

**DETERMINANTS OF COST EFFICIENCY IN  
RETIREMENT BENEFIT SCHEMES IN  
KENYA**

**RESEARCH STUDY REPORT**

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## LIST OF ACRONYMS AND ABBREVIATIONS

ANOVA	Analysis of Variances
ARBS	Association of Retirement Benefit Schemes
DB	Defined Benefit
DC	Defined Contribution
FGD	Focus Group Discussion
Ksh.	Kenya Shilling
NAV	Net Asset Value
OECD	Organization for Economic Development and Cooperation
RBA	Retirement Benefits Authority
RBS	Retirement Benefits Scheme



## EXECUTIVE SUMMARY

The purpose of the study was to evaluate the cost efficiency of Retirement Benefit Schemes (RBS) and determine the influence that the variables; size, investment strategy, choice of service providers and design have on cost efficiency and consequently make policy recommendations to enhance their cost efficiency. The study commenced on 4<sup>th</sup> October 2016 and ended on 10<sup>th</sup> June 2017 and was conducted in two phases where the first phase involved a review of secondary data on costs reported in the annual financial statements from all RBS for the period 2002 - 2015. During this stage, content analysis of the financial statements was conducted to document the structure of costs, time series analysis was used to describe the cost trends over the study period and Analysis of Variances (ANOVA) and consequent Post Hoc tests were conducted to make statistical inferences on the effect of size, investment strategy, choice of service providers and design on cost efficiency. The second phase of the study involved interviews with key informants in the retirement benefits industry namely administrators, custodians and fund managers to explain the results. Additional interviews were conducted with trustees of 106 RBS (response 78%, n=83).

The findings indicate phenomenal growth in RBS expressed by a 2553% increase in the total number of members (94,720 in 2002 to 2,512,774 in 2015), increase in fund value of 1424% (Ksh. 45B in 2002 to Ksh. 686B in 2015) and increase in contribution amounts of 807% (Ksh. 7.5B in 2002 to Ksh. 68B in 2015). Although the asset values per RBS increased to Ksh. 852M in 2015, the asset value per member reduced by 42% (Ksh. 472,045 in 2002 to Ksh. 273,627 in 2015), primarily due to a greater increment in membership compared to the asset values.

The annual overall costs incurred by the RBS increased steadily within the study period by 1317% (Ksh. 494M 2002 to Ksh. 7B in 2015). The percentage increase in costs was less than the increase in asset values (1424%) but greater than the increase in contributions (807%). Administration, custodial and investment management fees represent the bulk of the total costs of the RBS averaging 39% of total costs between 2002 and 2004, 57% between 2005 and 2006, 71% in 2007, 36% in 2008, 35% in 2010, 25.8% in 2011, 41% in 2012, 48% in 2013, 41% in 2014 and 30.8% in 2015. Other costs that have contributed to increasing costs are; taxation, RBA levy, custodial fees and procurement related expenses amongst other expenses.

The cost efficiency indices recorded over the period were; 1.32 for the operating costs to investment income ratio, 1.26 for the operating cost to income ratio including retirement benefits and contributions and a cost per member reduction of 46% (Ksh. 5220 in 2002 to Ksh. 2811 in 2015).

The findings further indicate that the cost efficiency of RBS differs significantly on the basis of the number of members, size of the RBS, investment strategy and choice of the service providers. The design of the RBS did not however influence the cost efficiency. These findings suggest that RBS can enhance their cost efficiency by maintaining the right size, investment strategy and carefully selecting their service providers. As a result, suggestions to encourage cost efficiency include; the need to encourage use of umbrella schemes for the smaller inefficient schemes, use of co-fund management by the RBS with high asset values and the need for trustees to conduct value for money audits and carefully choose their service providers.

This report is structured as follows; section 1 gives the introduction and background of the overall study, section 2 describes the theoretical aspects that guided the study, section 3 describes the methodology adopted, section 4 discloses the findings, section 5 gives the main conclusions while section 6 provides recommendations to enhance cost efficiency of RBS.

## 1.0 INTRODUCTION

### 1.1 Background of the Study

In 2013, the United Nations Department of Economics and Social Affairs found a trend of ageing population in nearly all countries in the world, recording an increase of population aged 60 years and over from 9.2% in 1990 to 11.7% and projected it to increase to 21% by 2050. Such ageing population has significant economic consequences as it would need funds to support its survival. With increased fiscal pressures and collapsing social support systems, private pension systems must be strengthened and made sustainable to provide an income to these population.

The sustainability of private pension systems is threatened by the volatile financial markets and economic crises prevalent in the 21st Century, which have led to low returns on investments and consequently low benefit payouts. Another factor that contributes to low retirement benefits is the prevalence of investment management and administrative costs of operating retirement benefit schemes (Bateman & Mitchell, 2004; Bikker & Dreu, 2009; Ambachtsheer, 2010; Bauer, Cremers & Frehen, 2010; Chatterton, Smyth & Darby, 2010). For instance, avoidable costs caused a 10%-20% difference in benefit payouts between the small and large pension plans in Netherlands (Bikker, 2013).

Investment choices influence the investment costs incurred by pension funds since the changes of investment strategies in favour of actively managed equity funds significantly increases the administration and investment management costs (Tang & Mitchell, 2008). Additionally, Husted (2008) find significant differences in administrative costs incurred by defined benefit and defined contribution funds.

Given the significant cost differences across retirement benefit schemes and the huge cumulative impact of additional costs, we posit that cost management of retirement benefit schemes in Kenya need to be investigated and policy measures suggested to continuously manage these costs.

### 1.2 Problem Statement

A study conducted by RBA in 2016, on review of governance practices in retirement benefit schemes in Kenya, led to a hypothesis that there are numerous cost inefficiencies in the RBS hence the need to investigate the matter and provide empirical evidence to that effect.

Under the RBA Act, trustees of retirement benefit schemes have a fiduciary duty to determine and evaluate the costs incurred by their RBS. Since multiple providers (administrators, auditors, fund managers, actuaries, legal counsels and custodians) are involved in the operations of retirement benefit schemes and have different models of charging professional fees, it becomes difficult to determine if the costs are fair, reasonable and give value for money to the retirement benefit schemes. Mitchell (2012) has determined that these costs vary significantly across countries and specific schemes.

Additionally, no study has been done using the RBA dataset with regard to the operational costs incurred by RBS in Kenya. This study therefore generates baseline data on the costs incurred by the RBS and provide policy guidelines for the management of these costs.

This study adds to the studies on cost efficiency of the financial services industry especially because, few studies review the effects that pension plan characteristics have on cost efficiency. In the United States of America, Caswell (1976), and Mitchell and Andrews (1981) investigated these effects by use of financial ratios analysis while in Australia Bateman and Mitchell (2004) investigated the effects of rates of return on investments. Additionally, Baker and Dreu (2009); Bikker (2013) investigated the effects that pension plan design, scale and governance have on pension fund efficiency in the Netherlands.

Uniquely, the study uses a mixed methodology that not only reviews secondary data on all the RBS but also uses the insights of key informants to explain the results.

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

The general objective of the study was to establish the factors that determine the cost efficiency of RBS in Kenya.

### **1.4 Specific Objectives**

The study sought to achieve the following specific objectives;

- 1.4.1 To document the structure of costs incurred by RBS in Kenya.
- 1.4.2 To determine the effect of size on cost efficiency of RBS in Kenya.
- 1.4.3 To determine the effect that investment strategies used by Kenyan RBS have on cost efficiency.
- 1.4.4 To determine the effect that the choice of service providers has on the costs incurred by the RBS in Kenya.
- 1.4.5 To determine the effect that design of the RBS have on cost efficiency.
- 1.4.6 To determine the cost management policies that trustees of Kenyan RBS have formulated.
- 1.4.7 To determine policy gaps and recommendations that need to be implemented to ensure cost efficiency of RBS in Kenya.

## 2.0 LITERATURE REVIEW

### 2.1 Theoretical Framework

The study was guided by the systems theory and the cost efficiency model.

#### 2.1.1 Systems Theory

RBS like other organizations can be viewed as open systems since they collect and accumulate contributions from their members and sponsors (employers who establish the schemes), invest the contributions and hold the proceeds in stewardship for the benefit of the members on retirement (Davis, 2005). The RBS thus have definite inputs that they convert to outputs. Following this system theory approach (inputs-conversion-outputs), cost efficiency is conceptualized as the retirement benefit scheme’s ability to convert inputs to outputs in the most efficient manner. Cost efficiency is conceptualized using the OECD (2004) model that views it as “controlling spending and accomplishing more with lesser financial resources.” This definition thus emphasizes on measurement of cost efficiency by use of the ratio of costs to incomes as well as unit costs.

Figure 1 illustrates the systems theory view of RBS. It shows that a RBS transforms financial inputs (asset values at the beginning of the financial year, contributions and payments to service providers) for the gains of the members (retirement benefits and asset values at the end of the financial year). A cost efficient RBS should operate at the lowest possible cost, have its cost to income ratio less than 100% and minimize the cost per member.

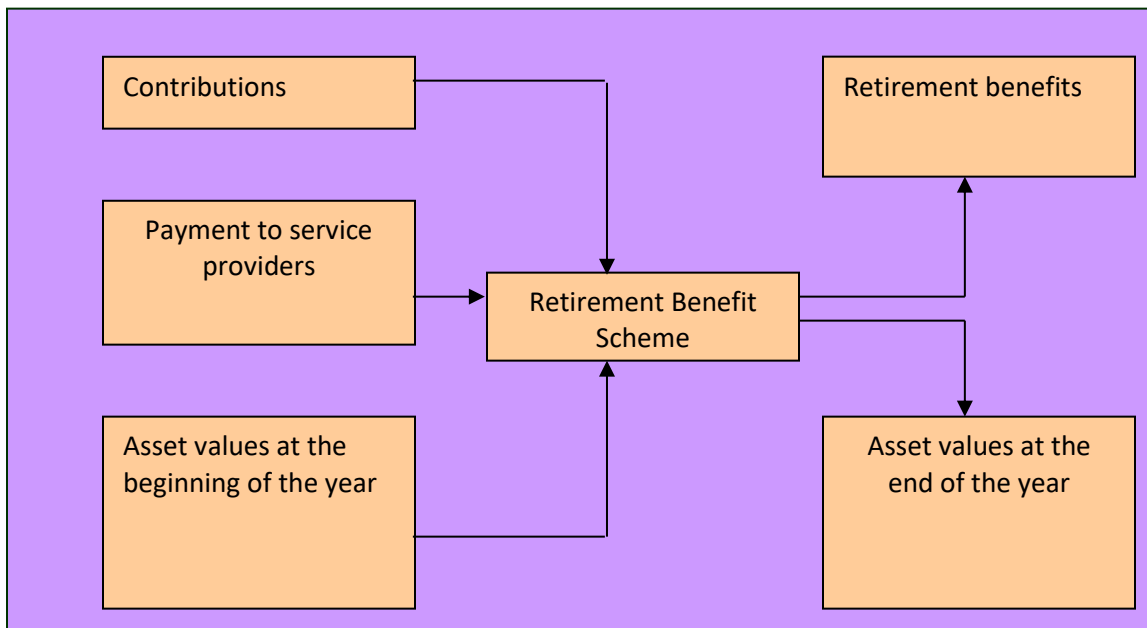


Figure 1: Systems theory view of RBS

### 2.1.2 Pension Fund Cost Efficiency Model

Hager and Flack (2005:4) describe cost efficiency as getting the most mission-related activity out of the least amount of financial resources. Other studies (Canadian Treasury Board, 2009; Chansarn, 2005; Baker, Logue and Rader, 2005) visualize cost efficiency as the degree to which management is able to provide deliverables at the least possible cost. This model posits that cost efficiency is a function of internal management and that organizations can maximize efficiency by carefully modelling their internal variables.

## 2.2 Conceptual Framework

This study conceptualizes cost efficiency as the end result of the size of the RBS, investment strategy, choice of the service providers and the design. The model to test is;

$$\text{Cost efficiency} = f(\text{size, investment strategy, choice of service providers, design}).$$

This model gives rise to four hypotheses namely;

*H1: Cost efficiency is positively related to the size of the RBS*

*H2: The investment strategy used by RBS positively influences their cost efficiency.*

*H3: The costs incurred by the RBS differ significantly on the basis of the choice of the service providers.*

*H4: Cost efficiency of RBS differs on the basis of their design.*

The justification for these hypotheses is discussed in sections 2.2.1, 2.2.2, 2.2.3 and 2.2.4.

### 2.2.1 Effect of the Size of a Retirement Benefit Scheme on Cost Efficiency

Empirical findings with regard to the relationship between size and the cost efficiency of pension funds and RBS are inconclusive. A negative relationship between financial performance and fund size is reported in Cicotello and Grant (1996), Droms and Walker (2001), and Grinblatt and Titmat (1994). On the other hand positive relationship between the same variables is reported in Gallagher and Martin (2005); Cheong (2007); Mahon and Donohoe (2006:15); Chon, Hong, Huang and Kubik (2004:1284). It is argued that larger pension funds and RBS can achieve numerous benefits brought about by economies of scale in administration (Mahon and Donohoe, 2006:15; Caswell, 1976:6; Bikker and Dreu, 2009:12; Ardon, 2006:10). Furthermore, Brown and Davis (2009:10-11) found that collaboration of pension funds in Australia led to better performance since the funds were able to exercise significant influence in the industry.

### 2.2.2 Effect of Investment Strategy on Cost Efficiency

Chon et al (2004) have determined that fees and expenses vary from fund to fund and the amount paid depends on the fund's investment strategy. A fund with high costs must perform better than a low-cost fund to generate

the same returns. The authors discern that even small differences in fees from one fund to another can add up to substantial differences in investment returns over time.

Most of the investment management fees charged by the fund managers are based on the Net Asset Value (NAV) of the scheme subject to a minimum amount paid in a period (quarter or monthly) (Bikker and Dreu, 2013). The suggestion here is that the investment strategy adopted by a scheme influences the fund value and consequently the fees charged. Economies of scale can also be realized since there is a fixed component to the charging model.

### 2.2.3 Effect of Choice of Service Providers on Cost Efficiency

Bikker (2013) argues that stakeholders in RBS are best served by service providers with low investment and administrative costs. Administrative costs are the operating costs including personnel costs, fees charged by third parties, recordkeeping, communicating with participants, policy development, and compliance with reporting and supervisory requirements. These costs can differ significantly on the basis of the cost models used by different providers (Bate and Mitchell, 2004). Differences would also be encountered if these services are offered in house or are outsourced (Bikker, 2013). Bikker finds that fully and partly reinsured pension funds have significantly higher cost per participant than funds without reinsurance and also argues that the market for pension provisioning is imperfect because collective pension arrangements are generally much cheaper than individual ones, due to scale and the absence of marketing and education costs, adverse selection, and profits.

### 2.2.4 Effect of Design on Cost Efficiency

Empirical literature suggests that RBS operated on defined contribution principles outperform those that operate on the defined benefit ideologies as a result of the following factors.

- The benefits payable are not tied to the contributions made (Brady, 2008:14; Crane, Heller and Yakoboski, 2008:7; Faktum, 2009:2).
- They involve members more in decision-making (Hess and Impavido, 2003:9; Choi, Laibson and Madrin, 2006:16)
- The investment risk is borne by the members and not the sponsor hence members take all possible measures to avoid loss (Brady, 2009:12).
- There is lesser sponsor influence since the sponsor does not nominate majority of the members (Yang, 2005:34).
- There is more transparency in decision-making and communication to members (Nyce, 2005:10; Clark and Mitchell, 2005:106).
- Default risk from the members is less (Yang, 2005:21).

### 3.0 RESEARCH METHODOLOGY

#### 3.1 Research Design

A mixed research design that combined quantitative and qualitative approaches was used. The quantitative study was conducted to determine the structure of costs incurred by the RBS and the effect that size, investment strategy, choice of service providers and design have on the cost efficiency of RBS. The information was reported using audited financial statement information for the years 2002-2015 for each of the RBS.

The qualitative study involved interviews with key informants in the Kenyan retirement benefits industry namely administrators, fund managers and custodians. Interviews were also conducted with trustees of the RBS with different levels of cost efficiency. The qualitative stage was useful to explain the results that were obtained from the quantitative study.

#### 3.2 Target Population

The first phase of the study collected data from the aggregate population of the RBS register of the RBA for each of the 14 years ending on 31 December 2015. The number of RBS that had complete data for analysis are included in table 1.

Table 1: RBS with Complete Data

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>Number of RBS</b>	<b>753</b>	<b>777</b>	<b>797</b>	<b>796</b>	<b>849</b>	<b>941</b>	<b>880</b>	<b>630</b>	<b>666</b>	<b>911</b>	<b>1074</b>	<b>1083</b>	<b>1030</b>	<b>891</b>

#### 3.3 Sampling Techniques

For the quantitative phase of the study, data was collected from all the RBS that had complete data for analysis. The sample for the primary study was determined in two steps. The first step involved a census of the service providers (administrators, custodians and fund managers) while the second stage ranked the RBS on the basis of their average cost efficiency index (operating cost to total income (including capital gains and losses)). The RBS that reported a ratio less than 1 (N=900) were deemed to be efficient while those that reported a ratio exceeding 1 (345) were deemed to be inefficient. A sample of 106 RBS was randomly picked from each of the clusters proportionately (72% efficient, n=76) and 28% inefficient, n=30).

#### 3.4 Data Collection Methods

##### 3.4.1 Secondary Data

A secondary data collection sheet was used to extract data from the financial statements of all the RBS. The instrument collected data on the number of members in the RBS, service providers serving the schemes,



contribution amounts, benefits paid, investment incomes, fees paid to investment managers, custodians, administrators, actuaries, auditors, trustees, lawyers and the RBA. Other costs for which the data was collected included; insurance covers, repairs and maintenance, taxation and procurement related costs. Data was also collected on asset values at the beginning and end of each year and disaggregated values of assets under investment (quoted and unquoted equities, offshore investments, term deposits, treasury bills and bonds, commercial papers and corporate bonds, immovable property, guaranteed funds and cash and demand deposits).

### 3.4.2 Primary Data

An interview guide was prepared based on the findings of the secondary data to collect data from the respondents in the primary study. Individual interviews (on face to face or telephone) were conducted with the service providers. Focus group discussions were allowed for the trustees but every RBS had to give one response. All in all data was collected from 19 respondents in the service provider's category and 83 RBS (The total response rate was 78%, n=83 composed of 64 RBS from the efficient dataset and 19 RBS from the inefficient dataset).

## 3.5 Data Analysis

Appropriate quantitative data approaches have been applied to fulfill the objectives of the study. Sections 3.5.1 to 3.5.3 describes these approaches.

### 3.5.1 Time Series Analysis

Data on membership, contributions, fund values, costs and investments in RBS has been described using time series trends and frequency distribution tables.

### 3.5.2 Vertical Analysis

The structure of costs of the RBS is determined by use of vertical analysis complemented by the use of time series analysis and descriptive statistics.

### 3.5.3 Tests of Differences in Means

To determine the effect of size, investment strategy, design and choice of service providers' on cost efficiency of RBS tests of differences in means were conducted. Analysis of Variances (ANOVA) was complemented by Post Hoc tests to explain the variances and test the hypotheses accordingly at a statistical significance level of 0.05. Table 2 shows the proxies that were used to measure the variables of interest.

Table 2: Proxies Used in the Determination of Variables

Variable	Proxy Used	Comment
<i>Cost Efficiency</i>	(a) $\text{Average Operating Costs} / \text{Average Investment Income}$  (b) $(\text{Average Operating Costs} + \text{Average Benefits}) / (\text{Average Investment Income} + \text{Average Contributions})$  (c) $\text{Average Operating Costs} / (\text{Average Investment Income} + \text{Average Capital Gains (Loss)})$  (d) $\text{Average Operating Costs} / \text{Average Number of Members}$  (e) Average Operating Cost per RBS	<p>The ratio of operating costs to investment income assesses the ability of the RBS to meet its operating costs from the investment income earned.</p> <p>The ratio of operating costs + benefits to investment income + contributions evaluates the ability of the RBS to meet all its costs from the total income it collects.</p> <p>The ratio of operating costs to investment income + capital gains (losses) assesses the long-term operational cost sustainability.</p> <p>The ratio of operating costs to the number of members assesses the RBS ability to manage the cost per member.</p> <p>The average operating cost per RBS is an indicator of the cost of running the RBS. The average numbers relate to an average of 14 years starting 2002 and ending 2015.</p>
<i>Size of RBS</i>	14 year average number of members in the RBS 14 year average fund value of the RBS	
<i>Investment strategy</i>	Guaranteed fund Aggregate funds	The choice of this proxy is based on the need to evaluate cost efficiency of RBS that are passively managed relative to those that are actively managed.
<i>Service Providers</i>	Administrators of RBS (coded) Custodians of RBS (coded) Fund Managers of RBS (coded)	The administrators, custodians and fund managers are the main service providers to RBS.
<i>RBS Design</i>	Defined Benefit or Defined Contribution Pension Scheme or Provident Fund	The choice of these proxies are based on the two prevalent designs of RBS

## 4.0 FINDINGS

### 4.1 Total Membership

Overall membership of the RBS grew from 94,720 members in 2002 to 2,512,774 in 2015. The largest growth was reported in 2014 and 2015 as indicated in figure 2.

