in portfolio theory is that the volatility of a portfolio is less than the weighted average of the volatilities of the securities it contains. Modern portfolio theory (MPT) was introduced by Harry Markowitz in his paper "Portfolio Selection," which appeared in the *Journal of Finance* of 1952.

Investopedia (www.investopedia.com) defines modern portfolio theory as a theory on how risk-averse investors can construct portfolios to optimize or maximize expected return based on a given level of market risk and emphasizes that risk is an inherent part of higher reward. According to this theory, it is possible to construct an "efficient frontier" of optimal portfolios offering the maximum possible expected return for a given level of risk. A portfolio is a combination of two or more investments. The risk of any single proposed investment should not be viewed independently of other investments. New investments must be considered in light of their impact on risk and return of the portfolio of investments held by an investor with the goal of creating an efficient portfolio, which is a portfolio that minimizes risk for a given level of return or one that maximizes returns for a given level of risk.

2.2.2 Capital Market Theory

Capital market theory states that securities are merchandised in the capital market and when one has to put a price on any security, one is required to determine the risk and return of the security both as a single asset as well as a portfolio of assets. The uncertainty and variability of returns on assets and the possibilities of losses can be defined as risks (Maps of World Finance, www.finance.mapsoftheworld.com).

The capital market theory builds upon the Markowitz portfolio model and is based on the assumptions that *all investors are efficient investors* - investors follow Markowitz idea of the efficient frontier and choose to invest in portfolios along the frontier; *investors borrow/lend money at the risk-free rate* - this rate remains static for any amount of money; *the time horizon is equal for all investors* - when choosing investments, investors have equal time horizons for the chosen investments; *all assets are infinitely divisible* - this indicates that fractional shares can be purchased and the stocks can be infinitely divisible; *no taxes and transaction costs* - assumes that investors' results are not affected by taxes and transaction costs; *all investors have the same probability for outcomes* - when determining the expected return, the theory assumes that all investors have the same probability for outcomes; *no inflation exists* - returns are not affected by the inflation rate in a capital market as none exists in capital market theory and *there is no mispricing within the capital markets*- assumes the markets are efficient and that no mispricing exist within the markets (Maps of World Finance, www.finance.mapsoftheworld.com). The theory of capital market defines returns in the following manner:

$$K = \frac{P_t + C_t - P_{t-1}}{P_{t-1}}$$

Where

K is the return from the time period $t-1$ to t

C_t is the cash received from assets between period $t-1$ and t .

P_t is the price of the assets at time t

P_{t-1} the price of assets at time $t-1$.

2.3 Overview of Retirement Benefits Plans

The RB Act requires that retirement benefits schemes be established under irrevocable trust and be governed by a Trust Deed and Rules (TDR). Retirement benefits schemes are broadly classified into two main plans depending on whether benefits are fixed or variable (Raichura, 2010). The first plan is known as the defined benefits (DB) plan where benefits are fixed and computed using a formula (Octagon, 2009). This plan, also known as a final salary scheme, used to be the only form of pension scheme available to employees with contributions being made by the employer (Russell, 2006). The benefits formula factors earnings, length of service and a pension factor, which gives a retiree a percentage of his last earnings for every year worked as his retirement benefits. Usually, the last earnings are taken as the average of the basic salaries for last three years to retirement. This plan promises to pay retirees a specific amount as retirement benefits, which can be pre-determined by ascertaining the expected length of service and the expected growth in earnings to retirement. Under this plan, the employer bears the risk or burden of providing retirement benefits to retirees since volatility in investment returns do not affect the promised benefits (Raichura, 2010). However, when the investment return is relatively very high, the employer can take a contribution holiday as recommended by

an actuarial scientist. The Retirement Benefits Regulations require such plans to have an actuarial valuation done, once every three years, to determine the funding or solvency level, which is the matching of the scheme's assets with actuarial liabilities (promised benefits discounted to the actuarial valuation date).

The other type of retirement benefits plan is known as defined contributions (DC) plan where the benefits are variable and determined based on the total contributions made plus the net investment income (Octagon, 2009). This plan is also known as a money purchase scheme (Russell, 2006). As opposed to the defined benefits plan, retirement benefits in this plan are not certain and therefore the employees cannot predict their retirement benefits with a fair degree of certainty. Further, the employees bear the investment risk of providing for their anticipated retirement benefits levels through increasing their contributions to cover shortfalls in investment income or negative investment returns, which erode contributions. Under this plan, the obligation of the employer is extinguished upon remitting contributions in accordance with provisions of the TDR. There are however retirement benefits plans, known as hybrid retirement benefits plans, which combine both features of defined benefits and defined contributions plans (Octagon, 2009). Retirement benefits plans may also have provisions for paying benefits in the events of death occurring before retirement or in retirement. Retirement benefits schemes established by employers for the benefit of their employees are known as occupational schemes while those established for the benefit of individual beneficiaries are known as individual schemes (RB Act 1997).

Disbursement from either plan is done under two arrangements. The first arrangement pays a single lump sum upon retirement, exit from employment or death of the

employee and is known as a provident fund. The National Social Security Fund in Kenya is an example of a provident fund (NSSF Act). The second arrangement pays an annuity or actual pension upon retirement, exit from employment or death of the employee and is known as a pension scheme. The Kenya Power and Lighting Company staff retirement benefits scheme is a defined benefits pension scheme.

2.4 Investment Policies and Guidelines

The Retirement Benefits Regulations, which were issued pursuant to the provisions of the Retirement Benefits Act, requires, inter alia, that retirement benefits schemes develop an Investment Policy Statement (IPS) to govern their investments. According to these regulations, trustees were initially required to develop the IPS with the help of their investment manager. Subsequently, the regulations were amended in year 2008 to require trustees to develop the IPS using an investment advisor who is not the scheme's investment manager. These regulations further provide investment asset classes with maximum allocations that a scheme may invest in. These asset classes include government securities, equities, fixed and time deposits, corporate securities, immovable property, offshore investments and any other investment approved by RBA (RBR, 2000). This regulatory framework is meant to strength portfolio management of pension funds.

The Retirement Benefits Regulations (RBR) provide a three-tier structure to ensure that trustees do not undertake investment directly, as was the case before, but rather invest through the investment manager and custodian respectively (RB Act). The three-tier structure gives the trustees the overall responsibility of managing the

investment portfolio through decision making and monitoring implementation of the same by the investment manager. The investment manager issues investment instructions to the custodian in accordance with the mandate given by the trustees. The custodian is charged with actual custody of funds and documents of title. Trustees are therefore required to submit all pension funds to the custodian to hold the same in a custodial account and disburse as per instructions issued by the investment manager and/or trustees. The investment manager is required to evaluate the markets and advise the trustees on the available prudent investment opportunities based in accordance with the IPS. However, trustees take the overall responsibility for all investment decisions (RBR, 2000)

RBA in discharging its mandate initially adopted a compliance based model in supervising the retirement benefits sector. However, on 17th June 2010, the RBA officially launched the Risk Based Supervision (RBS) model which focuses on identification of potential risks and assessment of financial and operational factors that exist to minimize the effect of potential risks and mitigate against such risks. The launch of RBS was a culmination of a process that commenced in February 2004 when a World Bank institute introduced RBS to RBA. RBA has since year 2007 informed the retirement benefits industry of the shift to RBS and in accordance with the provision of the RB Act, the RBA in year 2010 issued Supervisory Guideline Number RBA 2 (2010) to guide the implementation of RBS.