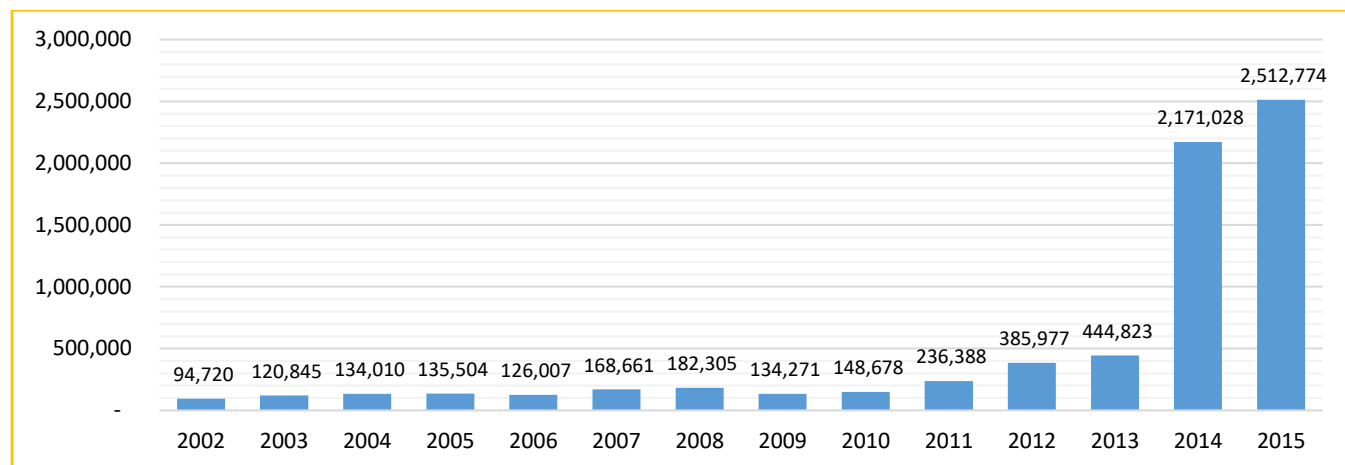


Figure 2: Total Membership in RBS

Additional analysis on the membership in RBS presented in table 3 shows that in 2002, most of the schemes (80.3%, n=348) had less than 167 members while in 2015 most of the schemes (71%, n=581) had 55 members or more.

Table 3: Frequency Distribution of the members in RBS

Total Membership	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 17	100	115	119	111	117	143	127	81	82	88	105	101	91	70
18 - 32	74	91	92	111	125	106	109	78	75	107	117	109	92	73
33 - 54	74	79	78	87	86	108	107	84	91	111	123	115	124	92
55 - 90	50	67	69	96	93	109	108	83	72	97	140	149	129	117
91 - 167	50	69	87	72	81	91	98	70	79	115	146	156	144	127
168 - 397	46	67	69	65	71	101	96	71	71	98	143	156	167	160
398+	39	43	50	50	55	76	87	61	69	109	175	192	199	177
Missing	320	246	233	204	221	207	148	102	127	186	125	105	84	75
<b>Total</b>	<b>753</b>	<b>777</b>	<b>797</b>	<b>796</b>	<b>849</b>	<b>941</b>	<b>880</b>	<b>630</b>	<b>666</b>	<b>911</b>	<b>1074</b>	<b>1083</b>	<b>1026</b>	<b>887</b>

From the individual interviews conducted with the service providers, the growth of membership in RBS was attributed to increased sensitization by RBA on the need for employers to set up RBS, simplified processes of establishing RBS, allowance for transfer of benefits from one RBS to another and the need for employers to respond to the needs of employees' retirement benefit needs.

## 4.2 Contributions Made to RBS

### 4.2.1 Total Contributions to RBS

Annual contribution amounts made to the RBS increased from Ksh.7.5B in 2002 to Ksh. 68.4B in 2015. There was however a slight drop in 2008 to 2010 as indicated in figure 3.

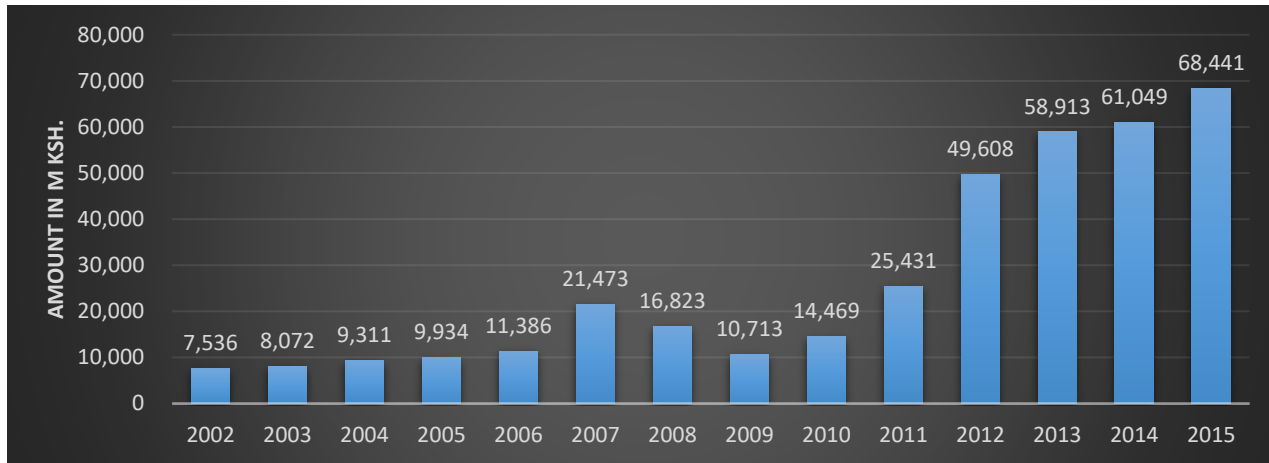


Figure 3: Contribution Amounts

Additional analysis on the annual contributions made to RBS presented in table 4 shows that most of the RBS were receiving contributions that were less than Ksh. 48M (96.4% in 2002, n=636; 80.6%, n=715 in 2015). Notably, the number of RBS receiving annual contributions exceeding Ksh. 119M increased over the period of study.

Table 4: Frequency Distribution of the Contribution Amounts

Contribution Amount	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 2M	398	398	382	357	350	349	300	197	191	230	237	235	209	154
2M - 25M	305	327	355	370	417	467	448	350	372	523	600	577	529	442
25M - 48M	23	28	29	36	42	62	63	38	47	62	77	99	103	119
48M - 72M	8	4	8	8	10	20	18	19	21	33	56	55	67	50
72M - 95M	6	6	5	5	6	12	13	5	2	19	28	31	25	32
95M - 119M	1	1	3	4	5	3	8	3	7	8	13	9	17	16
119M+	12	13	15	16	19	28	30	18	26	36	63	77	80	78
<b>Total</b>	<b>753</b>	<b>777</b>	<b>797</b>	<b>796</b>	<b>849</b>	<b>941</b>	<b>880</b>	<b>630</b>	<b>666</b>	<b>911</b>	<b>1074</b>	<b>1083</b>	<b>1026</b>	<b>887</b>

### 4.2.2 Annual Contribution per Member

The average annual contributions per member RBS reduced from Ksh.79,561 in 2002 to Ksh.27,225 in 2015 as indicated in figure 4 indicating a growth in the number of members joining RBS but a reduction in the average annual contribution.

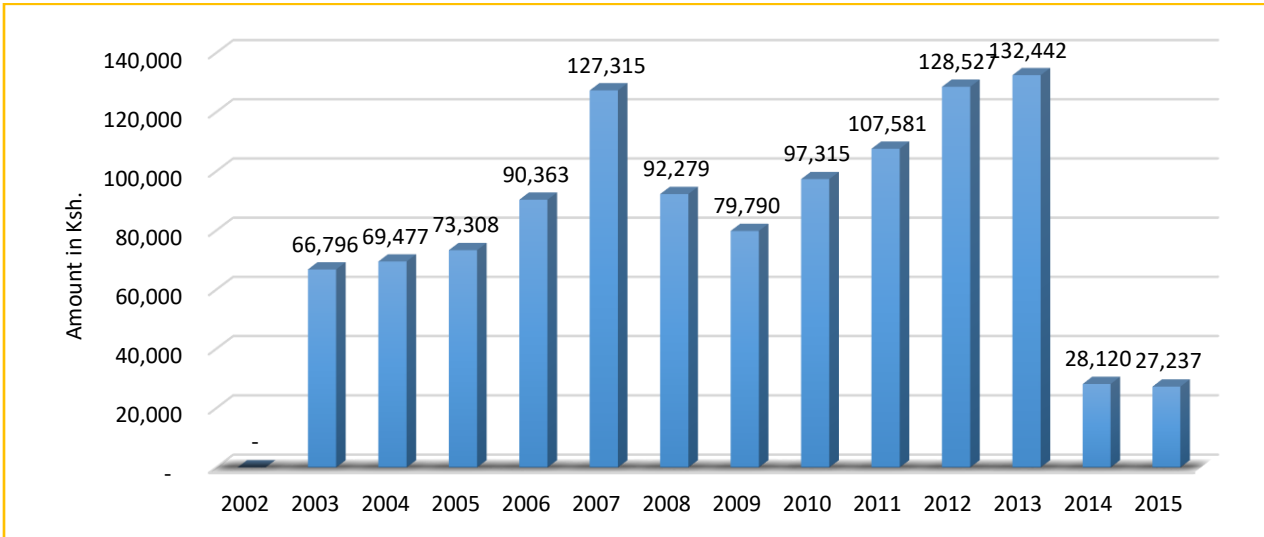


Figure 4: Total Annual Contribution to RBS per Member

### 4.2.3 Annual Contribution per RBS.

The average annual contributions per RBS increased from Ksh. 10.5M in 2002 to Ksh. 80.6M in 2015 as indicated in figure 5.

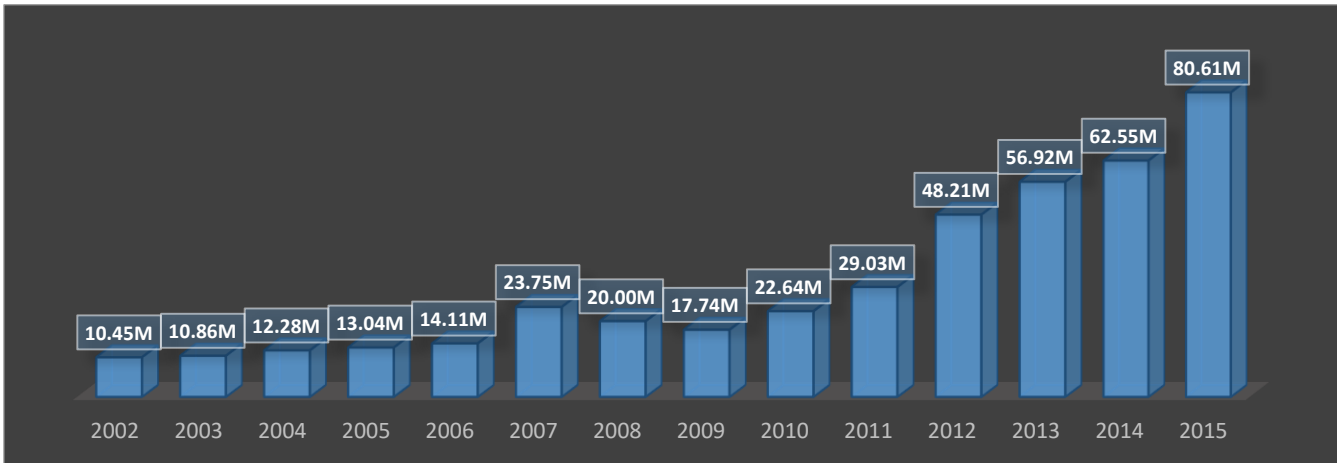


Figure 5: Annual Contribution per RBS

## 4.3 Fund Value at Year End

### 4.3.1 Total Value of Assets Held by RBS

The value of assets held by RBS increased from Ksh. 44.6B in 2002 to Ksh. 685.5B in 2015. There was however, a drop in 2008 and 2009 of 28% and 31% respectively as indicated in figure 6.

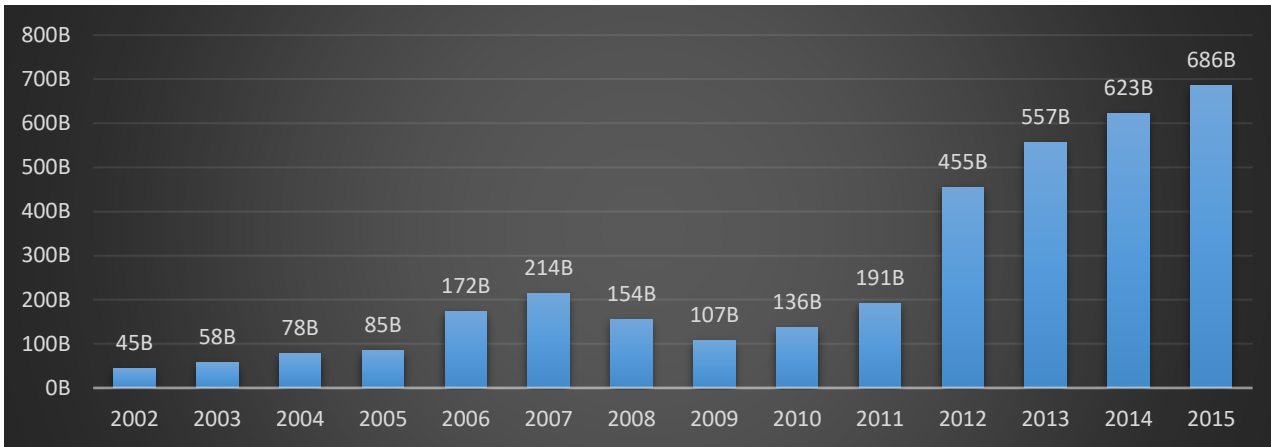


Figure 6: Asset Values held by RBS

Additional analysis in table 5 shows that 90% (n=677) of the RBS had asset values less than Ksh. 672M in 2012, the number of RBS with asset values less than Ksh. 672M were 77% (n=686) in 2015. Notably, the number of schemes with assets exceeding Ksh. 1B increased from 5 in 2002 to 86 in 2015.

Table 5: Frequency Distribution of the Asset Values Held by RBS:

Fund value at year end/Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 10M	372	359	342	318	288	290	224	129	114	147	148	119	99	66
10M - 341M	296	331	374	401	467	544	559	440	463	611	706	719	650	560
341M - 672M	9	11	9	11	16	29	26	26	30	47	65	73	76	70
672M - 1,003M	4	5	8	7	4	12	9	5	9	12	30	30	36	29
1,003M - 1,334M	1	1	2	3	4	5	6	4	3	5	10	20	16	16
1,334M - 1,665M	0	1	0	2	4	1	4	2	2	1	5	6	13	11
1,665M - 1,996M	0	0	2	0	2	3	2	1	1	4	3	7	7	8
1,996M - 2,327M	1	2	1	1	0	2	1	2	4	2	3	2	7	7
2,327M+	3	4	8	9	10	10	14	8	12	17	33	38	36	38
Missing	67	63	51	44	54	45	35	13	28	65	71	69	90	86
<b>Total</b>	<b>753</b>	<b>777</b>	<b>797</b>	<b>796</b>	<b>849</b>	<b>941</b>	<b>880</b>	<b>630</b>	<b>666</b>	<b>911</b>	<b>1074</b>	<b>1083</b>	<b>1026</b>	<b>887</b>

#### 4.3.2 Fund Value per Member

Figure 7 shows that the average asset value per member of RBS decreased from Ksh.472,045 in 2002 to Ksh.273,627 in 2015.

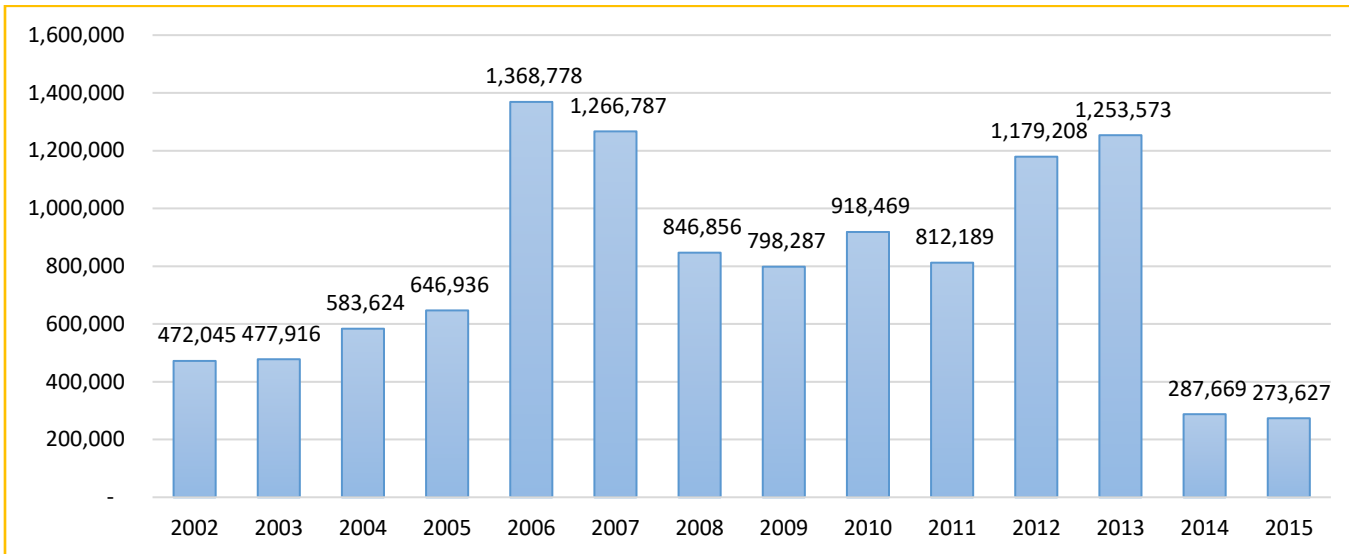


Figure 7: Fund Value Per Member

### 4.3.3 Fund Value per RBS

Figure 8 shows that the fund value per RBS increased consistently from Ksh. 65M in 2002 to Ksh. 852M in 2015 despite a slight reduction between 2008 and 2011.

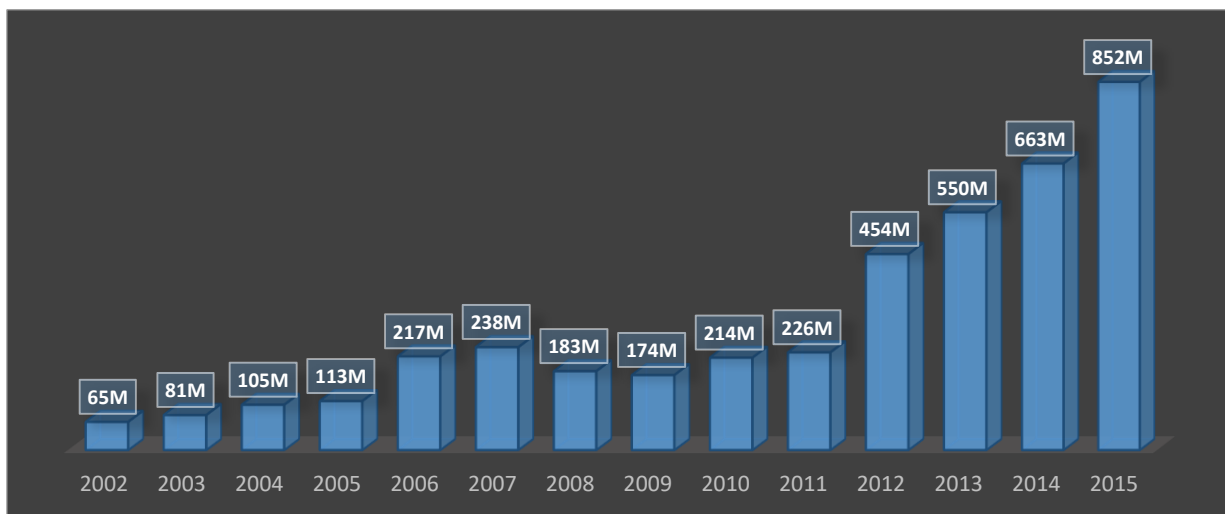


Figure 8: Average Fund Values Per RBS

## 4.4 Investments

Table 6: Asset Values Held By RBS (2002-2008)

Investment\Year		2002	2003	2004	2005	2006	2007	2008
<b>Aggregate Funds</b>								
Quoted Equities	Sum	63,938M	5,464M	9,243M	14,314M	56,251M	72,347M	33,979M
	Mean	85M	7M	12M	18M	66M	77M	39M
	SDev	2,263M	48M	78M	118M	1,335M	1,435M	210M
Unquoted Equities	Sum	54,622M	234M	1,052M	1,318M	1,925M	1,909M	1,880M
	Mean	73M	0M	1M	2M	2M	2M	2M

Investment\Year		2002	2003	2004	2005	2006	2007	2008
Offshore Investments	SDev	1,982M	7M	23M	30M	49M	47M	41M
	Sum	1,023M	1,200M	2,900M	4,561M	4,191M	7,604M	4,071M
	Mean	1M	2M	4M	6M	5M	8M	5M
	SDev	9M	12M	36M	51M	45M	62M	31M
Term Deposit	Sum	4,993M	2,721M	4,407M	4,597M	3,626M	6,730M	8,074M
	Mean	7M	4M	6M	6M	4M	7M	9M
	SDev	87M	38M	43M	46M	28M	51M	59M
Treasury Bonds	Sum	4,899M	8,171M	12,545M	14,639M	21,562M	26,980M	16,387M
	Mean	7M	11M	16M	18M	25M	29M	19M
	SDev	38M	62M	85M	108M	257M	377M	102M
Treasury Bills	Sum	3,108M	1,284M	2,587M	2,564M	3,082M	6,316M	3,718M
	Mean	4M	2M	3M	3M	4M	7M	4M
	SDev	42M	13M	51M	54M	34M	76M	73M
Treasury Bills & Bonds	Sum	7,720M	8,710M	11,510M	13,266M	10,345M	20,820M	24,233M
	Mean	10M	11M	14M	17M	12M	22M	28M
	SDev	127M	155M	190M	202M	99M	223M	241M
Commercial Papers	Sum	667M	690M	920M	1,236M	1,248M	1,603M	1,801M
	Mean	1M	1M	1M	2M	1M	2M	2M
	SDev	5M	5M	8M	13M	12M	11M	11M
Corporate Bonds	Sum	655M	827M	1,409M	1,605M	1,237M	1,340M	1,130M
	Mean	1M	1M	2M	2M	1M	1M	1M
	SDev	14M	17M	27M	30M	21M	22M	13M
Commercial Papers and Bonds	Sum	9,727M	10,728M	10,101M	11,113M	15,436M	23,150M	10,211M
	Mean	13M	14M	13M	14M	18M	25M	12M
	SDev	180M	229M	143M	145M	300M	329M	139M
Immovable Property	Sum	9,180M	9,993M	9,074M	8,054M	38,451M	33,190M	23,629M
	Mean	12M	13M	11M	10M	45M	35M	27M
	SDev	233M	233M	219M	181M	1,074M	973M	584M
Cash and Demand Deposits	Sum	709M	424M	272M	204M	159M	400M	780M
	Mean	1M	1M	0M	0M	0M	0M	1M
	SDev	14M	8M	6M	2M	2M	4M	13M
<b>Total Aggregate Funds</b>		<b><u>151,513M</u></b>	<b><u>39,718M</u></b>	<b><u>55,919M</u></b>	<b><u>66,358M</u></b>	<b><u>142,076M</u></b>	<b><u>179,240M</u></b>	<b><u>119,682M</u></b>
<b>Guaranteed Funds</b>	Sum	11,156M	13,689M	14,434M	18,217M	21,816M	30,184M	33,848M
	Mean	15M	18M	18M	23M	26M	32M	38M
	SDev	41M	47M	41M	76M	65M	83M	96M
<b>Count</b>		<b>753</b>	<b>777</b>	<b>797</b>	<b>796</b>	<b>849</b>	<b>941</b>	<b>880</b>
<b>Total Funds</b>		<b><u>162,669M</u></b>	<b><u>53,408M</u></b>	<b><u>70,353M</u></b>	<b><u>84,575M</u></b>	<b><u>163,893M</u></b>	<b><u>209,424M</u></b>	<b><u>153,530M</u></b>

Table 6 shows that in 2002, 37.1% of the total funds invested were in quoted equity and 31.7% on unquoted securities. Corporate Bonds and commercial papers were the least invested with 0.4%. In 2003, schemes invested in Cash and cash deposits with Ksh.13.7B traded, while unquoted equities were least invested at Ksh.234M. In



2004 and 2005, Guaranteed Funds and treasury bonds were the preferred investment options, while Cash and Demand Deposits were the least option for the years. In 2006, 31.4% of the RBS invested in Quoted securities and immovable property (21.4%) while 0.1% of the schemes invested in immovable property.

Table 6 further shows that 31.1% and 20.8% of the total funds were invested in quoted equity in 2007 and 2008 respectively. During the period, immovable property contributed an average of 16% of the total funds and Guaranteed Funds contributed 20% of the total funds invested. However, cash and Demand Deposits were least invested with an average of 0.4%.

Table 7: Asset Values Held by RBS (2009-2015)

Investment\Year		2009	2010	2011	2012	2013	2014	2015
<b>Aggregate Funds</b>								
Quoted Equities	Sum	16,208M	25,251M	36,761M	112,679M	162,739M	168,608M	169,587M
	Mean	26M	38M	40M	105M	150M	164M	191M
	SDev	127M	173M	244M	1,533M	1,672M	1,830M	2,089M
Unquoted Equities	Sum	1,081M	273M	463M	3,087M	3,556M	5,596M	5,852M
	Mean	2M	0M	1M	3M	3M	5M	7M
	SDev	35M	7M	9M	55M	62M	86M	95M
Offshore Investments	Sum	1,841M	2,906M	5,062M	7,920M	14,974M	11,451M	6,446M
	Mean	3M	4M	6M	7M	14M	11M	7M
	SDev	16M	26M	72M	72M	104M	86M	86M
Term Deposit	Sum	4,772M	6,437M	15,332M	26,463M	27,405M	28,287M	30,225M
	Mean	8M	10M	17M	25M	25M	28M	34M
	SDev	77M	58M	128M	165M	152M	134M	183M
Treasury Bonds	Sum	17,250M	15,370M	24,522M	72,578M	105,667M	104,316M	96,839M
	Mean	27M	23M	27M	68M	98M	102M	109M
	SDev	171M	130M	182M	817M	1,049M	1,197M	1,333M
Treasury Bills	Sum	49M	1,244M	6,004M	13,155M	16,510M	20,292M	18,302M
	Mean	0M	2M	7M	12M	15M	20M	21M
	SDev	1M	45M	96M	122M	124M	198M	244M
Treasury Bills & Bonds	Sum	11,767M	16,461M	33,595M	54,133M	52,896M	59,051M	61,921M
	Mean	19M	25M	37M	50M	49M	58M	70M
	SDev	147M	186M	281M	338M	312M	401M	463M
Commercial Papers	Sum	1,376M	3,337M	7,672M	16,003M	19,370M	19,230M	27,721M
	Mean	2M	5M	8M	15M	18M	19M	31M
	SDev	9M	24M	46M	99M	147M	135M	323M
Corporate Bonds	Sum	906M	2,987M	6,037M	7,898M	6,684M	10,869M	8,926M
	Mean	1M	4M	7M	7M	6M	11M	10M
	SDev	14M	51M	72M	77M	69M	98M	101M
	Sum	1,148M	8,869M	33,725M	49,268M	59,686M	84,490M	88,307M

Investment\Year		2009	2010	2011	2012	2013	2014	2015
Commercial Papers and Bonds	Mean	2M	13M	37M	46M	55M	82M	100M
	SDev	14M	195M	461M	538M	617M	823M	911M
Immovable Property	Sum	23,825M	27,609M	35,014M	49,756M	102,465M	115,411M	112,631M
	Mean	38M	41M	38M	46M	95M	112M	127M
	SDev	699M	692M	721M	693M	1,416M	1,483M	1,528M
Cash and Demand Deposits	Sum	866M	359M	1,145M	3,992M	3,586M	6,637M	4,469M
	Mean	1M	1M	1M	4M	3M	6M	5M
	SDev	21M	7M	26M	66M	76M	119M	78M
<b>Total Aggregate Funds</b>		<b>79,942M</b>	<b>102,235M</b>	<b>171,607M</b>	<b>367,665M</b>	<b>515,852M</b>	<b>549,746M</b>	<b>542,921M</b>
<b>Guaranteed Funds</b>	Sum	25,317M	34,134M	47,727M	76,954M	90,582M	99,370M	126,477M
	Mean	40M	51M	52M	72M	84M	97M	143M
	SDev	93M	157M	160M	224M	259M	307M	935M
	<b>Count</b>	<b>630</b>	<b>666</b>	<b>911</b>	<b>1074</b>	<b>1083</b>	<b>1026</b>	<b>887</b>
<b>Total Funds</b>		<b>105,258M</b>	<b>136,368M</b>	<b>219,334M</b>	<b>444,618M</b>	<b>606,434M</b>	<b>649,116M</b>	<b>669,398M</b>

Table 7 shows that between 2012 and 2015, schemes invested in Quoted equities and invested least on Cash and Demand Deposits. Other investments include; guaranteed funds, and Treasury bonds in 2013.

Discussions with service providers attributed the growth in fund assets to firm regulation by the RBA on the asset classes to invest in, regulation of service providers and the growing potential of the Kenyan financial markets.

#### 4.4.1 Value of Assets Held in Guaranteed Funds

Total funds invested in guaranteed funds increased from Ksh. 1.1B in 2002 to Ksh. 11.9B in 2015. There was however, a drop in 2011 as indicated in figure 9.

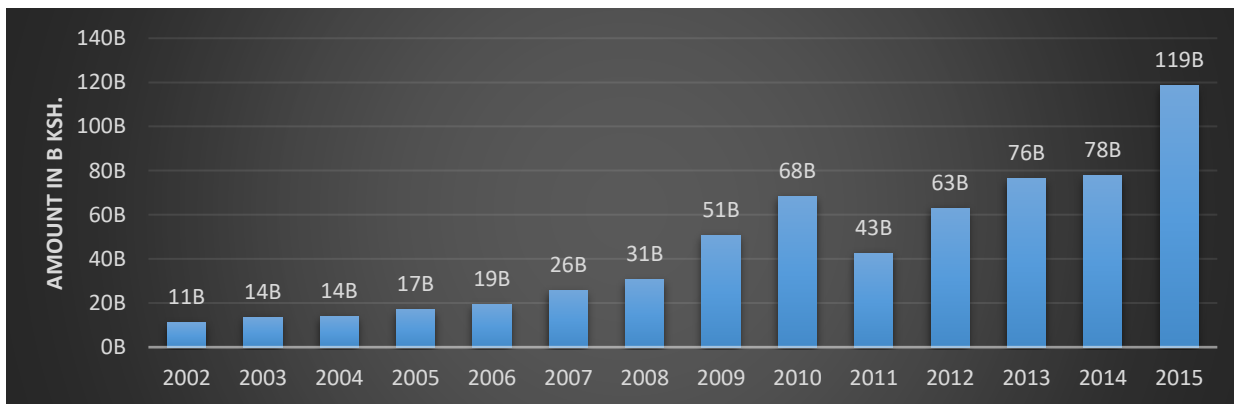


Figure 9: Values of Assets in Guaranteed Funds

Table 8 shows that the guaranteed funds per scheme were less than Ksh. 61M in all the years. RBS that invested over Ksh. 420M in guaranteed funds increased from consistently to 51 in 2015.

Table 8: Frequency Distribution of RBS Investments in Guaranteed Funds

Guaranteed Funds	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 10M	327	319	306	294	262	259	206	122	107	132	133	102	82	54
10M - 61M	157	178	190	216	258	302	305	247	258	319	353	327	266	202
61M - 112M	22	26	37	33	39	50	54	39	53	90	100	108	101	104
112M - 164M	10	9	13	13	19	23	25	19	18	29	48	64	58	41
164M - 215M	4	7	6	9	5	12	18	13	15	20	26	25	55	43
215M - 266M	4	5	5	2	7	8	7	5	11	5	13	17	15	33
266M - 420M	1	2	5	7	7	12	14	13	9	25	27	32	31	28
420M+	1	2	0	3	7	9	11	6	13	16	35	44	50	51
<b>Total</b>	<b>526</b>	<b>548</b>	<b>562</b>	<b>577</b>	<b>604</b>	<b>675</b>	<b>640</b>	<b>464</b>	<b>484</b>	<b>636</b>	<b>735</b>	<b>719</b>	<b>658</b>	<b>556</b>

Figure 10 shows that the fund values in guaranteed funds per RBS increased from Ksh. 24M in 2002 to Ksh. 210M in 2015.

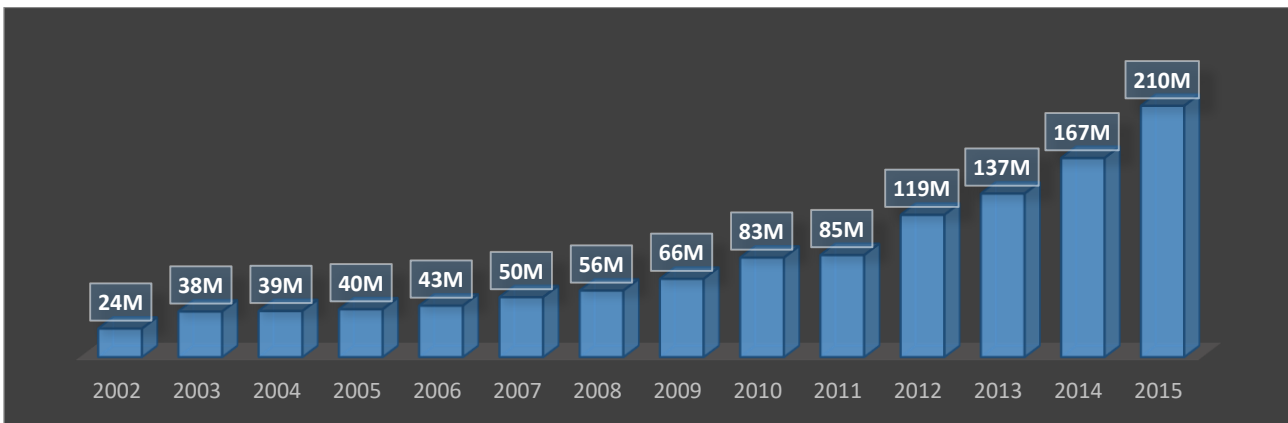


Figure 10: Guaranteed Funds per RBS

On the other hand the asset values invested in RBS per member increased from Ksh. 377,954 in 2002 to Ksh. 598,287 in 2015.

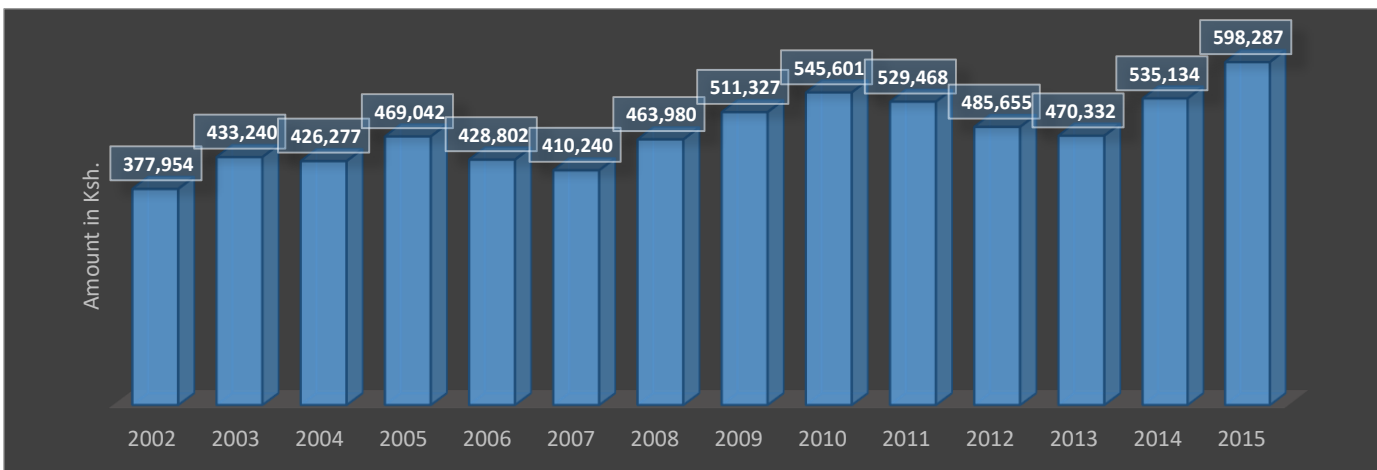


Figure 11: Investment Per Member in Guaranteed Funds

### 4.4.2 Aggregate Funds

Out of the total investments made by RBS, the aggregate RBS had over 95% of total assets. The values increased from Ksh. 161,240M in 2002 to Ksh. 631,234M in 2015. A reduction was however noted in the years 2009-2011.

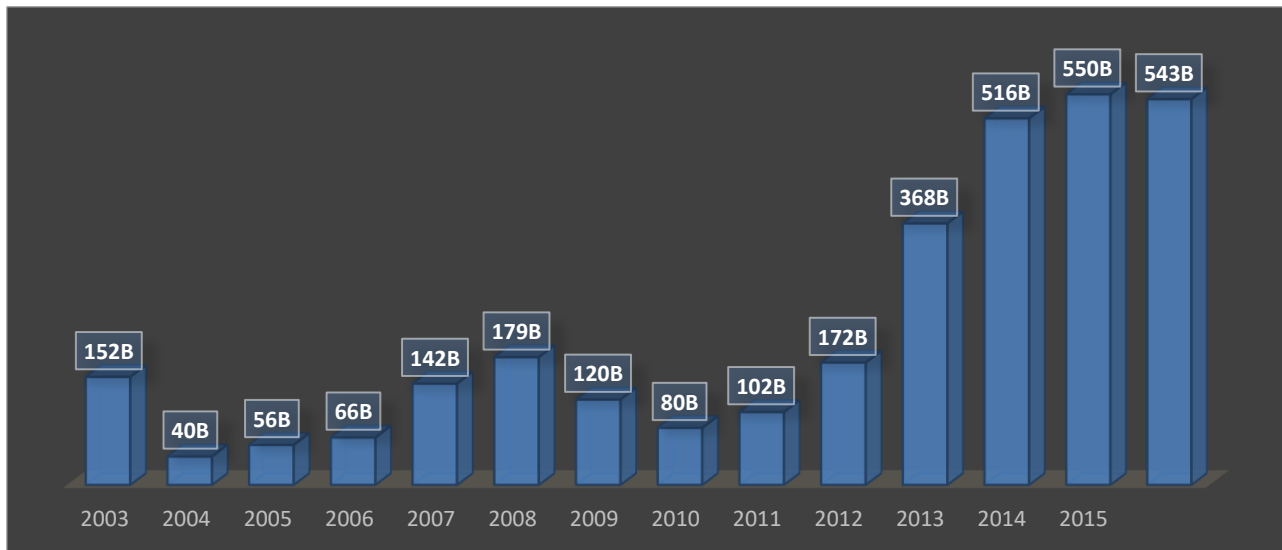


Figure 12: Aggregate Funds

### 4.4.3 Comparison of Aggregate and Guaranteed Funds

#### 4.1.1.1 Investment

Figure 13 shows that the aggregate funds contributed an average of 78% of the total asset values. However, there has been a drop from 94% of the funds in 2002 to 78% in 2015.

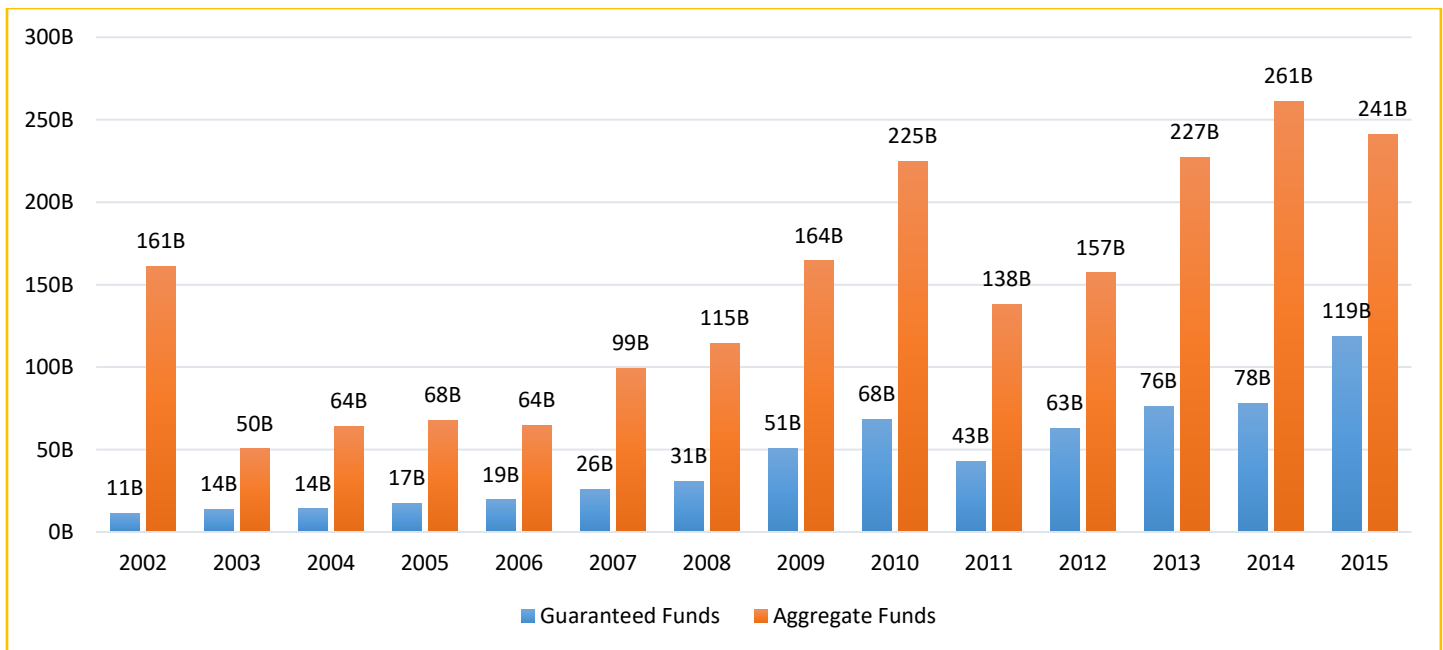


Figure 13: Comparison of Investments in Guaranteed Funds and Aggregate Funds

Discussions with the service providers established that many RBS were torn between investments in guaranteed funds and aggregate funds, forcing some RBS to use a combined strategy that involves investing some funds in guaranteed funds and leaving out another proportion as an aggregate fund. The arguments in favour of guaranteed RBS were the need to preserve capital, the shift of investment risk to the insurance company, minimization of administration costs and better rates of return during periods of low market performance.

Arguments against guaranteed RBS emerged from discussion with trustees who argued that they lose the right to participate in decision making especially with regard to ethical investments, get worse returns during good market years, they offer conservatively low returns, absence of regulation to specifically govern guaranteed investments for retirement benefit assets and the failure of insurance companies to review their annual rates of return significantly over the years.

#### 4.5 Structure of Costs of RBS

Tables 9, 10 and 11 shows the costs and percentage relative to total costs for the years 2002 to 2015.

Table 9: Costs Incurred by RBS (2002-2006) in Millions of Ksh.

Costs	2002		2003		2004		2005		2006	
Investment Management fees	89.52	18.1%	120.34	19.9%	172.77	10.4%	2,243.80	58.6%	900.81	16.9%
Custodial fees	39.96	8.1%	62.26	10.3%	84.74	5.1%	82.90	2.2%	113.03	2.1%
Administrator fees	92.07	18.6%	112.47	18.6%	81.60	54.9%	166.50	4.3%	2,895.79	54.4%
Actuarial fees	20.26	4.1%	14.70	2.4%	19.26	1.2%	9.16	0.2%	8.40	0.2%
Audit fee	26.60	5.4%	28.78	4.8%	953.05	7.4%	941.58	24.6%	41.70	0.8%
Trustee fees	18.29	3.7%	15.13	2.5%	23.61	1.4%	27.33	0.7%	24.25	0.5%
Legal fees	3.84	0.8%	6.52	1.1%	3.27	0.2%	0.68	0.0%	1.55	0.0%
RBA Levy	83.24	16.8%	88.74	14.7%	115.46	7.0%	116.70	3.0%	139.44	2.6%
Insurance Covers	4.45	0.9%	6.77	1.1%	4.96	0.3%	6.39	0.2%	8.46	0.2%
Repair and Maintenance	2.75	0.6%	8.18	1.4%	19.78	1.2%	7.54	0.2%	42.94	0.8%
Procurement Related Expense	0.24	0.0%	0.07	0.0%	0.21	0.0%	0.01	0.0%	0.18	0.0%
Others	89.64	18.1%	88.61	14.7%	149.00	9.0%	177.32	4.6%	164.17	3.1%
Taxation	23.58	4.8%	51.44	8.5%	31.75	1.9%	48.65	1.3%	978.40	18.4%
<b>Total Costs</b>	<b>494.42</b>	<b>100%</b>	<b>604.00</b>	<b>100%</b>	<b>1,659.45</b>	<b>100%</b>	<b>3,828.56</b>	<b>100%</b>	<b>5,319.13</b>	<b>100%</b>

Table 9 shows that in 2002 and 2003 Administrator fee and Investment fees amounted to 36.7% and 38.5% of total costs. In 2004, administration fees contributed 54.9% of total costs for the year. Investment Management fees and administrator fee contributed 58.6% and 54.4% of total costs in 2005 and 2006 respectively. Procurement related expenses contributed less than 1% of total costs.