The supervisory guideline requires all interested parties to gain better familiarity with international best practices to ensure that areas such as governance, investment policy setting and investment process, scheme administration and expense control are being

performed to the best practices standards. The guideline further requires schemes to employ risk management practices such as reporting their investment returns and appropriate risk measures. According to the guideline, RBA will evaluate whether schemes have investment policy statements and whether they are regularly reviewed and whether the investment process is monitored in accordance with the investment policy statement. The guideline states that satisfactory results, by schemes, will be indicated by output measures such as higher than average rate of return within a peer group. RBS will also focus on non-financial risk, which is the potential that things may go wrong. Non-financial risks under RBS would be measured in relation to how well the complexities of a particular scheme have been handled. Such complexities could be in relation to benefits provisions and/or investment classes.

2.5 Profitability

A firm must make profits for survival. Profitability, which is the ability to make profits, is measured through profitability ratios, which are a class of financial metrics used to assess a business's ability to generate earnings as compared to its expenses and other relevant costs incurred over a specific period. For most of these ratios, having a higher value relative to a competitor's ratio or the same ratio from a previous period is indicative that the firm is doing well. Some examples of profitability ratios are profit margin, return on assets and return on equity (Investopedia, www.investopedia.com). Profitability ratios are computed to measure the operating efficiency of a firm (Pandey, 2006). Return on assets (ROA) is an indicator of how profitable a firm is relative to its total assets. ROA gives an idea on how efficient the management is at utilizing its assets to generate earnings. ROA is calculated as a percentage of a

company's annual earnings to its total assets. Sometimes ROA is referred to as "return on investment". The formula for return on assets is: -

$$= \frac{\text{Net Income}}{\text{Total Assets}}$$

The return on investment (ROI) is the earning power of assets measured as the ratio of the net income (profit less depreciation) to the average capital employed (or equity capital) in a company or a project. ROI is usually expressed as a percentage and measures profitability to indicate whether or not a company is using its resources in an efficient manner. For example, if the long-term return on investment of a company is lower than its cost-of-capital, then the company will be better off by liquidating its assets and depositing the proceeds in a bank. The return on investment is also known as the rate of return or yield (Business Dictionary, www.businessdictionary.com). ROI is commonly measured using the formula defined in the capital market theory. In a retirement benefits scheme, the main source of income are contributions and net investment returns. The returns on investments are affected by economic conditions and prudent investment decisions. Risk diversification and increase in fund value further affect financial performance of a retirement benefits scheme while reduced administrative costs leads to increased fund value (Kusewa, 2007).

2.6 Risk Management

Risk management can be defined as a means of preventing disastrous losses in times of financial distress (Fabozzi et al, 1999). Risk management is categorized in accordance with some steps which involve identifying the risk exposure, quantifying

the risk exposure, evaluating the alternative actions and finally managing the risk (Marx et al, 2003). As earlier defined, risk is both an uncertainty and an exposure to that uncertainty. Financial risk entails an exposure to uncertainty that could lead to possible financial losses (Marx et al, 2003). A firm can either transfer risk through insurance or choose to absorb risk through risk management measures such as diversification. There are three basic risk preference behaviors among managers. The first risk behavior is known as risk-indifference, which is the attitude toward risk where there is no change in the required return for an increment in risk. The second risk behavior is risk-aversion, which is the attitude toward risk where an increased return would be required for an increase in risk. The last risk behavior is risk seeking, which is the attitude toward risk where a decreased return would be acceptable for an increase in risk.

Financial institutions are faced with the challenge of maximizing investment returns given the various risks associated with the investment returns. Return and risk are directly related and a rational investor prefers higher return for increased risk. Risk is mainly broken down into systematic risk and unsystematic risk (Pandey, 2006). Systematic risk reflects the general economic conditions affecting the industry and is therefore non-diversifiable while unsystematic risk is specific to an economic unit and therefore diversifiable. The first step in risk management is to identify the specific risk facing a firm. The second step is to quantify or measure the specific risk exposure by measuring the probability or likelihood of occurrence of the risk factors (Marx et al, 2003). Since the probability of risk is directly related to the underlying risk factor, risk exposure measurement involves measuring the volatility of the risk factors. One of the widely used risk measurement models is the value-at-risk model developed by J.P.

Morgan (Marx et al, 2003). The value at risk model measures the market value of an asset or a portfolio at risk of declining over a certain period.

After measuring risk exposure, the next step involves determination of risk severity and frequency to enable prioritization of risks and thus select the appropriate risk management strategy. Risk exposure with low severity and frequency should receive less attention as compared to risk exposure with high severity and frequency (Marx et al, 2003). Managing the risk exposure is the final step in risk management. Management has been given various definitions implying there is no single universally accepted definition of management. Management can be defined as a set of activities directed at the efficient and effective utilization of resources in the pursuit of one or more goals (Chandan, 2006). Management can also be defined as working with human, financial and physical resources to achieve organizational objectives by performing the planning, organizing, leading and controlling functions. Management is further defined as a problem solving process for effectively achieving organizational objectives through efficient use of scarce resources in a changing environment (Chandan, 2006). In this study, the definition of management is taken as a set of activities directed towards achieving one or more goals.

Firms can avoid cash flow fluctuations and thus increase their investment values by reducing their risk exposures. Firms should only take risk when they are appropriately compensated for it (Pandey, 2006). Diversification is a risk management strategy based on portfolio theory and designed to reduce risk exposure to by combining a variety of investments, such as stocks, bonds, and real estate, which are unlikely to all move in the same direction (Investorwords, www.investorwords.com). Effective

utilization of this strategy requires evaluation of the correlation of individual assets and construction of a portfolio with low correlated assets. The other widely used risk management strategy is hedging where investments are made in derivatives, which are financial instruments whose pay-offs are derived from underlying assets (Pandey, 2006). The values of derivatives therefore depend on the values of the underlying assets.

2.7 Risks Facing Retirement Benefits Schemes

Risk in the retirement benefits sector is defined as the threats or uncertainties that affect effective achievement of retirement benefits schemes' objectives (Octagon, 2009). RBA in its Supervisory Guideline Number RBA 2 (2010), has identified three broad risk categories that affect the retirement benefits sector. These risk categories are systemic risk, portfolio risk and agency risk. Systemic risk arises when all retirement benefits schemes are affected by financial meltdown or other economic catastrophe. Portfolio risks are caused by inappropriate risk profiles, inadequate returns in relation to income targets, cyclical risks in interest markets affecting annuity purchase and liability side actuarial risks. Agency risks can arise from simple ignorance of law and best practices, unwillingness to adopt best practices or through willful negligence and corrupt practices. RBA classifies agency risks into three broad categories which are excessive fees and expenses, conflicts of interest and fraud, and misappropriation and misallocation (Supervisory Guideline Number RBA 2, 2010).