Table 10: Costs Incurred by RBS (2007-2011) in Millions of Ksh.

Costs	2007	2008	2009	2010	2011
-------	------	------	------	------	------

<b>Investment Management fees</b>	298.84	5.1%	<b>342.71</b>	22.3%	<b>212.27</b>	21.9%	<b>306.20</b>	21.8%	445.00	16.6%
<b>Custodial fees</b>	165.68	2.8%	173.61	11.3%	104.10	10.7%	121.28	8.6%	207.42	7.7%
<b>Administrator fees</b>	<b>3,834.26</b>	65.8%	205.41	13.3%	136.52	14.1%	161.91	11.5%	246.82	9.2%
<b>Actuarial fees</b>	20.91	0.4%	29.73	1.9%	14.77	1.5%	15.64	1.1%	16.73	0.6%
<b>Audit fee</b>	56.96	1.0%	56.41	3.7%	36.68	3.8%	43.31	3.1%	61.55	2.3%
<b>Trustee fees</b>	36.04	0.6%	57.68	3.7%	58.90	6.1%	59.53	4.2%	101.12	3.8%
<b>Legal fees</b>	4.61	0.1%	<b>3.50</b>	<b>0.2%</b>	12.87	1.3%	<b>9.51</b>	<b>0.7%</b>	<b>13.90</b>	<b>0.5%</b>
<b>RBA Levy</b>	185.32	3.2%	201.17	13.1%	145.41	15.0%	170.09	12.1%	272.08	10.1%
<b>Insurance Covers</b>	25.60	0.4%	33.89	2.2%	20.71	2.1%	26.16	1.9%	32.14	1.2%
<b>Repair and Maintenance</b>	16.32	0.3%	37.26	2.4%	<b>11.81</b>	<b>1.2%</b>	17.05	1.2%	41.93	1.6%
<b>Procurement Related Expense</b>	<b>1.68</b>	<b>0.0%</b>	30.91	2.0%	20.02	2.1%	213.54	15.2%	139.39	5.2%
<b>Others</b>	140.12	2.4%	212.72	13.8%	113.42	11.7%	99.90	7.1%	533.24	19.9%
<b>Taxation</b>	1,041.95	17.9%	154.67	10.0%	83.74	8.6%	162.92	11.6%	<b>571.68</b>	21.3%
<b>Total Costs</b>	<b>5,828.29</b>	100%	<b>1,539.67</b>	100%	<b>971.22</b>	100%	<b>1,407.04</b>	100%	<b>2,683.03</b>	100%

Table 10 shows that administrator fee constituted 65.8% of total costs for 2007, investment Management fees 22% of total costs in 2008 to 2010. In 2011, taxation contributed 21.3% of total costs.

Table 11: Costs Incurred by RBS (2012-2015) in Millions of Ksh.

Costs	2012		2013		2014		2015	
<b>Investment Management fees</b>	767.97	16.1%	1,035.60	8.4%	1,218.01	9.5%	1,207.00	17.1%
<b>Custodial fees</b>	341.05	7.1%	484.23	3.9%	606.74	4.7%	531.86	7.5%
<b>Administrator fees</b>	<b>1,198.51</b>	25.1%	<b>4,813.56</b>	39.2%	<b>4,125.02</b>	32.2%	975.30	13.8%
<b>Actuarial fees</b>	36.77	0.8%	54.19	0.4%	60.63	0.5%	<b>33.24</b>	<b>0.5%</b>
<b>Audit fee</b>	97.16	2.0%	115.29	0.9%	117.83	0.9%	109.62	1.6%
<b>Trustee fees</b>	183.13	3.8%	255.02	2.1%	559.81	4.4%	687.56	9.7%
<b>Legal fees</b>	387.37	8.1%	208.97	1.7%	154.35	1.2%	191.04	2.7%
<b>RBA Levy</b>	478.81	10.0%	510.99	4.2%	567.73	4.4%	566.72	8.0%
<b>Insurance Covers</b>	77.50	1.6%	125.51	1.0%	138.63	1.1%	83.11	1.2%
<b>Repair and Maintenance</b>	119.17	2.5%	201.04	1.6%	375.07	2.9%	305.33	4.3%
<b>Procurement Related Expense</b>	<b>3.78</b>	<b>0.1%</b>	<b>7.57</b>	<b>0.1%</b>	<b>6.69</b>	<b>0.1%</b>	187.18	2.6%
<b>Others</b>	432.51	9.1%	2,806.62	22.9%	3,132.12	24.5%	<b>1,310.28</b>	18.5%
<b>Taxation</b>	646.64	13.6%	1,649.94	13.4%	1,734.52	13.6%	875.55	12.4%
<b>Total Costs</b>	<b>4,770.37</b>	100%	<b>12,268.52</b>	100%	<b>12,797.13</b>	100%	<b>7,063.80</b>	100%

Table 11 shows that administrator fees contributed 25% of total costs in 2012, 39% in 2013 and 32% to 2014. In 2015, other costs and investment management fees were 36% of total costs while Actuarial fees costs were at 0.5%.

### 4.5.1 Actuarial Fees

Actuarial costs for all RBS increased from Ksh.20M in 2002 to Ksh.33M in 2015. However, the highest costs amounting to Ksh. 60M were recorded in 2014.

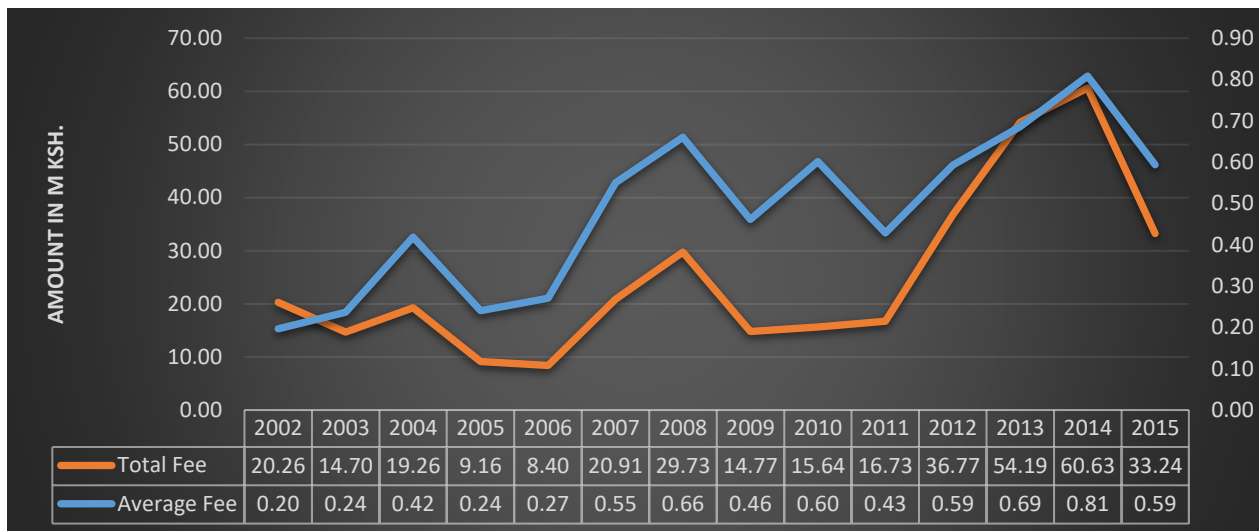


Figure 14: Actuarial Fees Incurred by RBS

The frequency distribution in table 12 shows that 73 RBS in 2002 has actuarial fees below Ksh. 100,000 which decreased to 20 RBS in 2015. However, 22 RBS had costs above Ksh. 502,000 in 2015.

Table 12: Frequency Distribution Table for Actuarial Fees

Actuarial fees (,000)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 100	73	33	17	18	11	11	12	11	7	8	25	31	40	20
100- 157	10	3	4	3	2	6	3	2	2	4	2	5	2	1
157- 215	2	5	5	3	1	4	4	1	4	7	3	7	2	0
215 - 272	3	8	5	2	1	4	2	2	2	2	2	4	3	0
272 - 330	5	3	0	1	7	0	0	0	1	1	1	4	6	5
330- 387	3	1	2	4	2	0	2	1	0	3	3	1	0	1
387- 445	1	2	1	1	0	3	4	1	2	3	0	3	1	1
445- 502	1	1	2	2	2	1	2	1	0	1	1	2	0	6
502+	5	6	10	4	5	9	16	13	8	10	25	22	21	22

### 4.5.2 Audit Fees

Total Audit fee for the RBS increased from Ksh. 26M to Ksh. 109M in 2015 as indicated in figure 17. The costs were highest in 2004 and 2005 at Ksh. 953M and Ksh. 941M respectively.

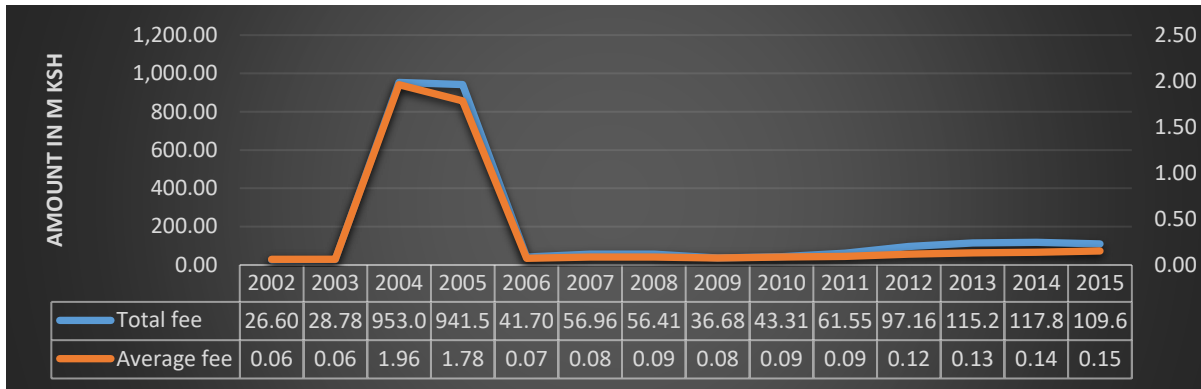


Figure 15: Audit Fees Incurred by RBS

The frequency distribution (table 13) shows that the audit fees were consistently below Ksh. 1M for the study period. About 3 RBS had audit costs above Ksh. 3M within the period.

Table 13: Frequency Distribution Table for Audit Fees

Audit fee	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 20,000	177	183	186	206	199	201	164	115	106	126	123	115	107	78
20,001 - 1M	254	277	299	320	380	470	481	365	388	543	711	751	736	641
1M - 3M	0	0	0	1	2	0	0	0	0	0	1	3	1	3
3M+	0	0	1	1	0	1	0	0	0	0	1	2	1	1

### 4.5.3 Trustee Costs

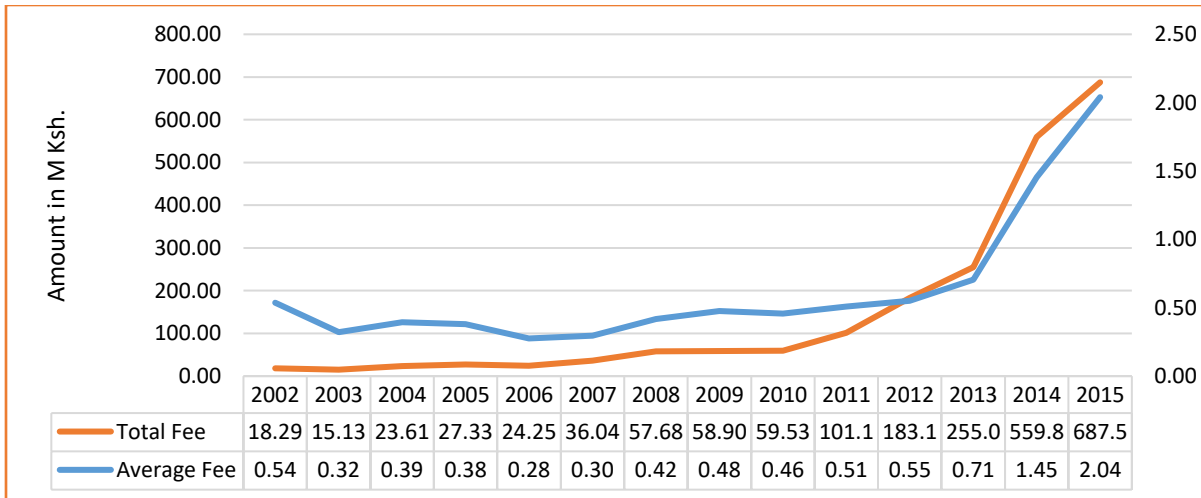


Figure 16: Trustee Costs

Figure 16 shows that over 80% of the RBS spent between Ksh. 20,000 and Ksh. 752,000 on trustee costs during the study period. In 2014 and 2015, 19% and 22% of the RBS had trustee costs above Ksh. 1M, which increased the average fees to Ksh1.45 and Ksh. 2.04M respectively. Table 14 shows the frequency distribution. Notably, the number of RBS spending more than Ksh. 2M on trustees increased consistently.

Table 14: Frequency Distribution Table for Trustee Costs



Trustee costs	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 20,000	5	3	7	9	6	14	5	3	12	16	21	30	32	27
20,001 - 751,928	26	40	48	56	76	96	114	108	106	155	266	277	281	235
751,929 - 1M	1	2	1	5	3	9	14	7	5	15	19	27	35	37
1M - 2M	0	1	2	1	2	0	1	1	1	4	12	6	16	12
2M - 2M	0	0	1	0	0	2	1	0	2	2	3	6	1	8
2M+	2	1	1	1	1	1	3	5	4	7	12	15	20	18
<b>Total</b>	<b>34</b>	<b>47</b>	<b>60</b>	<b>72</b>	<b>88</b>	<b>122</b>	<b>138</b>	<b>124</b>	<b>130</b>	<b>199</b>	<b>333</b>	<b>361</b>	<b>385</b>	<b>337</b>

#### 4.5.4 Legal Costs

Legal costs incurred by RBS for the period of study increased from Ksh. 3.8M in 2002 to Ksh. 191M in 2015 as indicated in figure 17. The number of RBS with legal costs increased by 59%. However, there was a sharp increase in 2012 amounting to Ksh.387M.

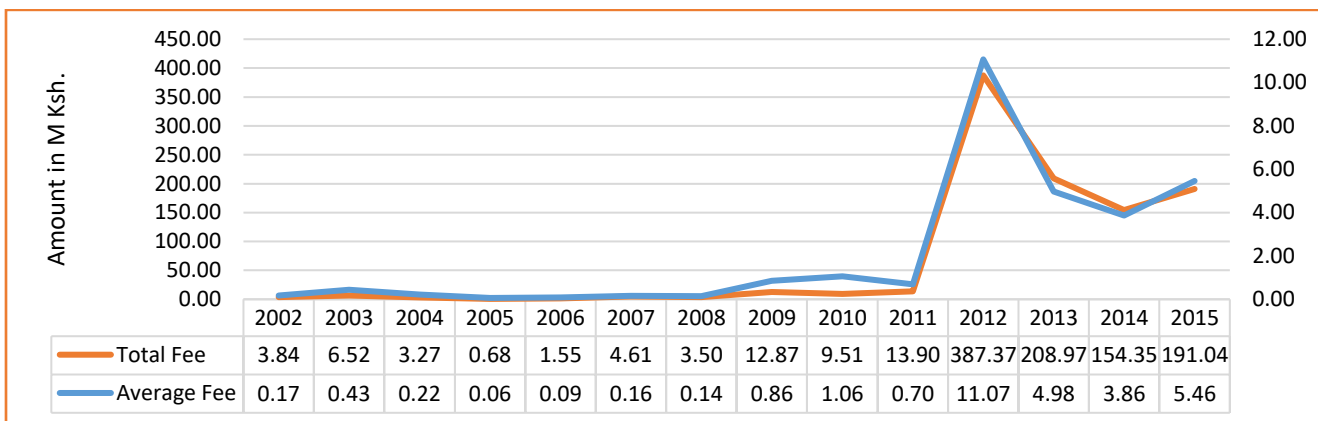


Figure 17: Legal Costs

Table 15 shows that between 2002 and 2008, most of the RBS recorded annual legal costs less than Ksh. 50,000 which increased in subsequent years to about Ksh. 700,000 in 2015. Twenty percent (n=7) of the RBS recorded legal costs in excess of Ksh. 2M in 2014 and 2015 as indicated in table 15.

Table 15: Frequency Distribution Table for Legal Costs

Legal fees	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 50,000	12	9	4	7	12	16	17	2	3	6	11	12	15	11
50,001 - 710,628	9	5	10	4	5	9	7	9	2	9	15	21	10	15
710,629 - 1M	0	0	0	0	0	3	0	1	2	1	2	1	5	2
1M - 2M	1	0	1	0	0	0	1	1	0	1	3	3	3	0
2M+	0	1	0	0	0	0	0	2	2	3	4	5	7	7
<b>Total</b>	<b>22</b>	<b>15</b>	<b>15</b>	<b>11</b>	<b>17</b>	<b>28</b>	<b>25</b>	<b>15</b>	<b>9</b>	<b>20</b>	<b>35</b>	<b>42</b>	<b>40</b>	<b>35</b>

### 4.5.5 RBA Levy

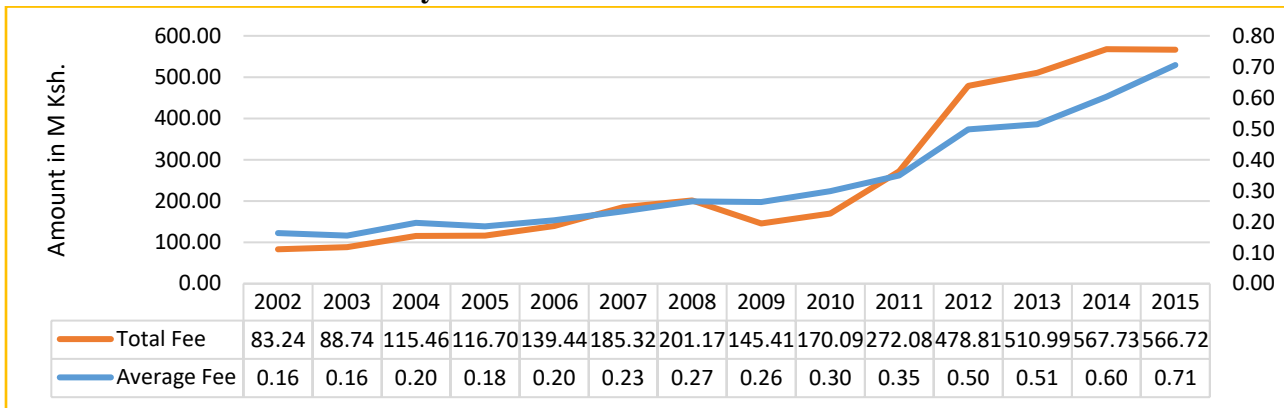


Figure 18: RBA Levy

Figure 18 shows that the RBA levy charged from the RBS increased from Ksh. 83M in 2002 to Ksh. 567M in 2015. The least amounts were recorded in 2009 and 2010. The average levy per RBS amounted to Ksh. 160,000 in 2002 and Ksh. 710,000 in 2015.

Further analysis on the RBA levy included in table 16 shows that most of the schemes paid less than Ksh. 178,000 annually.

Table 16: Frequency Distribution Table for RBA Levy

RBA Levy,(,000)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 50	341	362	364	389	385	413	368	243	210	276	291	246	215	150
50 – 178	107	123	132	137	156	193	194	165	190	261	305	312	274	238
178 - 306	24	34	28	37	54	68	66	50	54	80	106	129	106	86
306 - 435	10	11	10	20	21	28	39	26	35	37	53	59	81	60
435 - 563	6	12	12	10	16	18	14	12	13	19	42	41	41	58
563 - 691	1	6	11	5	6	14	18	11	13	19	20	23	30	25
691 - 820	3	3	2	4	3	12	6	9	6	14	19	22	17	23
820 - 948	3	2	2	5	5	6	5	7	6	10	17	22	26	18
948 - 1M	1	2	3	1	7	3	3	4	12	9	13	16	17	18
1M +	13	17	23	23	28	40	45	25	30	53	95	123	134	127
<b>Total</b>	<b>509</b>	<b>572</b>	<b>587</b>	<b>631</b>	<b>681</b>	<b>795</b>	<b>758</b>	<b>552</b>	<b>569</b>	<b>778</b>	<b>961</b>	<b>993</b>	<b>941</b>	<b>803</b>

### 4.5.6 Insurance Costs

Insurance costs increased from Ksh. 4.45M in 2002 to Ksh.83.11M in 2015. However, the costs increased significantly from 2012 and were highest in 2014 at an average of Ksh.2.67M as indicated in figure 19.

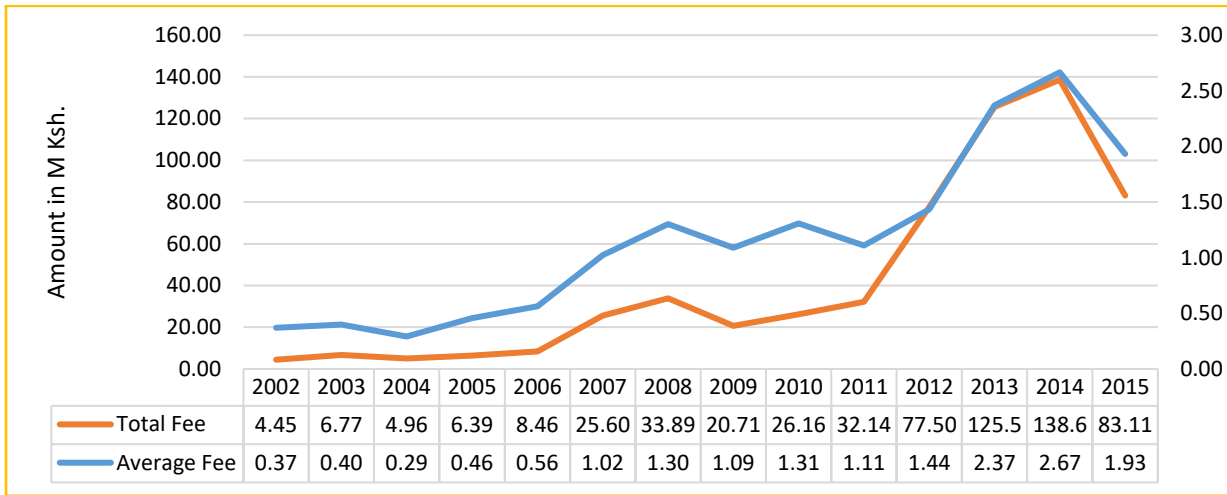


Figure 19: Insurance Costs

Table 17 shows that insurance costs were less than Ksh.135,000 for 60% of schemes. However 40% of schemes had over Ksh. 393, 000 which increased the total average cost for the period.

Table 17: Frequency Distribution Table for Insurance Costs

Insurance Covers (,000)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 50	6	6	5	4	3	6	6	6	4	8	17	12	8	8
50- 135	2	4	5	5	6	9	7	1	5	5	12	13	11	9
135 - 221	0	1	2	0	1	1	2	1	1	3	7	7	11	4
221 - 307	0	2	0	0	0	0	0	1	1	0	1	3	4	3
307 - 393	0	0	1	1	1	0	2	1	1	2	1	0	1	5
393+	4	4	4	4	4	9	9	9	8	11	16	18	17	14
<b>Total</b>	<b>12</b>	<b>17</b>	<b>17</b>	<b>14</b>	<b>15</b>	<b>25</b>	<b>26</b>	<b>19</b>	<b>20</b>	<b>29</b>	<b>54</b>	<b>53</b>	<b>52</b>	<b>43</b>

#### 4.5.7 Repair and Maintenance

Repair and maintenance costs were recorded by schemes that have invested in real estate. These costs increased from Ksh2.75M in 2002 to Ksh.305.33M in 2015 as indicated in figure 20. The costs increased significantly from 2012 and were highest in 2014 at an average of Ksh.10.42M.

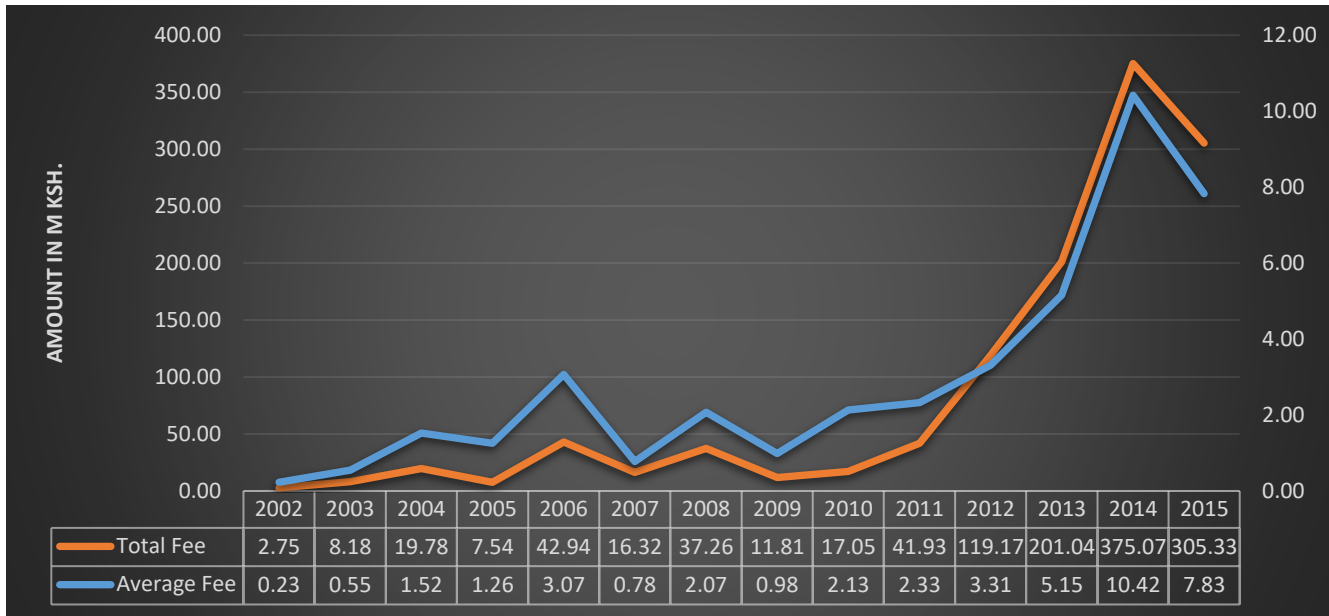


Figure 20: Repair and Maintenance Costs

The frequency distribution of the repair and maintenance costs indicated in table 18 shows that between 2002 and 2004 75% of the RBS reported less than Ksh. 546,054. In 2012 to 2015, 50% of RBS incurred more than Ksh.546,000. With 23% of the RBS having costs above Ksh. 2M.

Table 18: Frequency Distribution Table for Repair and Maintenance Costs

Repair and Maintenance	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 50,000	4	5	4	4	5	11	6	2	1	2	8	8	7	9
50,001 - 546,054	7	6	5	0	4	5	3	5	3	7	11	13	11	10
546,055 - 1M	1	0	0	0	0	3	3	2	0	3	4	3	6	3
1M - 1.5M	0	2	1	1	0	0	0	2	2	1	2	3	0	6
1.5M - 2M	0	1	0	0	1	0	3	0	0	1	1	2	2	2
2M+	0	1	3	1	4	2	3	1	2	4	10	10	10	9
<b>Total</b>	<b>12</b>	<b>15</b>	<b>13</b>	<b>6</b>	<b>14</b>	<b>21</b>	<b>18</b>	<b>12</b>	<b>8</b>	<b>18</b>	<b>36</b>	<b>39</b>	<b>36</b>	<b>39</b>

#### 4.5.8 Procurement Related Costs

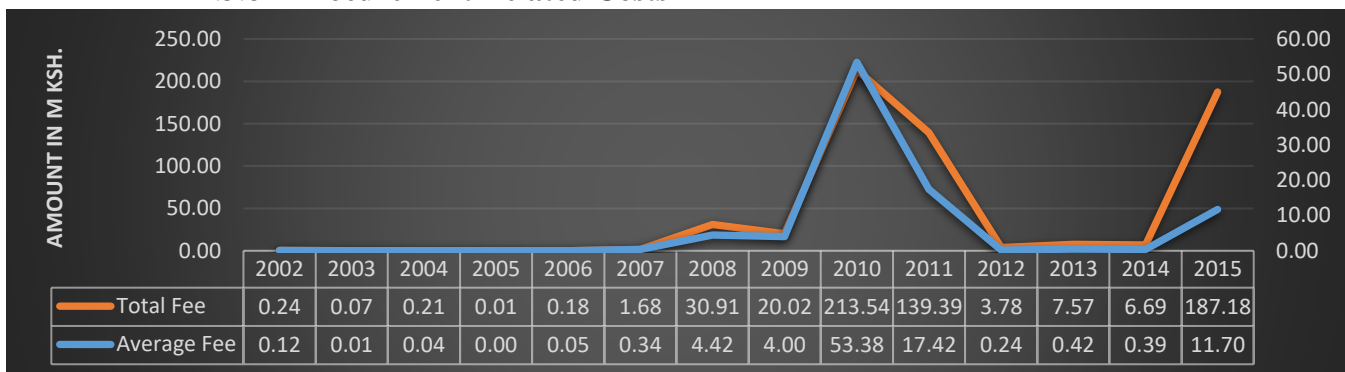


Figure 21: Procurement Related Costs

Table 19 discloses that 90% of the RBS incurred procurement less than Ksh. 50,000 from 2002 to 2008. In 2013, 55% of RBS spent between Ksh.50,000 and Ksh.455,000. While in 2015, 25% of schemes had costs in excess of Ksh.456,000.

Table 19: Frequency Distribution Table for Procurement Related Costs

Procurement Related Expense (,000)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 50	1	5	4	3	3	3	2	1	1	4	8	5	5	5
50 - 455	1	0	1	0	1	0	1	1	1	2	6	10	10	7
456+	0	0	0	0	0	2	4	3	2	2	2	3	2	4
<b>Total</b>	<b>2</b>	<b>5</b>	<b>5</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>7</b>	<b>5</b>	<b>4</b>	<b>8</b>	<b>16</b>	<b>18</b>	<b>17</b>	<b>16</b>

#### 4.5.9 Other Costs

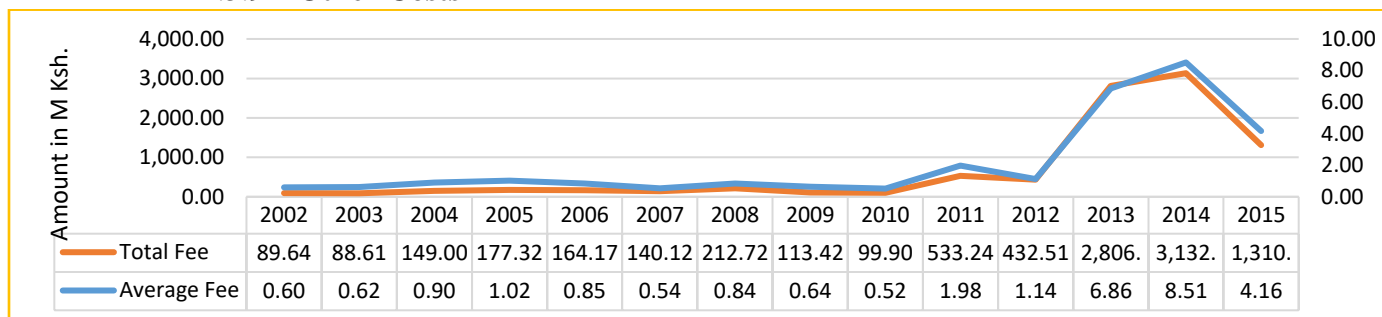


Figure 22: Other Costs

Figure 24 show that other costs that were not expressly classified amounted to Ksh. 89M in 2002 and Ksh. 1.3M in 2015. The averages ranged from Ksh. 600,000 in 2002 to Ksh. 4M in 2015.

Further analysis of the costs displayed in table 20 documents the costs as less than Ksh. 50, 000 from 2002 to 2012. In 2014, and 2015, 55% and 51% of schemes had these other costs ranging between Ksh. 50, 000 and Ksh. 4M.

Table 20: Frequency Distribution Table for Legal Costs

Others	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 50,000	99	90	111	119	126	155	153	112	116	147	192	196	150	129
50,001 - 4M	47	50	50	50	65	101	93	61	70	115	174	196	204	162
4M - 9M	1	0	0	0	0	1	1	2	3	3	5	6	4	11
9M - 13M	1	1	1	2	0	2	1	1	0	1	3	1	2	3
13M - 18M	1	0	0	0	0	0	1	0	2	1	3	1	0	2
18M+	1	1	3	2	3	2	4	2	1	2	4	9	8	8
<b>Total</b>	<b>150</b>	<b>142</b>	<b>165</b>	<b>173</b>	<b>194</b>	<b>261</b>	<b>253</b>	<b>178</b>	<b>192</b>	<b>269</b>	<b>381</b>	<b>409</b>	<b>368</b>	<b>315</b>

### 4.5.10 Taxation Expense

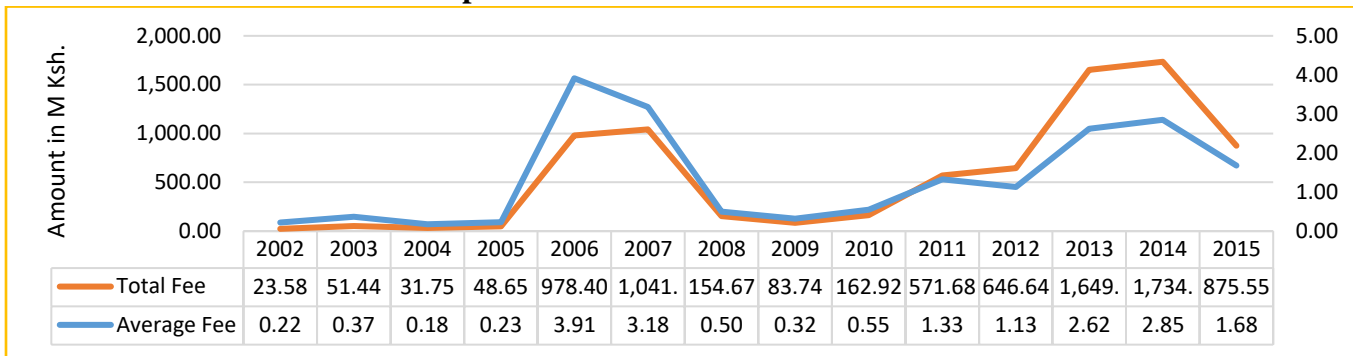


Figure 23: Taxation Expense

Figure 23 shows that the taxation expense for the RBS increased from Ksh. 23.6M in 2002 to Ksh. 876M in 2015. Additional analysis in table 21 shows that over 66% of the RBS paid less than Ksh. 50, 000 in taxes between 2002 and 2008. From 2009, taxes increased to between 50,000 and KSh. 1M.

Table 21: Frequency Distribution Table for Taxation Expense

Taxation	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 50,000	70	85	107	125	130	169	155	119	96	159	157	160	141	116
50,001 - 1M	33	49	70	86	112	145	143	133	178	240	339	375	360	313
1M - 3M	1	2	1	2	3	7	10	6	12	18	41	48	54	33
3M - 5M	1	3	1	0	3	4	2	3	6	5	12	16	22	24
5M - 7M	0	0	1	1	1	0	1	2	2	3	7	9	10	8
7M+	0	1	0	1	1	3	1	0	2	5	18	21	22	27
<b>Total</b>	<b>105</b>	<b>140</b>	<b>180</b>	<b>215</b>	<b>250</b>	<b>328</b>	<b>312</b>	<b>263</b>	<b>296</b>	<b>430</b>	<b>574</b>	<b>629</b>	<b>609</b>	<b>521</b>

### 4.5.11 Custodial Fees

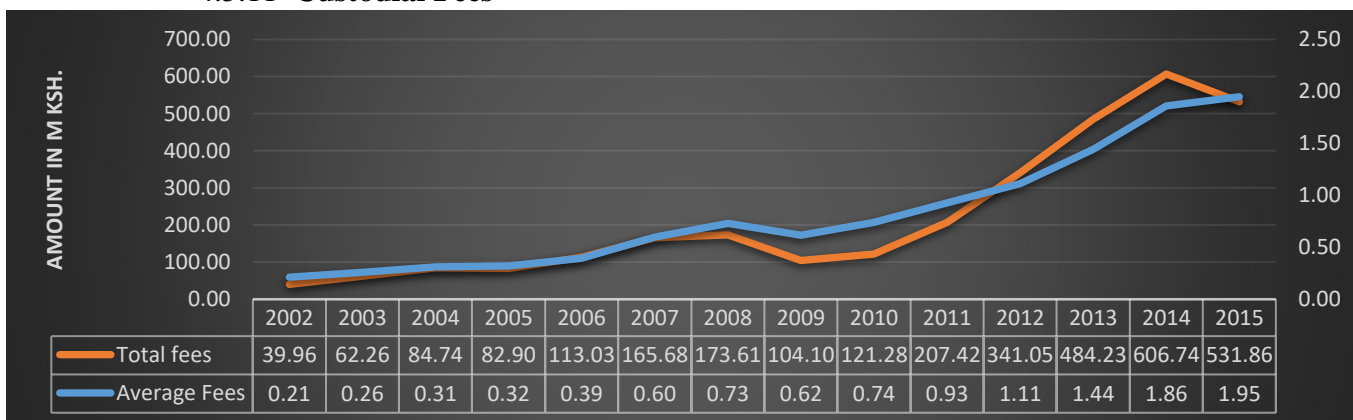


Figure 24: Custodial Fees

Figure 24 shows that the custodial fees increased from Ksh. 40M in 2002 to Ksh. 532M in 2015. The average RBS paid Ksh. 210,000 in 2002 and Ksh. 1.95M in 2015.

Table 22 shows that between 2002 and 2006, custodial fee for 56% of schemes fell below Ksh. 100,000. In 2014 and 2015, 41% and 47% of schemes respectively had costs above Ksh. 741,000.

Table 22: Frequency Distribution Table for Custodial Fees

Custodial fees(,000)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 100	114	144	158	148	161	92	50	43	32	39	43	44	39	31
100 - 180	25	34	44	34	24	32	36	31	30	36	59	49	34	25
180 - 260	21	14	14	13	20	31	34	19	18	21	24	28	27	19
260 - 340	2	12	12	12	14	16	17	19	17	20	23	20	14	15
340 - 420	6	6	7	8	11	20	12	8	13	17	25	13	17	17
420 - 500	4	3	4	9	7	16	17	7	6	10	16	23	17	13
500 - 580	4	6	4	5	8	14	7	3	6	2	14	15	19	8
580 - 661	1	2	3	6	5	5	5	4	4	9	2	15	9	13
661 - 741	0	2	3	4	2	4	3	3	3	4	4	11	17	5
741+	11	16	22	19	35	47	57	32	35	66	97	118	133	127
<b>Total</b>	<b>188</b>	<b>239</b>	<b>271</b>	<b>258</b>	<b>287</b>	<b>277</b>	<b>238</b>	<b>169</b>	<b>164</b>	<b>224</b>	<b>307</b>	<b>336</b>	<b>326</b>	<b>273</b>

#### 4.5.12 Administrator Fees

Administration fees increased from Ksh. 92M in 2002 to Ksh. 975M in 2015, an average growth of 37.6% every year. Figure 25 shows highest average fees in 2007 of Ksh. 11.28M and Ksh. 9.46M in 2013.

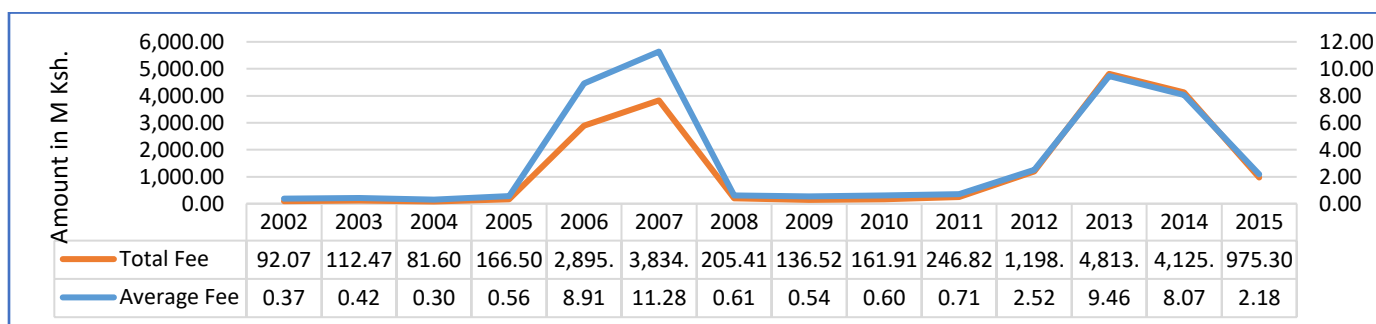


Figure 25: Administration Fees

Table 23 shows that most RBS paid annual administration fees that were less than Ksh. 7M.

Table 23: Frequency Distribution Table for Administration Fees

Administrator fees	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 100,000	131	132	142	143	145	142	122	93	88	100	114	100	88	65
100,001 - 7M	115	132	126	150	177	194	214	159	177	247	352	394	408	371
7M - 14M	0	0	1	1	0	2	0	0	2	2	5	8	8	3
14M- 22M	0	0	0	1	1	0	0	0	0	0	0	3	2	3
22M+	1	1	0	1	2	2	2	1	1	1	4	4	5	6
<b>Total</b>	<b>247</b>	<b>265</b>	<b>269</b>	<b>296</b>	<b>325</b>	<b>340</b>	<b>338</b>	<b>253</b>	<b>268</b>	<b>350</b>	<b>475</b>	<b>509</b>	<b>511</b>	<b>448</b>

### 4.5.13 Investment Management Costs

Figure 26 shows that the total investment management costs increased from 89.5M in 2002 to Ksh. 1,207M in 2015 while average costs increased from Ksh.0.34M to Ksh.4.3M over the same period.

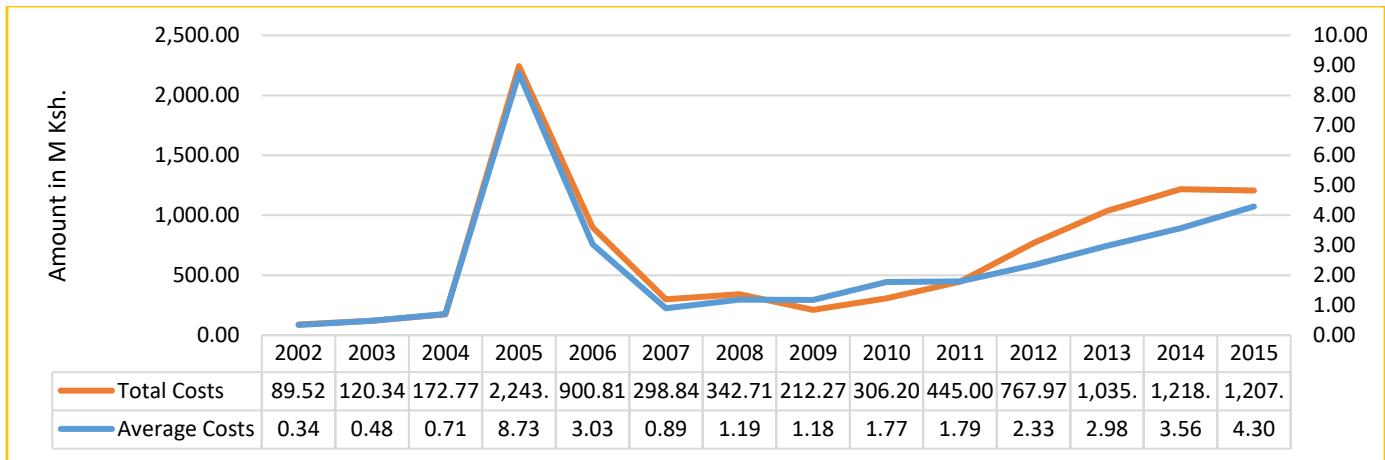


Figure 26: Investment Management Costs

Data in table 24 shows that the annual investment management costs for most RBS were less than Ksh. 4M.