The supervisory guideline also identifies regulatory risk as another risk facing the retirement benefits sector. Regulatory risk arises from excessive regulations which

may discourage establishment of retirement benefits schemes since according to the Retirement Benefits Act, it is not mandatory for employers to establish retirement benefits schemes. Lack of legislative provisions for mandatory establishment of retirement benefits schemes has led to the number of employees who are members of retirement benefits schemes being below 15% of the total workforce. This has prompted the RBA to support the establishment of a national pension policy to inter alia address the current disjointed legislative framework (Odundo, 2008).

Octagon (2009) identifies risks facing retirement benefit schemes as; litigation risks, funding risks, investment related risks, governance risks and administration related risks. Litigation risks are risks related to enforceability of contracts and may be occasioned by members of retirement benefits schemes instituting litigation against trustees on grounds of perceived wrong benefits payments, non-remittance of contributions and delay in processing benefits. Funding risk occurs when a business fails to pay its obligations as and when they fall due. In the retirement benefits sector, funding risk arises when assets available in a scheme cannot adequately secure the benefits promised to members (Octagon, 2009). Funding risk may be occasioned by non-remittance of contributions by employers, failure to insure or factor group life benefits within contributions or negative investment returns due to either poor investment strategies or a meltdown in the economy.

The investment related risks facing a financial institution depend on the type of assets (securities) held and the type of financial institution. However, some risks such as country or political risk and systemic risk affect all financial institutions since they are not directly related to the type of financial institution or the assets held. Country or

political risk is the risk associated with a country's social and political stability, its trading practices, customs and ethics, its commercial law including insolvency (Holliwel, 1998). This risk stems from decisions taken by the government which have the potential of impacting negatively on the economic aspects of the country. Decisions taken by government and its agencies including regulatory bodies have potential impact on businesses and should be considered in determining the amount of assets to hold in any particular country. Country risk does not necessarily imply that the various business entities are faced with economic or financial challenge but implies that compliance, by the business entities, with government regulatory measures places them on the same platform with institutions that pose credit risk to investors (Sunders, 2008). Systemic risk is the probability of a problem in a financial institution spilling over to other financial institutions in a domino effect (Holliwel, 1998).

Investment related risks affecting retirement benefits schemes are risks that affect their investment returns or erosion of capital invested and comprise of interest rate risk, liquidity risk, foreign exchange risk and market risk. Interest rate risk occurs when there is a variation in the expected amount from investments held in fixed income securities arising from changes in interest rates (Octagon, 2009). Liquidity risk is the possibility that a market does not have the capacity to handle, at least without significant adverse impact on the price, the volume of whatever one is trying to buy or sell at the given time (Holliwel, 1998). Liquidity risk can also be defined as the risk of economic losses resulting from the fact that the sum of all inflows and the cash reserves of a financial intermediary on a day are not sufficient to meet its outflows on that day (Meera, 2008).

Foreign exchange risk is defined as the volatility in earnings or value of a financial intermediary caused by unexpected changes in exchange rates (Meera, 2008). This risk is aggravated by substantial exchange rate movements over a relatively short period (Holliwel, 1998). Market risk is defined as the exposure to adverse changes in the price or value of a tradable commodity or an investment holding (Holliwel, 1998). Market risk can also be defined as the risk related to uncertainty of a financial institution's earnings on its trading portfolio caused by changes, and particularly extreme changes in market conditions, such as price of an asset, interest rates, market volatility and market liquidity (Saunders, 2008). Market risk is differentiated from interest rate risk in that it affects the trading portfolio only while interest rate risk affects the entire assets and liabilities portfolio of a financial intermediary (Meera, 2008).

Governance risk is the risk associated with the personnel entrusted with the management of a retirement benefits scheme. This risk could be occasioned by conflict in the board of trustees, vested interest amongst trustees and lack of adequate knowledge among trustees to effectively manage the scheme. Governance risk could also arise from service providers providing services that have a conflict of interest (Octagon, 2009). Administration related risk is the exposure arising from the administrative operations of a scheme that would compromise compliance with statutory provisions. These risk exposures could be caused by incompetency of personnel employed by the trustees to administer the scheme and lack of proper technological capacity for effective scheme administration. Administration related risk is also known as operational risk, which is defined by the New Basel Capital

Accord (2003) as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events such as terrorism (Meera, 2008).

2.8 Managing Risks Facing Retirement Benefits Schemes

Since risk is both an uncertainty and the exposure to that uncertainty, risk management entails undertaking activities aimed at either reducing the uncertainty and/or decreasing the exposure to that uncertainty (Marx et al, 2003). However, a business entity cannot completely eliminate risk since risk is a natural part of the business environment (Marx et al, 2003). Risk management therefore entails establishing options to accommodate acceptable limits of uncertainties and exposure to such uncertainties. The available remedies depend on the type of risk being managed and the remedies described below relate to management of the identified risks that retirement benefits schemes encounter. To manage litigation risks, a retirement benefits scheme should undertake member education, maintain proper documentation, maintain effective communication with members and have structures for proper interpretation of the Trust Deed and Rules (TDR) thus ensuring proper computation of benefits (Octagon, 2009).

In managing funding risks, a retirement benefits scheme should undertake regular actuarial reviews to determine the funding levels and appropriate contribution rates, enforce timely collection of contributions from employers, have appropriate formulation of the Investment Policy Statement (IPS) including asset liability matching and review its Trust Deed and Rules (TDR) to ensure the promised benefits

are in accordance with the funding levels (Octagon, 2009). Management of investment related risk focuses on developing an Investment Policy Statement (IPS) that would ensure that the assets of a retirement benefits scheme adequately match its liability. RBA requires retirement benefits schemes to develop an IPS using an investment advisor different from the investment manager and review the IPS once every three years (RBR, 2000, 2008). Investment related risks are also managed through portfolio diversification and periodic review of pension fund performance by the trustees (Octagon, 2009). Whether an investment manager has discretionary mandate or a non-discretionary mandate, the trustees are ultimately held responsible for portfolio construction and fund performance (RB Act). To aid in portfolio diversification, RBA has issued investment guidelines detailing the investment categories and the maximum allowable limits for each category (RBR, 2000).

Since governance risk relates to the personnel mandated with the management of a retirement benefits scheme, its management includes having measures to ensure trustees have adequate skills and knowledge to manage the scheme and also ensuring proper scheme documentation outlining the respective duties of each party (Octagon, 2009). Measures to ensure trustees have adequate skills include continuous training and skills exchange programmes among retirement benefits schemes. The Retirement Benefits Act (1997) identifies the stakeholders involved in the management of a retirement benefits scheme as the trustees, investment manager, investment advisor, actuaries, custodians and administrators. In the retirement benefits industry these stakeholders, with the exception of trustees, are referred to as service providers and the Retirement Benefits Regulations (RBR) requires every scheme to have formal contracts with each service provider clearly specifying their duties and responsibility.