Table 24: Frequency Distribution Table for Investment Management Costs

IM fees	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 100,000	138	136	122	125	145	140	92	50	35	46	47	35	32	27
100,001 - 4M	122	108	115	122	140	177	175	116	121	175	238	251	241	190
4M - 8M	1	2	4	6	8	11	15	9	7	14	23	33	32	33
8M - 12M	1	2	3	1	1	3	2	2	6	5	5	11	15	11
12M - 16M	0	1	0	1	2	2	2	3	1	4	7	3	6	7
16M+	0	0	1	2	1	1	2	0	3	4	9	15	16	13

## 4.6 Cost Efficiency of RBS

### 4.6.1 Operating Costs to Investment Income Ratio

Figure 27 shows that the ratio of operating costs to investment incomes of the RBS over the study period were the highest in 2010 at 1.819 and lowest in 2003 at 0.790.



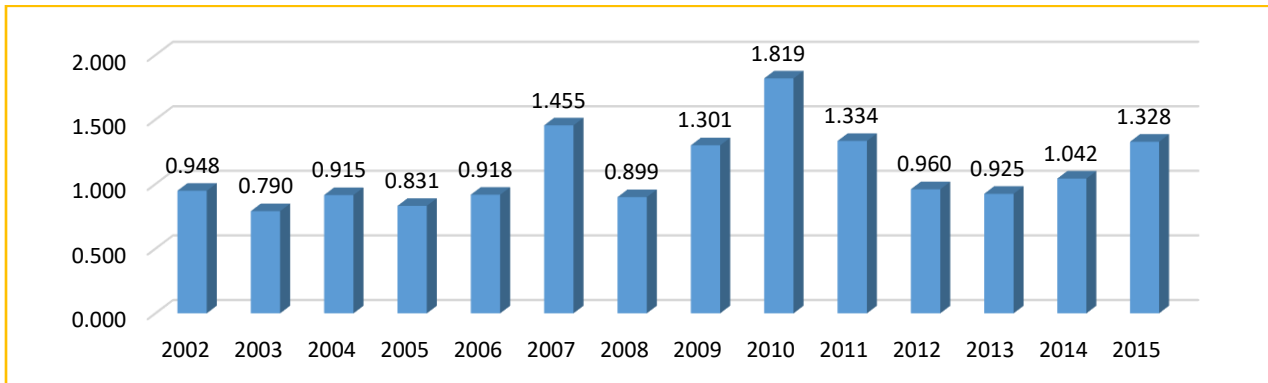


Figure 27: Operating Costs to Investment Income Ratios of RBS (2002-2015)

Table 25 shows that most of the RBS (93.2%, n=702 in 2002 and 94.7%, n=840 in 2015) had operating costs to investment income ratios less than 2.298. The RBS that covered their operating costs with the investment incomes they generated were 75.9%, n=572 in 2002 and 72.4%, n=642 in 2015.

Table 25: Frequency Distribution Table for Operating Costs to Investment Income Ratios

Cost Efficiency (b)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 1.000	572	596	590	627	701	753	707	500	532	687	832	822	761	642
1.001 - 2.298	130	152	160	128	125	153	145	109	114	186	207	221	220	198
2.299 - 3.596	22	12	26	30	16	21	13	9	11	15	23	24	21	26
3.597 - 4.894	11	11	11	4	4	6	4	3	3	10	5	8	7	9
4.895 - 6.192	5	3	2	4	0	4	1	1	1	3	1	0	5	1
6.193 - 7.490	3	0	2	0	1	0	2	1	1	0	1	0	2	1
7.491+	10	3	5	3	2	4	8	7	4	9	5	7	9	10
<b>Total</b>	<b>753</b>	<b>777</b>	<b>796</b>	<b>796</b>	<b>849</b>	<b>941</b>	<b>880</b>	<b>630</b>	<b>666</b>	<b>910</b>	<b>1074</b>	<b>1082</b>	<b>1025</b>	<b>887</b>

A further scrutiny of the data in table 26 shows that most of the schemes (86.9%, n=1239) had the operating costs to investment income ratio of 0.668 which was less than the mean of 1.317. However 13.1% (n=183) had the operating costs to investment income ratio of 2.418 which was greater than the mean.

Table 26: Visual Bin Results for Operating Costs to Investment Income Ratio

	Frequency	Percent	Means
Less than Mean (1.317)	1239	86.9	0.668
Greater than Mean (1.317)	186	13.1	2.418
<b>Total</b>	<b>1425</b>	<b>100.0</b>	

#### 4.6.2 Ratio of Operating Costs to Total Income (Including Capital Gains and Losses)

Figure 28 shows that the operating costs to total income (total income defined as the sum of investment incomes and capital gains or losses) was the worst in 2003 at -2.149, highest in 2013 at 1.244.

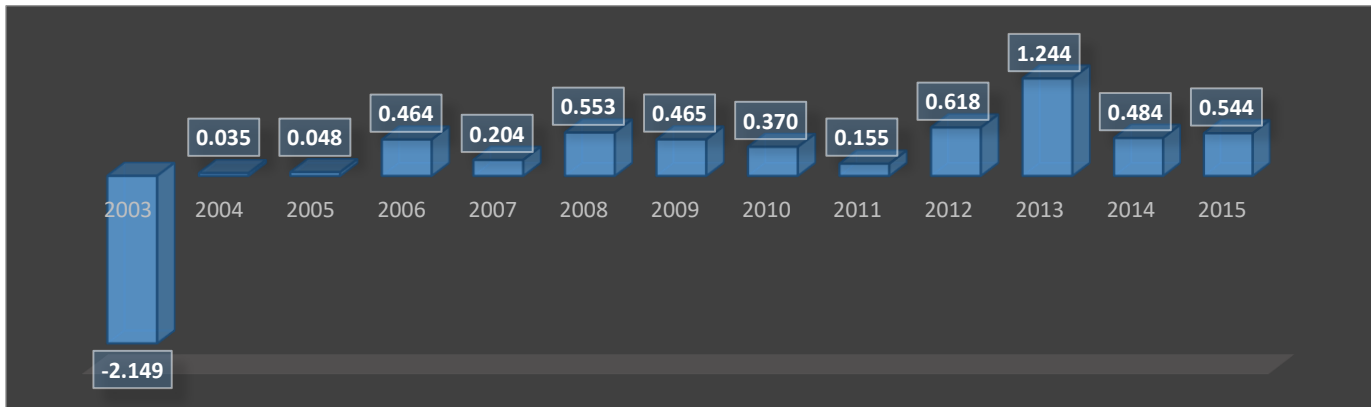


Figure 28: Operating Costs to Total Income Ratios of RBS (2002-2015)

Further analysis in table 27 shows that most of the RBS (95.6%, n= 520 in 2002 and 96.9%, n= 860 in 2015) had their operating costs to investment income ratios less than 1.867.

Table 27: Frequency Distribution Table for the Operating Costs to Total Income Ratios (including capital gains and losses)

Cost Efficiency (C)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 1.000	160	673	706	712	761	841	755	570	618	766	915	948	870	734
1.001 - 2.665	579	84	81	69	81	88	98	51	42	113	142	120	141	132
2.666 - 4.330	7	11	4	3	2	4	14	4	3	17	8	6	4	10
4.331 - 5.995	2	2	3	6	2	1	2	3	1	4	2	2	3	2
5.996 - 7.660	2	3	0	3	0	4	2	1	0	2	2	1	1	1
7.661+	3	4	2	3	3	3	9	1	2	8	5	5	6	8
<b>Total</b>	<b>753</b>	<b>777</b>	<b>796</b>	<b>796</b>	<b>849</b>	<b>941</b>	<b>880</b>	<b>630</b>	<b>666</b>	<b>910</b>	<b>1074</b>	<b>1082</b>	<b>1025</b>	<b>887</b>

A further scrutiny of the data in table 28 shows that most of the schemes (91.9%, n=1305) had their operating costs to total income (including capital gains and losses) ratio of 1.058 which was less than the mean of 1.258. However 8.4% (n=119) had the operating costs to investment income ratio of 1.772 which was greater than the mean.

Table 28: Visual Bin Results for Operating Costs to Total Income (including capital gains and losses) Ratio

	Frequency	Percent	Mean
Less than the Mean (1.258)	1305	91.6	1.058
Greater than the Mean (1.258)	119	8.4	1.772
<b>Total</b>	<b>1424</b>	<b>100.0</b>	

#### 4.6.3 Ratio of Total Costs (including benefits) to Total Income (sum of investment incomes and contributions)

Figure 29 shows that the ratio of operating costs to investment incomes of the RBS reduced marginally from 1.330 in 2002 to 1.267 in 2012. In 2013 the ratio increased to 1.97 before reducing in 2014 and 2015.

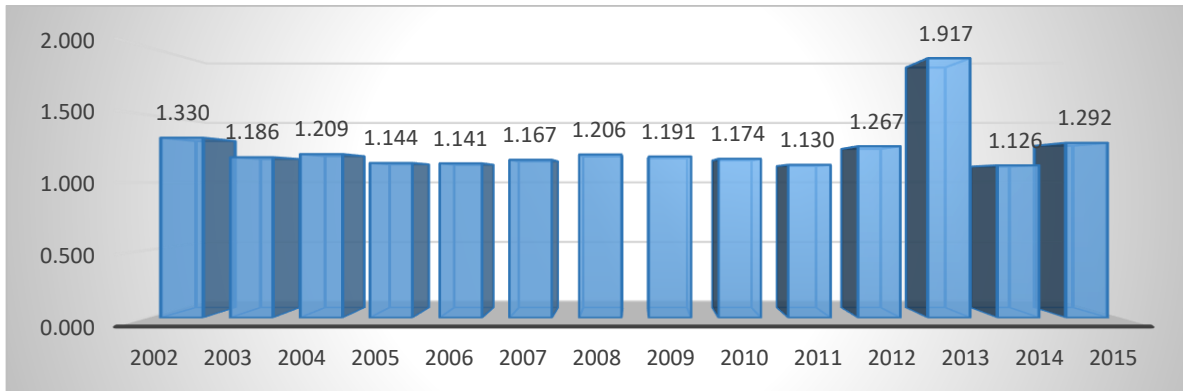


Figure 29: Total Costs (including benefits) to Total Income (sum of investment income and contributions) Ratios of RBS (2002-2015)

Further analysis in table 29 shows that most of the RBS (95.6%, n=739 in 2002 and 96.9%, n= 860 in 2015) had their operating costs to investment income ratios less than 1.867.

Table 29: Frequency Distribution Table for the Total Costs (including benefits) to Total Income (sum of investment income and contributions) Ratios of RBS (2002-2015)

Cost Efficiency (a)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 1.000	160	156	162	122	120	91	84	45	64	89	67	52	40	42
1.001 - 2.665	579	611	627	668	715	840	789	580	599	816	999	1023	981	832
2.666 - 4.330	7	6	4	2	10	5	1	2	2	1	4	2	2	4
4.331 - 5.995	2	2	1	1	1	2	2	0	0	2	0	1	1	2
5.996 - 7.660	2	0	1	0	0	1	1	0	0	1	1	0	0	2
7.661+	3	2	1	3	3	2	3	3	1	1	3	4	1	5
<b>Total</b>	<b>753</b>	<b>777</b>	<b>796</b>	<b>796</b>	<b>849</b>	<b>941</b>	<b>880</b>	<b>630</b>	<b>666</b>	<b>910</b>	<b>1074</b>	<b>1082</b>	<b>1025</b>	<b>887</b>

Table 30 further shows that most of the schemes (64.6%, n=921) had their operating costs to total income (including capital gains and losses) ratio of 0.410 which was less than the mean of 0.452. However 35.4% (n=504) had the operating costs to investment income ratio of 0.851 which was greater than the mean.

Table 30: Visual Bin Results for Total Costs (including benefits) to Total Income (including contributions) Ratio

	Frequency	Percent	Mean
Less than the Mean (0.452)	921	64.6	0.410
Greater than the Mean (0.452)	504	35.4	0.851
<b>Total</b>	<b>1425</b>	<b>100.0</b>	

#### 4.6.4 Cost Per Member

The average costs per member reduced from Ksh. 5,220 in 2002 to Ksh. 2,811 in 2015. However, the average costs were highest in 2006 and 2013 at Ksh. 42,213 and Ksh. 27,581 respectively.

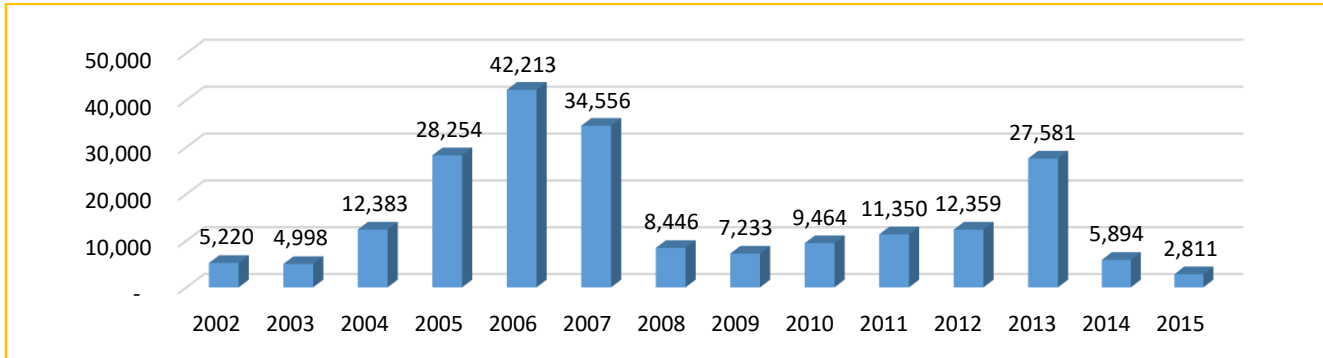


Figure 30: Operating Cost Per Member

Table 31 shows that the cost per member of RBS ranged from Ksh. 3000 to Ksh. 49257.

Table 31: Frequency Distribution Table for the Cost Per Member of RBS (2002-2015)

Cost Per Member	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 3000	49	58	54	41	36	31	30	13	12	32	27	19	20	23
3000 - 49257	291	340	378	372	342	391	423	273	212	371	340	297	273	276
49257 - 95514	65	76	81	102	122	160	142	126	132	153	203	230	218	174
95514 - 141771	14	36	27	41	63	64	60	51	59	69	139	154	136	111
141771 - 188028	6	14	8	12	28	41	36	31	43	34	76	97	85	81
188028 - 234285	6	2	4	4	11	15	12	16	27	26	42	52	62	39
234285 - 280542	5	2	8	1	10	8	10	7	17	11	38	32	40	31
280542 - 326799	4	8	7	16	18	25	19	10	37	28	83	93	104	75
<b>Total</b>	<b>440</b>	<b>536</b>	<b>567</b>	<b>589</b>	<b>630</b>	<b>735</b>	<b>732</b>	<b>527</b>	<b>539</b>	<b>724</b>	<b>948</b>	<b>974</b>	<b>938</b>	<b>810</b>

Table 32 shows that 71% of the RBS had their cost per member less than the mean while 3% of the RBS exceeded the mean.

Table 32: Visual Bin Results for Cost Per Member

	Frequency	Percent
Less than the mean (15,197)	1002	70.5
Within the mean (15,197)	378	26.6
Greater than the mean (15197)	42	3.0
<b>Total</b>	<b>1422</b>	<b>100.0</b>

#### 4.6.5 Operating Cost Per RBS

The operating cost per RBS increased from Ksh. 0.7M in 2002 to Ksh. 8M in 2015. There was a 155% increase in cost in 2013 over the cost reported in 2012.

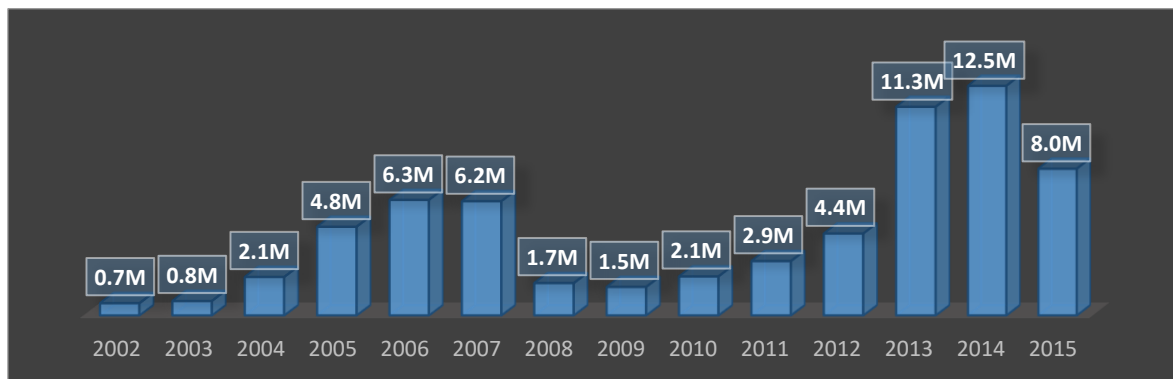


Figure 31: Cost Per RBS

Table 33 shows that most of the RBS reported annual costs ranging from Ksh. 700,000 to Ksh. 32.6M.

Table 33: Frequency Distribution Table for the Cost Per RBS (2002-2015)

Cost Per RBS	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<= 700,000	369	362	373	313	269	260	243	139	101	198	117	94	79	89
700,001 – 32.5M	365	391	388	442	530	621	575	445	495	622	779	781	732	610
32.5M – 64.4M	7	10	14	23	23	23	24	22	34	45	73	94	88	66
64.4M – 96.3M	5	5	7	5	8	13	14	9	11	13	32	33	33	33
96.3M – 128.1M	2	1	2	1	5	5	9	3	6	6	19	16	25	15
128.1M – 159.97M	2	1	3	2	3	1	0	2	0	3	10	10	10	18
159.97M	3	7	9	10	11	18	15	10	19	23	44	54	58	56
<b>Total</b>	<b>753</b>	<b>777</b>	<b>796</b>	<b>796</b>	<b>849</b>	<b>941</b>	<b>880</b>	<b>630</b>	<b>666</b>	<b>910</b>	<b>1074</b>	<b>1082</b>	<b>1025</b>	<b>887</b>

Visual bin results in table 34 indicate that 88.4% of the RBS’s average costs were less than the mean. Eight RBS however had exceptionally high costs.

Table 34: Visual Bin Results for Cost Per Member

Average Costs Per RBS	Frequency	Percent	Mean
Less than the mean	1257	88.4	5,209,988
Within the mean	157	11	131,505,506
Exceeds the mean	8	0.6	2,378,334,588
<b>Total</b>	<b>1422</b>	<b>100</b>	

#### 4.7 Effect of Size of RBS on Cost Efficiency

The size of RBS was captured by the use of the number of members and the asset values held by the RBS at the end of the financial year. Analyses of Variances was conducted to test the effect of the two measures on cost efficiency measured using the measures of cost efficiency that are elaborated in section 4.6. These measures were the operating costs to investment income ratio, operating costs to total income (sum of investment income and capital gains or losses) ratio, the total costs (operating costs and benefits) to income (investment income and contributions) ratio, operating cost per member and the operating cost per RBS.

#### 4.7.1 Effect of the Number of Members in RBS on Cost Efficiency

##### 4.7.1.1 Effect of the Number of Members in RBS on the Operating Costs to Investment Income Ratio

Table 35 shows that the mean ratio of operating costs to investment incomes differs significantly amongst the RBS with different sizes of membership ( $p < 0.000$ ).

Table 35: Analysis of Variance on the Effect of the Number of Members in RBS on the Operating Costs to Investment Income Ratio

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1369.621	2	684.810	9.171	.000
Within Groups	106179.637	1422	74.669		
<b>Total</b>	<b>107549.258</b>	<b>1424</b>			

Table 36 shows that the RBS with less than 2090 members were the most cost efficient.

Table 36: Post Hoc Test Results on the Effect of the Number of Members in the RBS on the Operating Cost to Investment Income Ratio

	N	Mean	Std. Deviation	Std. Error
Less than 2,090	1280	.92898	1.522692	.042561
2,091 - 102,627	143	2.67465	19.936947	1.667211
More than 102,627	1	.94700	.	.
<b>Total</b>	<b>1424</b>	<b>1.10429</b>	<b>6.482579</b>	<b>.171788</b>

##### 4.7.1.2 Effect of Membership of RBS on the Ratio of Operating Costs to Total Income (including capital gains and losses)

Table 37 shows that the mean ratio of operating costs to total income (including capital gains and losses) investment incomes does not differ significantly amongst the RBS with different sizes of membership.

Table 37: Analysis of Variance on the Effect of the Number of Members in RBS on the Operating Costs to Total Income (including capital gains and losses) Ratio

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3717.814	1207	3.080	.546	1.000
Within Groups	1223.311	217	5.637		
<b>Total</b>	<b>4941.126</b>	<b>1424</b>			

##### 4.7.1.3 Effect of Membership of RBS on Ratio of Total Costs (including benefits) to Total Income (including contributions)

Table 38 shows that the mean ratio of total costs including benefits to investment incomes (including contributions) differs significantly amongst the RBS with different sizes of membership ( $p < 0.000$ ).