The RBR were amended to bar a service provider from providing related services such as custodial and investment management services. This regulation aims at avoiding or minimizing conflict of interest and compliance with this regulation enhances management of governance risk.

Administration related risks or operational risks are the final category of risk facing retirement benefits schemes that require management. In managing such risk, the retirement benefits schemes are required to have adequate internal controls that ensure compliance with the requirements of Retirement Benefits Regulations, which include adherence to provisions of the scheme's Trust Deed and Rules. Production of a compliance checklist helps in ensuring that provisions of Retirement Benefits Act and regulations are complied with. Having adequate organizational structure also ensures that computation of benefits complies with the scheme's Trust Deed and Rules while use of adequate pension software and computer hardware coupled with trained and qualified personnel aides in mitigating against administration related risks.

2.9 Risk management at KPLC staff retirement benefits scheme

The risk assessment process undertaken by KPLC SRBS in 2007 began with understanding the scheme's vision and strategic objectives and then identified risks to achieving those objectives and the mitigation controls that had been put in place by the scheme's management. The assessment identified fifty risks and then used a pre-defined criteria (developed by the consultant with the concurrence of the trustees and scheme staff) to develop a risk matrix, which classified the identified risks according to a combination of the magnitude of impact and likelihood of occurrence. The

magnitude of impact ranged from low to high while the likelihood of occurrence ranged from unlikely to almost certain. Risks with a high magnitude of impact which was almost certain were ranked as major risks while risks with low magnitude of impact which was unlikely to occur were ranked as low risks. The identified risks were grouped into ten risk focus areas, which were governance, financial management, operational, human resources, compliance, information management, contagion and related party risk, fixed assets, expenditure and accounts receivables. (KPLC SRBS Business Risk Assessment, 2007)

Operational risk management at the KPLC SRBS is carried out by the trustees together with scheme staff. The trustees have developed various procedures manuals detailing the purpose, scope, responsibility, procedures and documents that the respective reference procedure manual. The documented procedures manuals are; procedures for board responsibilities, procedures for cheque processing, procedure for customer service, procedures for finance and accounting, procedures for general administration, procedures for governance and compliance, procedures for benefits processing, procedures for processing payroll, procedures for records maintenance, procedures for retirement notices, procedures for service providers, procedures for tendering and procedures for trustees elections. The scheme also has a board manual that governs the operations of the board of trustees. This manual details the roles and responsibilities of the board, the board committees and their terms of reference, gives procedures for conduct of board business (with an annexure containing the code of conduct of trustees), procedures for communicating to members and stakeholders, code of ethics, social responsibility and general requirements guiding the board.

Financial risk management at the KPLC SRBS is carried out by the trustees together with the investment managers guided by policies approved by the trustees. The scheme invests in various income generating activities that involves trading in the Nairobi Stock Exchange (NSE), trading in government and other securities, and offshore investments. These activities expose the scheme's funds to a variety of financial risks that include credit risk, effects of changes in debt and equity market prices, foreign currency exchange rates and interest rates. The overall risk management programme focuses on the unpredictability of financial markets and seeks to minimize potential adverse effects on its financial performance. The investment managers review the market trends and information available to evaluate the potential exposures. The investment managers then arrive at strategies to mitigate against market risks. The trustees provide guidelines for overall risk management, as well as policies covering specific areas such as foreign exchange risk, interest rate risk, credit risk, use of derivative and non-derivative financial instruments and investing excess liquidity (KPLC SRBS DB Financial Statements, 2010).

The KPLC SRBS classifies its financial risk exposure into three categories, which are market risk, credit risk and liquidity risk. Market risk is further broken down into foreign exchange risk, price risk and interest rate risk. The scheme invests internationally and is therefore exposed to foreign exchange risk. This risk is viewed as low risk since the foreign investments are long term and any currency losses are expected to be recouped through earned interest income. The scheme manages this risk by limiting the offshore investment to a strategic range of 5% of total portfolio. The scheme further discloses, in its financial statements, the impact on investment return of a 5% movement in exchange rates either upwards or downwards. The

scheme describe price risk as equity and debt securities prices risk exposures, which arises from fluctuation in market prices. To manage this risk, the scheme diversifies its equities portfolio by investing in different sectors of the economy and further investing in bonds with various bond maturities. The investment policy statement of the scheme is reviewed after every three years. The scheme's exposure to interest rate risk arises from investment in interest bearing securities, which are treasury bonds, corporate bonds, treasury bills, commercial paper and fixed deposits. However, these instruments are all fixed interest instruments and this nature mitigates against interest risk exposure (KPLC SRBS DB Financial Statements, 2010).

The second category of financial risks identified by KPLC SRBS is credit risk, which it describes as the risk exposure from holding investments in cash and cash equivalents, fixed deposits, interest bearing investments, deposits with banks and receivables. As part of credit risk management, the investment managers and trustees monitor and review information on significant investments and the trustees have approved a larger portfolio investment with government of Kenya debt securities, which have a low credit risk and no default record. The scheme also discloses in its financial statements the maximum exposure to credit risk through listing the different categories of investment with this risk exposure and the total amount for each category (KPLC SRBS DB Financial Statements, 2009).

The last category of financial risks identified by KPLC SRBS is liquidity risk, which the scheme describes as the risk exposure arising from difficulty in fulfilling commitment to pay pensions to members when they retire. The scheme therefore invests portions of its assets in investments that are readily convertible to cash while

the investment managers monitors the liquidity on a regular basis and the trustees review its on a quarterly basis. The scheme also discloses in its financial statements the financial liabilities as at the balance sheets date. These financial liabilities include benefits payables, amounts due to KPLC and other payables (KPLC SRBS DB Financial Statements, 2009).

2.10 Empirical studies

Hosna et al (2009) undertook a study on credit risk management and profitability in commercial banks in Sweden. Their study focused on four commercial banks and was aimed at finding out how credit risk affects profitability in banks. The study was limited to identifying the relationship between credit risk management and profitability in four commercial banks of Sweden. Their finding and analysis revealed that credit risk had effect on profitability of all four banks. Muthee (2010) undertook a study on the relationship between credit risk management and profitability; a study on commercial banks in Kenya. His objective was to establish the relationship between credit risk management and profitability of commercial banks in Kenya. He found out that credit risk management has effect on profitability in the commercial banks he analyzed.

Mwangi (2010) undertook a study on the effects of risk management practices on the financial performance of commercial banks in Kenya and found out that some risk management practices do have effect on financial performance. He further found out that some risk management practices do have significant effect on financial performance more than others. Such practices include the existence of a risk

management policy and the integration of risk management in the setting of the organization's objectives. He also found out that the risk management practices were to a large extent influenced by guidelines put forward by the Central Bank of Kenya.

Kamau (2010) in his study on the adoption of risk management by commercial banks in Kenya found out that progress has been made in risk management by commercial banks in Kenya, which is partly attributed to enhanced regulation and realization by banks on the importance on regulations. Kusewa (2007) in her study on the impact of regulation of the retirement benefits sector on the financial performance of occupational pension schemes in Kenya found out that financial performance of occupational retirement benefits schemes had improved over the period where regulations have been in force notwithstanding the limitations that have come as a result of the regulations. He concluded that with improved financial performance of occupational pension schemes, it is implied that pension schemes are now capable of meeting their liabilities including the benefits due to members.

Kihunyu (2005) in his study on the effects of retirement benefit authority act on risk of investments held by pension funds in Kenya concluded that with the application of the RB Act, the liquidity of pension funds had improved by investing in marketable securities, the risk of variability of returns had also been reduced and the income had become more stable due to professional investment advice. He also noted that the RBA had stabilized the pension sector and made it more attractive to more players.

Kiwanuka (2005) in her survey into the framework for immunization by retirement schemes in Kenya found out that to a large extent the framework to support

immunization exists in Kenya. She defined immunization as protecting the asset portfolio from interest rates movements to ensure the portfolio gives a guaranteed return or pre-specified value at the end of the time horizon. She argues that the framework is provided by the professional expertise available to the trustees through the actuarial consultants and fund managers, the availability of diversified assets for investment in the capital market and a vibrant fixed income securities market with a bias for government securities, which have relatively lower associated risk that trustees had exposure to. Mutua (2003) in her study on the relationship between the extent of compliance with the Retirement Benefits Act by retirement benefits schemes in Kenya found out that the relationship between the extent of compliance with Retirement Benefits Act and financial performance of retirement benefit schemes in Kenya was positive but weak.

2.11 Summary

This chapter has looked at the theories of risk management and identified modern portfolio theory and capital market theory as the relevant theories for this study. The study further looked at the structure of various retirement benefits plans and the guiding investment policies and guidelines. The chapter has provided the relationship of risk management and profitability by looking at how risk impacts of profitability and how management of such risks is necessary for improved profitability. The chapter has also looked at risks facing retirement benefits schemes and ways of managing such risks. The chapter has further discussed the risk management practices of KPLC staff retirement benefits scheme and concluded with empirical studies relevant to this study.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology that was used in the study. It covers the research design, data collection and data analysis for this study.

3.2 Research Design

The study used a case study design since case studies are known to provide more valuable insight to the selected areas of study by providing information for better understanding (Kasomo, 2007). The study evaluated profitability of Kenya Power Lighting Company Staff Retirement Benefits Scheme (KPLC SRBS) prior to and after the risk assessment exercise of 2007 and sought to find out whether the risk assessment exercise and subsequent implementation of risk management practices had any impact on the profitability of the scheme.

3.3 Data Collection

Secondary data from the audited financial statements of KPLC SRBS was collected from year 2004 to 2010. The data collected related to contributions and profitability computation data, which was data on the fund values, net total income and administrative expenses. The profitability data was grouped into two with one group being data for three years before the risk assessment exercise and the other group

being data for three years after the risk assessment exercise. To enhance objectivity in comparison of the two periods, data for year 2007, being the year that the risk assessment exercise was done, was not included in either group. The first group therefore consisted of data from year 2004 to 2006 while the second group consisted of data from year 2008 to 2010.

3.4 Data Analysis

This study used descriptive statistics to analyze the profitability data of KPLC SRBS for the two groups. The mean and standard deviation for these two groups were compared to find out whether there have been changes between these two periods. The results of the analysis were presented in tables and charts. Trend percentage analyzes from financial year 2004 to 2010 was further done to determine the trends of profitability and parameters affecting profitability with year 2004 being used as the base year. Microsoft Excel 2007 was used in the descriptive statistics and trend percentage analyzes.

Profitability was computed as the return on investment defined by the capital market theory (Maps of World Finance, www.finance.mapsoftheworld.com) as follows: -

$$K = \frac{P_t + C_t - P_{t-1}}{P_{t-1}}$$

Where;

K is the return from the time period t-1 to t

C_t is the cash received from assets between period t-1 and t.

P_t is the price of the assets at time t

P_{t-1} the price of assets at time t-1.

CHAPTER FOUR

4.0 DATA ANALYSIS, PRESENTATION AND DISCUSSIONS

4.1 Introduction

This chapter deals with data analysis, presentation and discussion. The results of data analysis are presented in tables and charts.

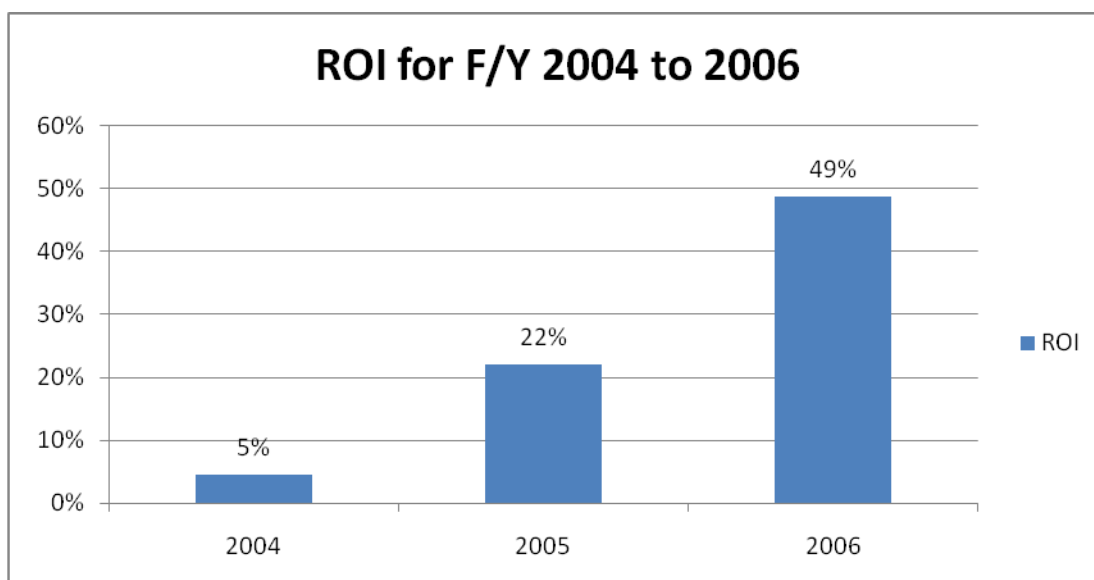
4.2 Profitability of KPLC SRBS prior to the risk assessment exercise

Table 4.1: Profitability for the period prior to the risk assessment exercise

Financial Year	2004	2005	2006
Return on Investment (profitability)	5%	22%	49%

Table 4.1 indicates that profitability of KPLC SRBS for financial year 2004 was 5% and profitability for financial year 2005 was 22% while the profitability for financial year 2006 was 49%. Table 4.1 further indicates that profitability grew by 340% from financial year 2004 to financial year 2005 and grew by 123% from financial year 2005 to financial year 2006. This shows that profitability of KPLC SRBS, for the three financial years, in the period prior to the risk assessment exercise, was positive and in an upward trend though at a decreasing rate. The profitability figures for the three financial years, in the period prior to the risk assessment exercise, are shown in chart 4.1 below.