Table 38: Analysis of Variance on the Effect of the Number of Members in RBS on Total Costs (including benefits) to Total Income (including contributions) Ratio

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	57843.220	1206	47.963	5.319	.000
Within Groups	1956.688	217	9.017		
<b>Total</b>	<b>59799.908</b>	<b>1423</b>			

Post Hoc test results in table 39 show that the RBS with less than 2090 members were the most efficient. One RBS with over 102,000 members recorded the second highest efficiency level.

Table 39: Post Hoc Test Results on the Effect of the Number of Members in the RBS on the Ratio of Total Costs (including benefits) to Total Income (including contributions)

	N	Mean	Std. Deviation	Std. Error
-98,447 - 2,090	1280	1.11450	.347712	.009719
2,091 - 102,627	143	2.79435	19.840980	1.659186
102,628+	1	1.49600	.	.
<b>Total</b>	<b>1424</b>	<b>1.28346</b>	<b>6.296605</b>	<b>.166860</b>

#### 4.7.1.4 Effect of Membership of RBS on the Operating Cost Per Member

Table 40 shows that the mean ratio of operating cost per member does not differ significantly amongst the RBS with different sizes of membership ( $p > 0.000$ ).

Table 40: Analysis of Variance on the Effect of the Number of Members in RBS on the Operating Cost Per Member

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16530.514	1207	136952.213	.538	1.000
Within Groups	55249.322	217	254604.209		
<b>Total</b>	<b>22055.836</b>	<b>1424</b>			

#### 4.7.1.5 Effect of Membership of RBS on the Average Operating Cost Per RBS

Table 41 shows that the average cost of operating RBS differs significantly ( $p < 0.000$ ).

Table 41: Analysis of Variance on the Effect of the Number of Members in RBS on the Operating Cost Per Member

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14447.000	1207	119695027802049104	2251.7	.000
Within Groups	11535.000	217	53157044994280.620	.000	25
<b>Total</b>	<b>14448.000</b>	<b>1424</b>			

Further analysis in table 42 shows that the RBS with less members are more efficient than those with fewer members.

Table 42: Post Hoc Test Results on the Effect of the Number of Members in the RBS on the Cost per RBS

	N	Mean	Std. Deviation	Maximum
Less than 2,090	1280	17,787,613.84	65,832,488.547	1,349,114,787
2,091 - 102,627	143	82,429,385.25	241,132,339.872	1,979,775,263
More than 102,627	1	114,346,586.00	.	11,434,658,667
<b>Total</b>	<b>1424</b>	<b>32,296,493.31</b>	<b>318,599,312.113</b>	<b>11,434,658,667</b>

#### 4.7.1.6 Effect of Membership on Cost Efficiency – Results of the Primary Study

Discussion with service providers led to the conclusion that custodial and investment management fees could have accounted for the reported results since the fees are broadly based on the value of assets under management and the cost per transaction and hence do not change with membership. A respondent observed “*significant economies of scale based on membership can be associated with the investment management and custodial fees.*” The services performed by administrators such as updating member accounts and generating statements may result to higher charges being imposed on RBS with more members. This therefore explains why the RBS with greater membership report significantly higher costs than those with fewer members.

#### 4.7.2 Effect of RBS Value on Cost Efficiency

##### 4.7.2.1 Effect of RBS Value on the Ratio of Operating Costs to Investment Income

Table 43 shows that the ratio of operating costs to investment income differs significantly ( $p < 0.001$ ) between the RBS classified on the basis of the average value of assets held at the year end.

Table 43: Analysis of Variance on the Effect of RBS Value on the Ratio of Operating Costs to Investment Income

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5219.763	2	2609.881	36.268	.000
Within Groups	102329.495	1422	71.962		
<b>Total</b>	<b>107549.258</b>	<b>1424</b>			

Further analysis in table 44 shows that the RBS with asset values within the range of Ksh. 360M and Ksh. 7.2B were the most efficient, followed by those whose asset values were less than Ksh. 360M. The most inefficient RBS had asset values exceeding Ksh. 7.2B.

Table 44: Post Hoc Test Results on the Effect of RBS Value on the Ratio of Operating Costs to Investment Income

Asset Values	N	Mean	Std. Deviation	Std. Error
Less than Ksh. 360M	1247	1.13645	6.913930	.195791
Ksh. 360M – Ksh. 7.2B	169	.87508	1.162686	.089437
More than Ksh. 7.2B	9	4.24077	2.921676	24.307225
<b>Total</b>	<b>1425</b>	<b>1.25769</b>	<b>8.690579</b>	<b>.230219</b>



**4.7.2.2 Effect of RBS Value on Ratio of Operating Costs to Total Income (including capital gains and losses)**

Table 45 shows that the ratio of operating costs to total income (including capital gains and losses) differs significantly ( $p < 0.01$ ) between the RBS classified on the basis of the average value of assets held at the yearend.

Table 45: Analysis of Variance on the Effect of RBS Value on the Ratio of Operating Costs to Total Income (sum of investment income and capital gains or losses)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4931.037	1378	3.578	16.316	.000
Within Groups	10.089	46	.219		
<b>Total</b>	<b>4941.126</b>	<b>1424</b>			

Disaggregated analysis in table 46 shows that the RBS with asset values less than Ksh. 359M were the most efficient, followed by those with asset values in the range of Ksh. 360M to Ksh. 7.2B. The most inefficient were the largest RBS with asset values exceeding Ksh. 7.2B.

Table 46: Post Hoc Test Results on the Effect of RBS Value on the Ratio of Operating Costs to Total Income (sum of investment income and capital gains or losses)

Asset Values	N	Mean	Std. Deviation	Std. Error
Less than Ksh. 360M	1247	.4233	1.86454	.05280
Ksh. 360M – Ksh. 7.2B	169	.5898	1.66201	.12785
More than Ksh. 7.2B	9	1.8143	3.94303	1.31434
<b>Total</b>	<b>1425</b>	<b>.4518</b>	<b>1.86276</b>	<b>.04935</b>

**4.7.2.3 Effect of RBS Value on the Ratio of Total Costs (including benefits) to Total Income (including contributions)**

Table 47 shows that the ratio of total costs (operating costs + benefits) to total income (sum of investment incomes and contributions) differs significantly ( $p < 0.005$ ) between the RBS classified on the basis of the average value of assets held at the yearend.

Table 47: Analysis of Variance on the Effect of RBS Value on the Ratio of Total Costs (operating costs and benefits) to Total Income (sum of investment income and contributions)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	263.817	2	131.908	3.203	.041
Within Groups	58553.584	1422	41.177		
<b>Total</b>	<b>58817.401</b>	<b>1424</b>			

Further analysis in table 48 shows that the RBS with asset values within the range of Ksh. 360M and Ksh. 7.2B were the most efficient, followed by those whose asset values were less than Ksh. 360M. The most inefficient RBS had asset values exceeding Ksh. 7.2B.

Table 48: Post Hoc Test Results on the Effect of the Ratio of Total Costs (including benefits) to Total Income (including contributions)

Asset Values	N	Mean Cost Efficiency Ratio	Std. Deviation	Std. Error
Less than Ksh. 360M	1247	1.31726	6.727236	.190504
Ksh. 360M – Ksh. 7.2B	169	1.04098	.322194	.024784
More than Ksh. 7.2B	9	6.59739	16.384222	5.461407
<b>Total</b>	<b>1425</b>	<b>1.31784</b>	<b>6.426846</b>	<b>.170251</b>

#### 4.7.2.4 Effect of RBS Value on Cost Per Member

Table 49 shows that the cost per member of RBS differs significantly ( $p < 0.001$ ) between the RBS classified on the basis of the average value of assets held at the yearend.

Table 49: Analysis of Variance on the Effect of RBS Value on Cost per Member

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	21821.580	1378	15835.889	3.117	.000
Within Groups	23370.291	46	50805.311		
<b>Total</b>	<b>22055.867</b>	<b>1424</b>			

Further analysis in table 50 shows that the RBS with asset values less than Ksh. 360M were the most efficient, followed by those whose asset values were in the range of Ksh. 360M and Ksh. 7.2B. The most inefficient RBS had asset values exceeding Ksh. 7.2B.

Table 50: Post Hoc Test Results on the Effect of the Ratio of Total Costs (including benefits) to Total Income (including contributions)

	N	Mean	Std. Deviation	Std. Error
Less than Ksh. 360M	1247	67952.3139	108930.31466	3084.71845
Ksh. 360M – Ksh. 7.2B	169	128610.2859	174653.77171	13434.90552
More than Ksh. 7.2B	9	275638.4705	393492.82927	131164.27642
<b>Total</b>	<b>1425</b>	<b>76457.8386</b>	<b>124451.28693</b>	<b>3296.79513</b>

#### 4.7.2.5 Effect of RBS Value on Cost Per RBS

Table 51 shows that the cost per RBS differs significantly ( $p < 0.001$ ) between the RBS classified on the basis of the average value of assets held at the yearend.

Table 51: Analysis of Variance on the Effect of RBS Value on Cost per RBS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	144208865.000	1378	104650845.000	17.533	.000
Within Groups	274568585.000	46	59688822.000		
<b>Total</b>	<b>144483433.000</b>	<b>1424</b>			

Further analysis in table 48 shows that the RBS with asset values less than Ksh. 360M were the most efficient, followed by those whose asset values were in the range of Ksh. 360M and Ksh. 7.2B. The most inefficient RBS had asset values exceeding Ksh. 7.2B.

Table 52: Post Hoc Test Results on the Effect of the Ratio of Total Costs (including benefits) to Total Income (including contributions)

	N	Mean	Std. Deviation	Std. Error	Maximum
Less than Ksh. 360M	1247	8,151,668.38	32,943,160.348	932,893.428	582,012,058
Ksh. 360M – Ksh. 7.2B	169	111,917,852.60	195,965,859.138	15,074,296.857	1,979,775,263
More than Ksh. 7.2B	9	1,905,111,047.01	3,593,646,079.420	1,197,882,026.473	11,434,658,667
<b>Total</b>	<b>1425</b>	<b>32,438,769.81</b>	<b>318,532,706.984</b>	<b>8,438,137.544</b>	<b>11,434,658,667</b>

4.7.2.6 Effect of Size on Cost Efficiency – Results of the Primary Study

The discussion with service providers concluded that the expectations of economies of scale based on value of assets owned by RBS are real. The most cost inefficient RBS were determined as the smallest and the oversize leading to a conclusion that appropriate size of the asset values for a RBS need to be determined. RBS with low asset values are not able to take advantage of better rates of return offered by the market. Similarly large value RBS invest in literally any available opportunity which may not be effectively productive. A medium size RBS therefore leverages on maximization of value leading higher levels of efficiency.

4.8 Effect of Investment Strategy on Cost Efficiency

For the purpose of this study, the investment strategy was determined on the basis of whether the RBS operates as a guaranteed fund or as an aggregated RBS. Generally, the costs of guaranteed RBS accounted for a lower proportion of total costs as illustrated in figure 32 possibly as they are fewer than the aggregate RBS.

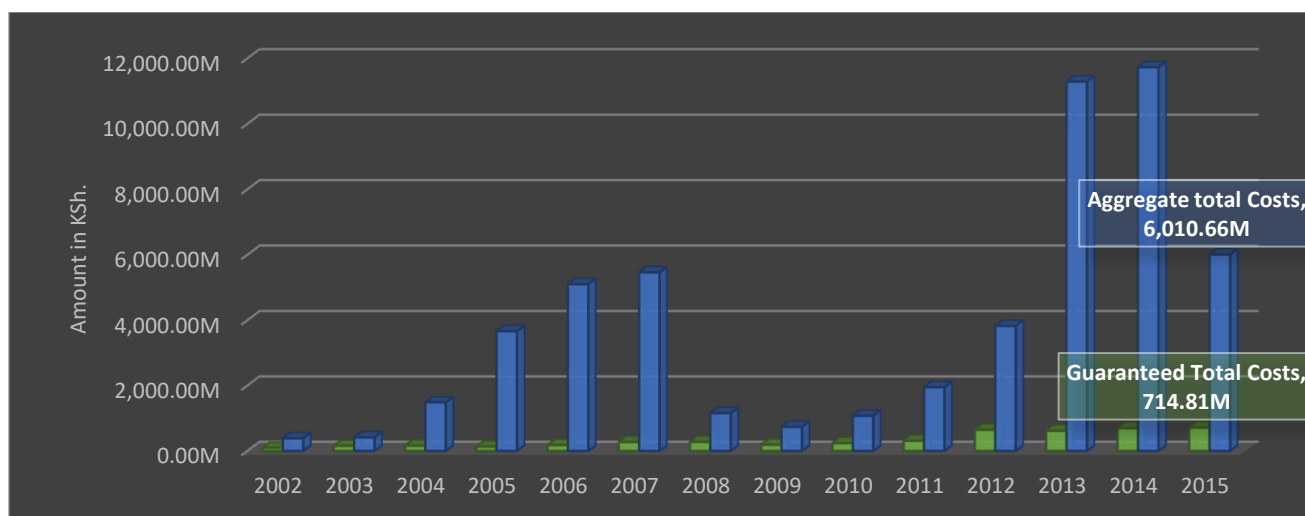


Figure 32: Comparison of Costs of Guaranteed RBS and the Total Costs

In section 4.8.1 to 4.8.5, the different cost efficiency dimensions are determined by classifying the RBS as either guaranteed or aggregate.

#### 4.8.1 Effect of Investment Strategy on Operating Cost to Investment Income

Table 53 shows that the operating cost to investment income ratio differs significantly ( $p < 0.001$ ) between the RBS classified on the basis of their investment strategy determined on the basis of whether the RBS is operated on guaranteed basis or not.

Table 53: Analysis of Variance on the Effect of Investment Strategy on Operating Cost to Investment Income Ratio

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2691.788	3	897.263	22.311	.000
Within Groups	57108.120	1420	40.217		
<b>Total</b>	<b>59799.908</b>	<b>1423</b>			

Post Hoc results in table 54 indicate that RBS that used a mixed strategy had the highest level of cost efficiency – determined as the ratio of operating costs to investment income, followed by aggregate funds and guaranteed funds in that order.

Table 54: Post Hoc Test Results on the Effect of the Investment Strategy on Operating Cost to Investment Income Ratio

	N	Mean	Std. Deviation	Std. Error
Guaranteed Funds	802	1.01378	1.990305	.070767
Aggregate Funds	365	.81991	.810769	.042731
Combined	257	.88305	.657783	.041354
<b>Total</b>	<b>1424</b>	<b>1.10429</b>	<b>6.482579</b>	<b>.171788</b>

#### 4.8.2 Effect of Investment Strategy on Operating Cost to Income (including capital gains and losses) Ratio

Table 55 shows that there was no statistically significant difference in the operating cost to income ratios if the capital gains and losses are included in total income of both the guaranteed and aggregate RBS.

Table 55: Analysis of Variance on the Effect of Investment Strategy on Operating Cost to Income (Including capital gains and losses) Ratio

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.601	3	.534	.153	.927
Within Groups	4939.506	1420	3.479		
<b>Total</b>	<b>4941.107</b>	<b>1423</b>			

### 4.8.3 Effect of Investment Strategy on Costs (sum of operating costs and benefits) to income (sum of investment income and contributions) Ratio

Table 56 shows that the Costs (sum of operating costs and benefits) to income (sum of investment income and contributions) Ratio differs significantly ( $p < 0.001$ ) between the RBS classified on the basis of their investment strategy determined on the basis of whether the RBS is operated on guaranteed basis or not.

Table 56: Analysis of Variance on the Effect of Investment Strategy on Costs (sum of operating costs and benefits) to income (sum of investment income and contributions) Ratio

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2851.906	3	950.635	25.201	.000
Within Groups	53566.116	1420	37.723		
<b>Total</b>	<b>56418.022</b>	<b>1423</b>			

Table 57 shows that guaranteed funds and aggregate funds achieve relatively the same level of cost efficiency when the cost (including benefits) to income (including contributions) ratio is used. Combined funds now report higher ratio.

Table 57: Post Hoc Test Results on the Effect of the Investment Strategy on Costs (sum of operating costs and benefits) to income (sum of investment income and contributions) Ratio

	N	Mean	Std. Deviation	Std. Error
Guaranteed Funds	802	1.10034	.301571	.010723
Aggregate Funds	365	1.10220	.501592	.026436
Combined	257	1.17676	.344637	.021667
<b>Total</b>	<b>1424</b>	<b>1.28346</b>	<b>6.296605</b>	<b>.166860</b>

### 4.8.4 Effect of Investment Strategy on Cost per Member

Table 58 shows that the cost per member differs significantly ( $p < 0.001$ ) between the RBS classified on the basis of their investment strategy determined on the basis of whether the RBS is operated on guaranteed basis or not.

Table 58: Analysis of Variance on the Effect of Investment Strategy on Cost per Member

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	566469.864	3	188824.621	12.479	.000
Within Groups	214859.977	1420	151305.125		
<b>Total</b>	<b>220523.840</b>	<b>1423</b>			

In terms of the cost per member, guaranteed funds report lesser cost per member, followed by aggregate funds with aggregate schemes reporting the highest cost per member as indicated in table 59.

Table 59: Post Hoc Test Results on the Effect of the Investment Strategy on Cost per Member

	N	Mean	Std. Deviation	Std. Error
Guaranteed Funds	802	61764.8070	108805.03361	3868.66163
Aggregate Funds	365	106622.7068	159491.05990	8405.91693
Combined	257	83804.0451	108883.14994	6845.42499
<b>Total</b>	<b>1424</b>	<b>76494.2843</b>	<b>124487.40021</b>	<b>3298.90951</b>

#### 4.8.5 Effect of Investment Strategy on Cost per RBS

Table 60 shows that the cost per RBS differs significantly ( $p < 0.001$ ) between the RBS classified on the basis of their investment strategy determined on the basis of whether the RBS is operated on guaranteed basis or not.

Table 60: Analysis of Variance on the Effect of Investment Strategy on Cost per RBS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2069806464.000	3	689935488018079100.000	6.881	.000
Within Groups	1423725508.000	1420	100262359778339792.000		
<b>Total</b>	<b>1444423734.000</b>	<b>1423</b>			

In terms of the cost per RBS, guaranteed funds reported the lowest costs, followed by combined funds while the aggregate funds reported the highest.

Table 61: Post Hoc Test Results on the Effect of the Investment Strategy on Cost per RBS

	N	Mean	Std. Deviation	Std. Error
Guaranteed Funds	802	6,574,294.50	25,059,844.735	891,025.502
Aggregate Funds	365	97,035,993.06	627,826,207.240	33,089,346.494
Combined	257	22,719,570.45	38,300,089.081	2,407,905.970
<b>Total</b>	<b>1424</b>	<b>32,296,493.31</b>	<b>318,599,312.113</b>	<b>8,442,864.885</b>

#### 4.8.6 Effect of Investment Strategy on Cost Efficiency – Results of the Primary Study

Discussions with service providers led to the conclusion that guaranteed RBS earn lower rates of return compared to the aggregate RBS because lesser risk taking attracts lesser returns. However the guaranteed RBS report lesser costs than the aggregate RBS. This explains why guaranteed RBS are reportedly more cost efficient when the ratio of operating costs to investment income is used as the measure of cost efficiency. However the guaranteed RBS report lower costs per member and RBS.

#### 4.9 Effect of Choice of Service Provider on Cost Efficiency

To achieve this objective, we analyze the three major costs that are easily associated with the service providers namely administration fees, custodial fees and investment management fees. Descriptive and statistical analysis

is performed on the three costs in sections 4.9.1, 4.9.2 and 4.9.3. All the service providers are described by use of codes.

#### 4.9.1 Effect of Choice of Custodian on Cost Efficiency

Table 62 shows the custodial fees earned by all custodians between 2002 and 2015. It shows that in total a sum of Ksh. 3.12B has been paid to custodians during the period. Of the total industry fees charged, custodian 10 earned 48% of the funds, custodian 12 earned 20% while custodian 8 earned 15%. The other nine custodians earned 17% of the industry fees.

Table 62: Custodial Fees Paid by RBS (2002-2015)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
<b>1</b>	0.01	0.00	0.00	0.08	0.17	0.22	0.74	0.27	0.39	0.00	0.00	0.00	0.00	0.00	<b>1.87</b>
<b>2</b>	1.07	3.17	5.90	1.51	5.66	8.39	8.66	4.13	7.57	12.20	15.80	15.78	23.14	17.29	<b>130.25</b>
<b>3</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	1.03	<b>1.45</b>
<b>4</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.06	6.92	8.50	9.84	<b>29.32</b>
<b>5</b>	0.02	0.07	0.22	0.12	0.21	0.29	0.01	0.05	0.06	0.09	0.09	0.08	0.11	0.10	<b>1.53</b>
<b>6</b>	1.09	1.56	3.36	7.15	20.66	7.54	7.45	17.62	20.04	25.40	27.77	47.18	61.27	60.68	<b>308.77</b>
<b>7</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.37	6.81	5.56	<b>20.74</b>
<b>8</b>	3.97	8.48	6.95	3.75	8.88	24.06	28.74	18.37	33.11	38.95	56.34	68.56	81.05	79.70	<b>460.89</b>
<b>10</b>	1.92	2.59	3.37	4.19	24.04	32.10	14.03	21.15	44.81	110.10	211.22	311.23	396.32	331.13	<b>1508.19</b>
<b>11</b>	0.22	0.46	0.63	0.46	0.26	1.42	2.76	0.58	0.76	5.63	5.58	8.65	9.67	6.72	<b>43.80</b>
<b>12</b>	31.65	45.94	64.31	65.65	53.17	91.65	111.22	41.94	14.53	15.05	20.20	17.46	19.46	19.80	<b>612.03</b>
<b>Total</b>	<b>39.96</b>	<b>62.26</b>	<b>84.74</b>	<b>82.9</b>	<b>113.03</b>	<b>165.68</b>	<b>173.61</b>	<b>104.1</b>	<b>121.28</b>	<b>207.42</b>	<b>341.05</b>	<b>484.23</b>	<b>606.74</b>	<b>531.86</b>	<b>3118.86</b>

A close analysis of the last two years (2014 and 2015) shows that in 2014, there were 11 custodians managing 973 RBS. Table 62 shows that in 2014, custodian 10 managed 33% of the RBS with Ksh. 396M (65% of the industry fees) charged as fees followed by 23% from custodian 8 (13% of industry fees). Other custodians recorded 10% (22% of industry fees) or less. In 2015, the 774 RBS used custodial services of which custodian 10 served 17% of the RBS (industry fees 65%) custodian 8 served 13% of the RBS (12% of industry fees) while custodian 6 served 58% of the RBS (12% of industry fees). Other custodians served 12% of the RBS (11% of the industry fees).