Chart 4.1: Profitability for the period prior to the risk assessment exercise



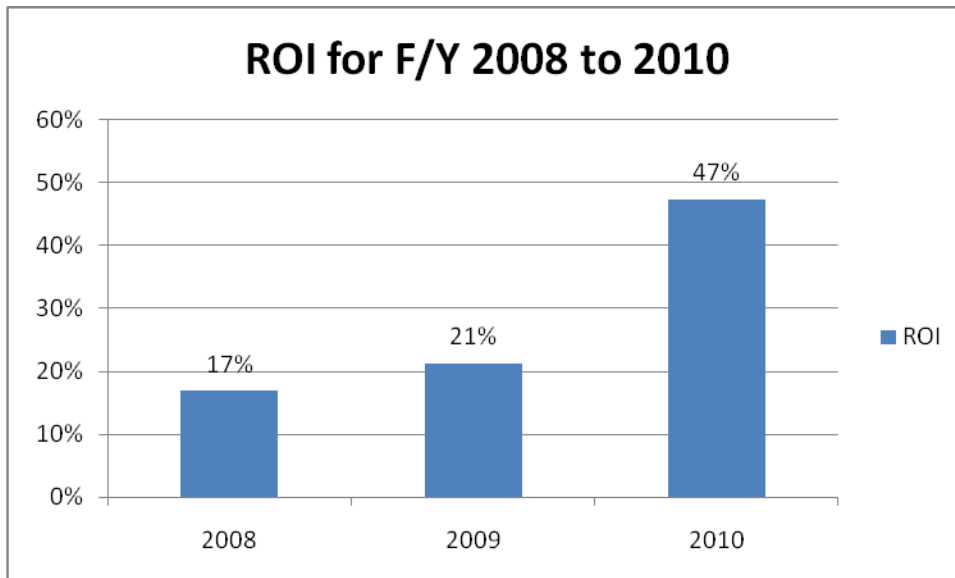
4.3 Profitability of KPLC SRBS after the risk assessment exercise

Table 4.2: Profitability for the period after the risk assessment exercise

Financial Year	2008	2009	2010
Return on Investment (profitability)	17%	21%	47%

Table 4.2 indicates that profitability for financial year 2008 was 17% and profitability for financial year 2009 was 21% while the profitability for financial year 2010 was 47%. Table 4.2 further indicates that profitability grew by 24% from financial year 2008 to financial year 2009 and grew by 124% from financial year 2009 to financial year 2010. This shows that profitability of KPLC SRBS, for the three financial years, in the period after the risk assessment exercise, was positive and in an upward trend at an increasing rate. The profitability figures for the three financial years, in the period after the risk assessment exercise, are shown in chart 4.2 below.

Chart 4.2: Profitability for the period after the risk assessment exercise



4.4 Mean and Standard Deviation for the two periods

Mean gives an average value of the data under consideration while the standard deviation is a measure of volatility or dispersion around the mean. The mean profitability and standard deviation of profitability for KPLC SRBS, for the financial years, in the period prior to and after the risk assessment exercise, were as follows.

4.4.1 Mean profitability

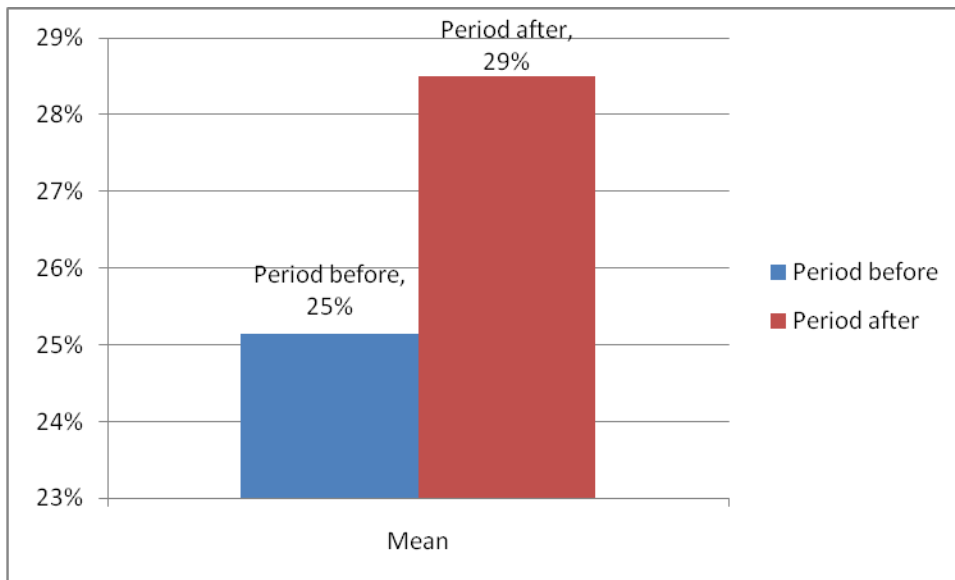
Table 4.3: Mean for the two periods

Period	Prior to risk assessment	After risk assessment
Mean profitability	22%	29%

Table 4.3 indicates that the mean profitability for the period prior to the risk assessment exercise (financial years 2004 to 2006) was 22% while the mean profitability for the period after the risk assessment exercise (financial years 2008 to 2010) was 29%. This shows that the mean profitability of KPLC SRBS for the period

after the risk assessment exercise was better and higher than the mean profitability for the period prior to the risk assessment exercise by 7%. The mean profitability for the period prior to and after the risk assessment exercise is shown in chart 4.3 below.

Chart 4.3: Mean profitability for the two periods



4.4.2 Standard deviation

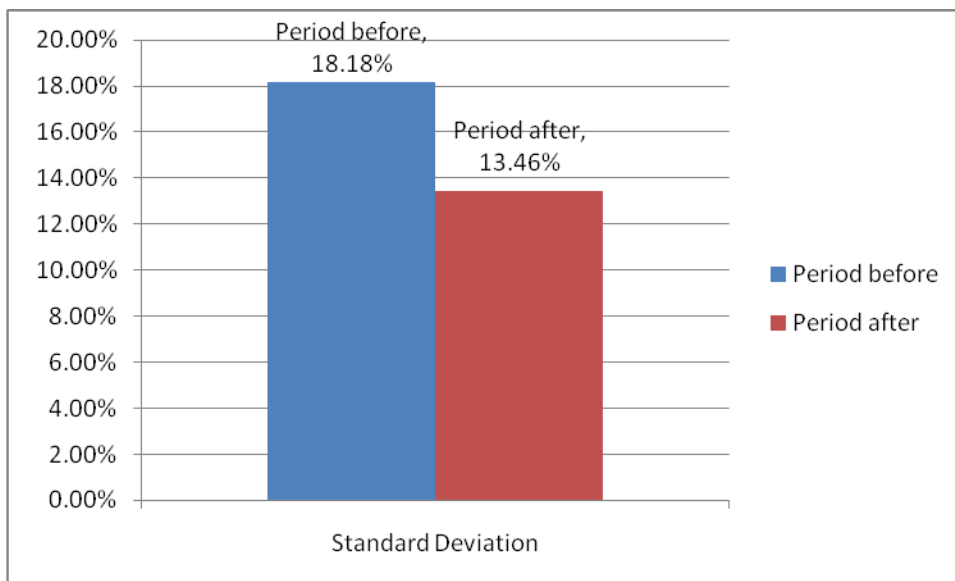
Table 4.4: Standard deviation for the two periods

Period	Prior to risk assessment	After risk assessment
Standard deviation	18.18%	13.46%

Table 4.4 indicates that the standard deviation of profitability for the period prior to the risk assessment exercise (financial years 2004 to 2006) was 18.18% while the standard deviation of profitability for the period after the risk assessment exercise (financial years 2008 to 2010) was 13.46%. This shows that the standard deviation of profitability for the period after the risk assessment exercise was lower than the standard deviation of profitability for the period prior to the risk assessment exercise

by 4.72%. The lower standard deviation indicates that profitability of KPLC SRBS for the period after the risk assessment exercise had a lower volatility than profitability for the period prior to the risk assessment exercise. A lower volatility shows that profitability for the period after the risk assessment exercise was more stable and thus better than profitability for the period prior to the risk assessment exercise. The standard deviation for the period prior to and after the risk assessment exercise is shown in chart 4.4 below.

Chart 4.4: Standard deviation for the two periods



4.5 Trend Percentage Analysis

Trend analysis involves comparison of present performance with the performances of previous periods for the same organization. Trend percentage analysis states several years' financial data in terms of a base year, which is set to be equal to 100%.

4.5.1 Profitability trend percentage analysis

Table 4.5: Profitability trend percentage analysis

Financial Year	2004	2005	2006	2007	2008	2009	2010
Profitability	100%	488%	1076%	388%	372%	469%	1045%

Table 4.5 indicates that profitability of KPLC SRBS was on an upward trend from the base year (2004) to financial year 2006 at an increasing rate. Profitability then declined sharply from financial year 2006 to financial year 2007 and further declined slightly from financial year 2007 to financial year 2008. Profitability then resumed an upward trend from financial year 2008 to financial year 2010 at an increasing rate. Table 4.5 shows that profitability of KPLC SRBS, from financial year 2004 to financial year 2010, had grown in a cyclical manner.

4.5.2 Net income trend analysis

Table 4.6: Net income trend analysis

Financial Year	2004	2005	2006	2007	2008	2009	2010
Net Income	100%	137%	223%	127%	128%	184%	457%

Table 4.6 indicates that net income of KPLC SRBS was on an upward trend from the base year (2004) to financial year 2006 at an increasing rate. Net income then declined from financial year 2006 to financial year 2007 before resuming an upward trend from financial year 2007 to financial year 2010 at an increasing rate. Table 4.6 shows that net income for KPLC SRBS, from financial year 2004 to financial year 2010, had grown in a cyclical manner.

4.5.3 Contributions trend analysis

Table 4.7: Contributions trend analysis

Financial Year	2004	2005	2006	2007	2008	2009	2010
Contributions	100%	149%	194%	148%	148%	162%	162%

Table 4.7 indicates that contributions receivable by KPLC SRBS had grown at an increasing rate from financial year 2004 to financial year 2006. Contributions then declined from financial year 2006 to financial year 2007. There was no contribution growth from financial year 2007 to financial year 2008. Contributions then grew from financial year 2008 to financial year 2009 and remained constant in financial year 2010. This shows that contributions receivable by KPLC SRBS had a general upward trend from financial year 2004 to financial year 2010.

4.5.4 Administrative expenses trend analysis

Table 4.8: Administrative expenses trend analysis

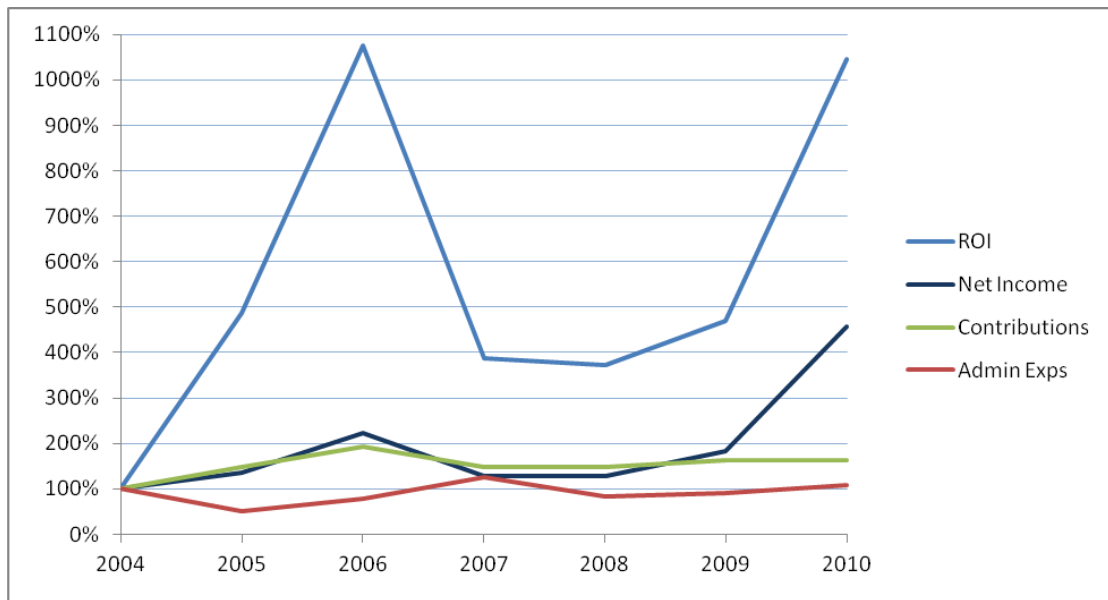
Financial Year	2004	2005	2006	2007	2008	2009	2010
Administrative expenses	100%	51%	79%	126%	83%	90%	109%

Table 4.8 indicates that administrative expenses of KPLC SRBS decreased significantly from financial year 2004 to financial year 2005. The administrative expenses then increased from financial year 2005 to financial year 2007 at an increasing rate before declining from financial year 2007 to financial year 2008. The administrative expenses then increased from financial year 2008 to financial year 2010 at an increasing rate. This shows that the administrative expenses of KPLC SRBS had a cyclical movement with an overall constant trend from financial year 2004 to financial year 2010.

4.5.5 Trend analysis chart

The above four trend percentage analyses are as indicated in chart 4.5 below.

Chart 4.5: Trend percentage analyses



4.6 Summary finding and interpretation of data

The trend percentage analyses of profitability of KPLC SRBS and factors that affect profitability shows that profitability, net income and contributions receivable were on an upward trend, from financial year 2004 to financial year 2010, while administrative expenses had a constant trend for the same period. There was however constant movement in contributions receivable from financial year 2007 to financial year 2008 and similarly from financial year 2009 to financial year 2010. This was due to the closure of KPLC SRBS in year 2006. Analysis of the mean profitability and standard deviation of profitability of KPLC SRBS for the financial years prior to and after the risk assessment exercise of year 2007 was therefore useful in assessing whether the

risk assessment exercise had an impact in the upward trend of profitability from financial year 2004 to financial year 2010.

The data analysis shows that the mean profitability of KPLC SRBS for the period after the risk assessment exercise was better and higher than that of the period prior to the risk assessment while the standard deviation, which is a measure of volatility around the mean, for the same period, was lower indicating that there was stability in profitability of KPLC SRBS for the period after the risk assessment exercise. In summary, therefore, data analysis shows that the risk assessment exercise of year 2007 had a positive impact on the profitability of Kenya Power Lighting Company Staff Retirement Benefits Scheme (KPLC SRBS). The study findings are consistent with studies on the effect of risk management on profitability. Such studies include the study by Hosna et al (2009) who found out that credit risk had effect on profitability of the four banks in their study and the study by Muthee (2010) who found out that credit risk management has effect on profitability in the commercial banks that he analyzed.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of findings

This chapter summarizes the major findings of the study, provides guidance for future research and makes recommendations. The study shows that profitability of KPLC SRBS has improved in the period after the risk assessment exercise and volatility of returns for the period after the risk assessment exercise had decreased. Risk management is therefore essential in application of the portfolio theory of maximizing returns for any given level of risk or minimizing risks for any given level of returns.

5.2 Conclusion

The risk management exercise of 2007 at the Kenya Power and Lighting Company Staff Retirement Benefits Scheme led to formal documentation of risk management practices of the scheme. The financial risk management practices are captured in the audited financial statements from financial year 2007 while other risk management practices are documented in procedures manuals that detail the purpose, scope, responsibility, procedures and documents/books that the specific procedure manual is referenced to.

The profitability of KPLC SRBS as measured through return on investment computed using the return as defined by the theory of capital market revealed that the mean profitability for the period after the risk assessment exercise of 2007 had increased by

4% when compared to the period prior to the risk assessment exercise. The study revealed that the volatility of returns as measured through standard deviations of the returns had reduced by 4.72% for the period after the risk assessment exercise as compared to the period prior to the risk assessment exercise.

Percentage trend analyses of the various factors that affect profitability positively namely net income and contributions revealed that net income moved in a synchronized manner to the return on investment while contributions though with an upward trend did not increase from year 2007 to 2008 and similarly from year 2009 to year 2010 due to closure of the scheme. Administrative expenses had an overall downward trend with only two years exceeding the base year. The major contributor to profitability was therefore net income of the scheme, which comprised net investment income and other income. This study therefore concludes that the risk assessment exercise and subsequent risk management practices at KPLC SRBS have had a positive impact on profitability of the scheme by increasing the mean rate of return and further reducing the volatility of returns.

5.3 Policy recommendations

Since the research findings reveal that risk management practices have positive impact on profitability of retirement benefits schemes, it would be expected that retirement benefits schemes will embrace risk management practices to improve their profitability and reduce their risk exposures. An understanding of the risks facing retirement benefits schemes would help the management of retirement benefits

schemes employ relevant risk management practices to achieve higher returns at any given level of risk or reduce risk at any given level of return.

This study therefore recommends that the Retirement Benefits Authority puts more emphasis on the requirements of the Risk Based Supervision, which aims at improving risk management practices in retirement benefits schemes with the expected benefits of improved returns. This would require every retirement benefits scheme to have a formally documented risk management policy, which should be periodically reviewed for relevance and consistency with industry developments. RBA should also facilitate training on risk management or have measures to encourage industry players to develop relevant risk management trainings. Further, the Capital Markets Authority should put in place measures that will enhance development of risk diversification tools such as derivatives to afford retirement benefits schemes a wider scope of diversification vehicles.

5.4 Limitations of the study

This study used secondary data and was limited to the availability of data for the period after the risk assessment exercise, which limited the comparison period to only three years prior and after the risk assessment exercise of 2007. Comparison of data for a longer period would have provided more insightful conclusion of the impact of risk management practices to profitability.

5.5 Suggestions for further research

Future event analysis studies could focus on alternative methods of computing rate of return for retirement benefits schemes to help in understanding whether different methods of computing rates of return could lead to different conclusions on the impact of risk management on profitability of retirement benefits schemes. This study was carried out as a case study while future studies could use the survey approach to establish the impact of various risk management practices in different retirement benefits schemes on profitability with an aim of identifying the critical risk management practices in retirement benefits schemes.

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APPENDICES

Appendix 1: Data Request letter

WAMAGATA KAIRU,
P.O. BOX 11437,
00100-GPO,

Tel: 0728-023759

19th August 2011

The Principal Officer,
KPLC Pension (DB) Scheme,
P.O. Box 30099-00100,
NAIROBI

Dear Sir,

RE: REQUEST FOR DATA FOR MY MBA RESEARCH PROJECT

Reference is made to your verbal acceptance of my request to study your Scheme in partial fulfillment of my post graduate studies at the University of Nairobi in Master of Business Administration (MBA) Finance Option degree programme.

My research is titled “the impact of risk management on profitability at the Kenya Power and Lighting Company Staff Retirement Benefits Scheme”.

My research will be purely used for academic purposes and I will treat all information supplied to me with utmost confidentiality. A copy of my research report will be availed to your Scheme upon request.

To aid my research, I require copies of your Scheme’s audited financial statements from financial year 2004 to financial year 2010.

Kindly, therefore, avail these financial statements to enable me conclude my research.

I look forward to your favourable response.

Yours sincerely,



WAMAGATA KAIRU
Reg. No. D61/70687/2009

Appendix 2: Research Data

Item/Financial Year	2004	2005	2006	2007	2008	2009	2010
Contributions receivable	373,900,228	556,290,529	724,442,115	552,000,000	552,000,000	607,200,000	607,200,000
Net returns on investment	453,008,808	633,169,995	1,030,174,104	586,598,074	598,248,963	846,466,634	2,113,117,651
Other income	12,876,033	4,537,468	7,698,234	6,544,739	(513,458)	9,456,929	16,905,585
Administrative expenses	50,244,425	25,694,401	39,689,147	63,307,237	41,577,053	45,273,027	54,966,282
Fund value at end of period	4,792,080,627	5,240,250,779	6,797,356,829	7,463,233,331	8,166,512,331	9,092,545,146	11,324,386,788
Fund value at beginning of period	4,981,949,682	4,792,080,627	5,240,250,779	6,797,356,829	7,463,233,331	8,166,512,331	9,092,545,146