Table 63: Custodial Fees Paid by RBS in 2014 and 2015

Custodian	2014				2015			
	RBS	Share of RBS	Fees	Share of Fees	RBS	Share of RBS	Fees	Share of Fees
10	322	33.09%	396,323,285	65%	134	17.25%	344,160,347	65%
8	220	22.63%	81,046,683	13%	23	3.00%	63,071,149	12%
6	56	5.72%	61,273,771	10%	449	58.04%	61,912,148	12%
2	164	16.91%	23,135,986	4%	17	2.23%	20,580,897	4%
12	30	3.13%	19,455,491	3%	71	9.11%	17,971,459	3%
11	47	4.83%	9,678,257	2%	2	0.29%	10,225,396	2%
4	5	0.54%	8,501,010	1%	19	2.42%	6,986,011	1%
7	7	0.72%	6,801,041	1%	4	0.48%	5,776,711	1%
3	2	0.18%	416,803	0%	1	0.10%	1,069,261	0.20%
5	119	12.25%	107,185	0%	53	6.78%	101,565	0.02%
1	0	0.00%	0	0%	2	0.29%	186,000	0.00%
<b>Total</b>	<b>973</b>	<b>1</b>	<b>606,739,510</b>	<b>100%</b>	<b>774</b>	<b>100</b>	<b>531,855,131</b>	<b>100</b>

Further analysis shows that the custodial fees differed significantly on the basis of the choice of the custodian ( $p < 0.01$ ). Table 64 shows that in 2014, the custodial fees per RBS ranged from Ksh. 1.6M charged by Custodian 5 to Ksh. 899 charged by custodian 2 with the average custody fee per RBS being Sh. 542,216. In 2015, the average custody fee per RBS reduced from Ksh. 542, 216 recorded in 2014 to Ksh. 514,865. The cost per RBS charged by custodians 6 and 2 increased significantly from 2014 to 2015. The average custodial fee reduced from 0.097% in 2014 to 0.078% of the value of assets under custody in 2015.



Table 64: Average Costs of Assets and RBS under Management by Custodians – 2014 and 2015

Custodian	2014			Cost per RBS	2015	
	Cost per RBS	Asset under Custody Ksh. M	% Cost per Ksh. of Asset under Custody		Asset Under Custody Ksh. M	% Cost per Ksh. of Asset under Custody
10	1,230,770	307,191	0.129%	2,577,980	267,188	0.129%
6	368,081	113,520	0.071%	2,712,738	107,318	0.059%
8	1,100,078	106,594	0.057%	137,812	218,306	0.028%
2	140,655	30,115	0.077%	1,193,095	28,146	0.073%
12	638,709	25,554	0.076%	254,914	26,781	0.067%
11	205,936	10,593	0.091%	4,544,620	7,710	0.133%
5	1,627,977	9,660	0.088%	372,587	9,888	0.071%
4	976,820	9,303	0.073%	1,540,456	10,522	0.055%
7	239,458	9,254	0.005%	1,425,681	7,847	0.014%
3	899	949	0.011%	1,935	1,262	0.008%
1		197	0.000%	8,2667	232	0.080%
<b>Total</b>	623,576	<b>622,930</b>	0.097%	687,151	<b>685,199</b>	0.078%

#### 4.9.2 Effect of Choice of Administrator on Cost Efficiency

Table 65 shows the fees paid to administrators of RBS between 2002 and 2015. It shows that in total a sum of Ksh. 19B has been paid to administrators with administrators 1 and 2 taking 48% of the total. Statistical analysis shows that the administrator fees differed significantly between the different service providers ( $p < 0.001$ ).

Table 65: Administration Fees Paid by RBS (2002-2015) in Ksh. 000

Administrator	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
1	17,996	9,844	20,398	96,181	1,815,186	1,150,528	55,836	46,947	59,074	87,995	383,700	779,845	1,094,065	216,545	<b>5,834,140</b>
2	31,027	21,129	36,305	35,251	487,719	1,358,343	66,600	40,029	38,164	60,224	239,391	423,373	507,374	94,120	<b>3,439,047</b>
3	0	0	3	16	0	0	0	0	12	0	0	1,767	0	0	<b>1,800</b>
4	559	392	789	765	38,274	109,537	4,950	1,344	4,268	6,171	23,039	61,064	108,094	15,165	<b>374,411</b>
5	1,511	443	88	280	8,329	15,733	682	906	683	735	5,578	10,665	16,731	3,267	<b>65,629</b>
7	133	374	414	354	4,826	704	16	43	310	0	0	4,228	22,529	6,663	<b>40,595</b>
8	460	224	12	62	50,218	89,020	5,084	6,927	11,764	13,776	48,261	98,258	121,640	22,649	<b>468,355</b>
9	0	0	0	0	0	0	0	154	0	0	0	0	0	3,527	<b>3,680</b>
10	178	187	382	463	12,466	22,065	1,694	1,412	1,120	1,166	5,554	27,818	24,523	3,557	<b>102,584</b>
11	389	130	45	183	3,503	0	0	0	288	306	3	0	288	32	<b>5,168</b>
12	0	0	78	81	0	0	0	0	0	0	0	0	0	0	<b>159</b>
13	0	0	0	57	10,416	20,770	4,407	2,814	2,000	5,907	14,106	24,283	42,971	13,369	<b>141,099</b>
14	309	142	234	372	16,342	133,262	4,153	2,428	4,077	6,245	25,635	42,472	46,498	12,668	<b>294,837</b>
15	1,064	1,839	2,868	4,558	83,144	0	0	228	6,623	10,402	9,135	63,891	93,922	22,309	<b>299,983</b>
16	129	0	11	13	2,944	366	859	1,079	2,218	2,378	10,037	14,120	30,172	4,186	<b>68,513</b>
17	299	165	634	485	49,920	47,366	2,612	9,304	5,885	9,987	48,940	106,771	147,476	30,764	<b>460,610</b>
18	0	0	0	0	1,752	3,068	1,456	429	633	603	3,209	3,347	7,875	2,874	<b>25,245</b>
19	174	29	89	180	4,863	7,261	540	228	661	3,842	1,867	8,523	0	0	<b>28,256</b>
21	2,938	1,816	2,760	3,316	52,435	158,986	10,909	5,566	6,251	6,459	31,836	60,760	90,627	16,953	<b>451,611</b>
22	84	57	184	473	8,590	10,582	633	1,224	1,451	2,039	2,385	3,811	4,746	1,272	<b>37,532</b>
23	286	0	93	0	0	0	0	0	543	352	1,585	919	1,805	515	<b>6,097</b>
24	301	178	849	941	3,634	0	0	0	0	0	2,651	4,618	28	6	<b>13,205</b>
26	103	181	1,241	444	10,994	141	234	0	0	659	1,411	4,735	4,863	2,913	<b>27,919</b>
27	30	29	23	27	484	844	180	220	0	63	797	398	0	0	<b>3,096</b>
28	6	0	72	0	11,236	17,196	2,910	1,871	2,177	2,824	10,363	17,669	33,511	8,925	<b>108,761</b>
29	0	0	0	0	0	0	0	0	0	563	0	1,181	0	0	<b>1,745</b>

Administrator	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
30	1,311	65	163	175	2,385	929	58	86	100	66	298	9,385	609	97	15,726
31	6,108	1,390	165	405	67,249	86,177	5,101	1,172	1,073	3,893	31,774	92,065	52,325	57,065	405,961
32	632	485	1,592	1,518	39,951	87,894	4,656	8,145	9,243	698	1,318	58,781	0	16,656	231,570
33	116	0	195	214	4,808	5,798	0	0	0	0	0	0	0	0	11,131
34	4,249	2,326	1,792	2,301	52,324	26,878	401	940	528	479	1,315	1,983	3,146	3,135	101,793
37	6,626	1,223	0	22	9,242	24,542	1,178	0	0	0	0	0	0	0	42,833
38	14,211	7,949	9,648	16,824	37,305	443,747	29,757	1,951	1,292	11,282	268,914	613,490	328,712	76,643	1,861,724
39	0	0	0	0	0	0	0	0	217	6,779	20,397	0	0	0	27,393
41	153	0	76	96	0	0	0	0	0	0	0	1,444	1,900	0	3,668
42	0	0	0	0	0	0	0	0	0	0	1,228	2,199	0	0	3,427
43	0	0	0	0	0	0	0	543	676	895	1,978	3,488	4,835	1,028	13,443
45	557	39,871	292	181	0	0	0	6	6	31	0	2,264,471	1,331,625	337,813	3,974,853
46	0	93	0	181	3,596	5,798	111	0	0	0	0	0	0	0	9,780
47	0	0	0	0	0	6,726	395	527	568	5	1,802	1,735	2,093	579	14,431
48	0	0	0	0	0	0	0	0	0	0	0	0	39	0	39
49	129	66	98	76	1,658	0	0	0	0	0	0	0	0	0	2,028
<b>Total</b>	<b>92,068</b>	<b>90,625</b>	<b>81,595</b>	<b>166,497</b>	<b>2,895,793</b>	<b>3,834,258</b>	<b>205,411</b>	<b>136,522</b>	<b>161,904</b>	<b>246,822</b>	<b>1,198,507</b>	<b>4,813,558</b>	<b>4,125,022</b>	<b>975,294</b>	<b>19,023,876</b>

An in-depth analysis of 2014 and 2015 financial years show that there were 30 administrators in the industry serving the 1119 and 1033 RBS that reported the data for the two years. Table 66 shows the distribution of the RBS and fees paid to the administrators in 2014 and 2015. The data included in the table shows that in 2014, administrator 45 served 1 RBS and earned 32% of the industry revenue while administrator 1 served 14% of the RBS and earned 27% of the industry fees.

Table 66: Administration Fees Paid by RBS in 2014 and 2015

Admini strator	2014					2015				
	RBS	Share of RBS	Fees Ksh. 000	Share of Fees	Cost per RBS	RBS	Share of RBS	Fees Ksh. 000	Share Fees	Cost per RBS
1	156	13.95%	1,094,065	26.52%	7,013,237	139	13.25%	216,545	22.21%	<b>1,557,878</b>
2	153	13.69%	507,374	12.30%	3,316,170	143	13.63%	94,120	9.65%	<b>658,182</b>
4	29	2.59%	108,094	2.62%	3,727,379	23	2.19%	15,165	1.56%	<b>659,348</b>
5	7	0.63%	16,731	0.41%	2,390,143	6	0.57%	3,267	0.34%	<b>544,500</b>
7	5	0.45%	22,529	0.55%	4,505,800	5	0.48%	6,663	0.68%	<b>1,332,600</b>
8	67	5.99%	121,640	2.95%	1,815,522	60	5.72%	22,469	2.30%	<b>374,483</b>
9	0	0.00%	0	0.00%	0	6	0.57%	3,527	0.36%	<b>587,833</b>
10	112	10.02%	24,523	0.59%	218,955	97	9.25%	3,557	0.36%	<b>36,670</b>
11	96	8.59%	288	0.01%	3,000	91	8.67%	32	0.00%	<b>352</b>
13	17	1.52%	42,971	1.04%	2,527,706	15	1.43%	13,369	1.37%	<b>891,267</b>
14	29	2.59%	46,498	1.13%	1,603,379	36	3.43%	12,668	1.30%	<b>351,889</b>
15	78	6.98%	93,922	2.28%	1,204,128	71	6.77%	22,309	2.29%	<b>314,211</b>
16	22	1.97%	30,172	0.73%	1,371,455	23	2.19%	4,186	0.43%	<b>182,000</b>
17	60	5.37%	147,476	3.57%	2,457,933	45	4.29%	30,764	3.15%	<b>683,644</b>
18	17	1.52%	7,875	0.19%	463,235	17	1.62%	2,874	0.29%	<b>169,059</b>
21	47	4.20%	90,627	2.20%	1,928,234	50	4.77%	16,953	1.74%	<b>339,060</b>
22	6	0.54%	4,746	0.12%	791,000	4	0.38%	1,272	0.13%	<b>318,000</b>
23	2	0.18%	1,805	0.04%	902,500	3	0.29%	515	0.05%	<b>171,667</b>
24	1	0.09%	28	0.00%	28,000	1	0.10%	6	0.00%	<b>6,000</b>
26	104	9.30%	4,863	0.12%	46,760	98	9.34%	2,913	0.30%	<b>29,724</b>
28	14	1.25%	33,511	0.81%	2,393,643	17	1.62%	8,925	0.92%	<b>525,000</b>
30	6	0.54%	609	0.01%	101,500	6	0.57%	97	0.01%	<b>16,167</b>
31	24	2.15%	53,325	1.29%	2,221,875	20	1.91%	57,065	5.85%	<b>2,853,250</b>
32	0	0.00%	0	0.00%	0	17	1.62%	16,656	1.71%	<b>979,765</b>
34	17	1.52%	3,146	0.08%	185,059	11	1.05%	3,135	0.32%	<b>285,000</b>
38	37	3.31%	328,712	7.97%	8,884,108	36	3.43%	76,643	7.86%	<b>2,128,972</b>
41	2	0.18%	1,900	0.05%	950,000	1	0.10%	0	0.00%	<b>0</b>
43	6	0.54%	4,835	0.12%	805,833	4	0.38%	1,028	0.11%	<b>257,000</b>
45	2	0.18%	1,331,625	32.27%	665,812,500	3	0.29%	337,813	34.64%	<b>112,604,333</b>
47	1	0.09%	2,093	0.05%	2,093,000	1	0.10%	579	0.06%	<b>579,000</b>
48	1	0.09%	39	0.00%	39,000	0	0.00%		0.00%	<b>0</b>

Admini strator	2014				2015					
	RBS	Share of RBS	Fees Ksh. 000	Share of Fees	Cost per RBS	RBS	Share of RBS	Fees Ksh. 000	Share Fees	Cost per RBS
	1118	100.00%	4,126,022	100.00%		1,049	100.00%	975,115	100.00%	

Further analysis shows that the administration cost per RBS and member differs significantly amongst different service providers ( $p < 0.001$ ).

#### 4.9.3 Effect of the Choice of Fund Manager on Cost Efficiency

Table 67 shows the investment management fees charged by all fund managers between 2002 and 2015. It shows that in total a sum of Ksh. 4.5B was paid to the fund managers in the years 2002 to 2015. Statistical analysis shows that the average investment management fees and the percentage charge per value of assets under management charged by the fund managers differed significantly ( $p < 0.001$ ) amongst the service providers.

Table 67: Investment Management Fees Paid by RBS (2002-2015)

Fund Managers	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
1	263	298	231	188	418	397	498	777	1,889	8,599	15,656	29,103	25,434	32,151	115,902
2	20	72	54	79	123	133	122								603
3									721	531	277	361	610	810	3,310
4	71	37	107	180	255	310	413	340	394	289	367	3,922	706	820	8,211
5	3,247	14,724	18,459	20,766	26,589	14,136	16,849	1,107	7,415	6,303	8,350	14,887	24,679	18,340	195,851
7						2							80	88	170
8	3,474	6,036	4,131	7,031	10,637	10,808	17,956	12,565	20,760	8,629	14,210	17,720	26,608	31,491	192,056
9					19	19	31	2	4	135	241	558	833	963	2,805
10		32	18												50
11	3,759	8,066	5,182	5,510	8,022	17,073	21,620	21,646	23,667	42,568	65,964	104,564	108,926	126,971	563,538
12	20,266	15,123	13,158	14,355	17,161	11,416	15,002	9,829	7,879	18,259	66,967	36,582	43,957	42,921	332,875
13	55	50	6	53	8	4		45	2		146		17		386
14	287	281	389	380	658	497	642	345	805	648	2,016	2,120	2,343	1,186	12,597
15	18,930	21,405	34,669	34,486	42,688	56,766	55,420	17,744	18,949	32,904	64,422	84,348	103,886	76,571	663,188
16	2,848	3,446	3,733	4,650	6,663	7,768	7,808	22,214	39,759	74,404	133,414	205,957	266,512	243,596	1,022,772
17	86	88		17	21	21	171	883	1,608	13	88	153	501	814	4,464
18	1,023	2,667	2,031	650	2,367	18,104	18,549	11,889	11,527	38,804	53,635	74,607	91,042	81,254	408,149
19	61	75		73	137	285			6	188	142	241	181	4	1,393
20											1,471	1,754	3,300	4,675	11,200
21	2,134	1,958	2,877	3,579	9,142	6,766	695	15				386	846	877	29,275
22	732	4,203	5,738	9,176	13,160	16,625	23,644	13,708	6,119	8,761	18,799	10,207	9,411	12,785	153,068
23	3,451	2,302	5,112	4,548	8,115	13,383	15,017	9,476	11,295	25,583	115,103	96,728	113,176	35,823	459,112
24				7	9										16
25	15,265	21,441	31,350	36,939	28,592	55,607	72,617	3,997	26	9,325	11,902	60			287,121
26				107	539	533	607	891	1,218						3,895
27	195	0	1,103	120	62	25	61	16	148				338	341	2,409
28	374			7											381

29														4,807	4,807
31						183	163				451	832	971	1,180	3,780
32		39				155	185								379
34														45	45
37		3													3
38			1,983	2,355		3,053	3,688								11,079
<b>Total</b>	<b>76,541</b>	<b>102,346</b>	<b>130,331</b>	<b>145,256</b>	<b>175,385</b>	<b>234,069</b>	<b>271,758</b>	<b>127,489</b>	<b>154,191</b>	<b>275,943</b>	<b>573,621</b>	<b>685,090</b>	<b>824,357</b>	<b>718,513</b>	<b>4,494,890</b>

Fund Managers	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1	263	298	231	188	418	397	498	777	1,889	8,599	15,656	29,103	25,434	32,151
2	20	72	54	79	123	133	122							
3									721	531	277	361	610	810
4	71	37	107	180	255	310	413	340	394	289	367	3,922	706	820
5	3,247	14,724	18,459	2,076,693	692,558	14,136	16,849	1,107	7,415	6,303	8,350	14,887	24,679	18,340
7						2							80	88
8	3,474	6,036	4,131	7,031	10,637	10,808	17,956	12,565	20,760	8,629	14,210	17,720	26,608	31,491
9					19	19	31	2	4	135	241	558	833	963
10		32	18											
11	3,759	8,066	5,182	5,510	8,022	17,073	21,620	21,646	23,667	42,568	65,964	104,564	108,926	126,971
12	20,266	15,123	13,158	14,355	17,161	11,416	15,002	9,829	7,879	18,259	66,967	36,582	43,957	42,921
13	55	50	6	53	8	4		45	2		146		17	
14	287	281	389	380	658	497	642	345	805	648	2,016	2,120	2,343	1,186
15	18,930	21,405	34,669	34,486	42,688	56,766	55,420	17,744	18,949	32,904	64,422	84,348	103,886	76,571
16	2,848	3,446	3,733	4,650	6,663	7,768	7,808	22,214	39,759	74,404	133,414	205,957	266,512	243,596
17	86	88		17	21	21	171	883	1,608	13	88	153	501	814
18	1,023	2,667	2,031	650	2,367	18,104	18,549	11,889	11,527	38,804	53,635	74,607	91,042	81,254
19	61	75		73	137	285			6	188	142	241	181	4
20											1,471	1,754	3,300	4,675
21	2,134	1,958	2,877	3,579	9,142	6,766	695	15				386	846	877

22	732	4,203	5,738	9,176	13,160	16,625	23,644	13,708	6,119	8,761	18,799	10,207	9,411	12,785
23	3,451	2,302	5,112	4,548	8,115	13,383	15,017	9,476	11,295	25,583	115,103	96,728	113,176	35,823
24				7	9									
25	15,265	21,441	31,350	36,939	28,592	55,607	72,617	3,997	26	9,325	11,902	60		
26				107	539	533	607	891	1,218					
27	195	0	1,103	120	62	25	61	16	148				338	341
28	374			7										
29														4,807
31						183	163				451	832	971	1,180
32		39				155	185							
34														45
37		3												
38			1,983	2,355		3,053	3,688							



An in-depth analysis of 2014 and 2015 shows that there were 24 fund managers in the industry serving the 973 and 774 RBS that reported the data for the two years. Table 68 shows the distribution of the RBS and fees paid to the fund managers in 2014 and 2015. The table shows that in 2014, fund manager 12 invested funds on behalf of 25% of RBS but earned 5.3% of the industry revenue while fund manager 16 invested funds on behalf of 5% of the RBS but earned 32% of the industry revenue. In 2015, fund manager 16 earned 34% of the industry revenue but managed 5% of the RBS. Similarly, fund manager 11 earned 18% of the industry revenue but invested on behalf of 5.6% of the RBS.

Table 68: Investment Management Fees Paid by RBS in 2014 and 2015

Fund manager	2014				2015			
	RBS	RBS Share	Total fees Ksh. M	Fees Share	RBS	RBS Share	Total fees Ksh. M	Fees Share
16	48	4.93%	266.5	32.33%	37	4.80%	243.6	33.90%
23	41	4.24%	113.2	13.73%	18	2.30%	35.8	4.98%
11	48	4.93%	108.9	13.21%	43	5.60%	127	17.67%
15	86	8.82%	103.9	12.60%	65	8.40%	76.6	10.66%
18	29	2.98%	91	11.04%	24	3.10%	81.3	11.31%
12	244	25.09%	44	5.34%	181	23.40%	42.9	5.97%
8	52	5.38%	26.6	3.23%	43	5.60%	31.5	4.38%
1	29	2.98%	25.4	3.08%	27	3.50%	32.2	4.48%
5	35	3.55%	24.7	3.00%	32	4.10%	18.3	2.55%
22	4	0.46%	9.4	1.14%	3	0.40%	12.8	1.78%
20	2	0.23%	3.3	0.40%	2	0.30%	4.7	0.65%
14	14	1.49%	2.3	0.28%	13	1.70%	1.2	0.17%
31	2	0.23%	1	0.12%	2	0.30%	1.2	0.17%
21	79	8.13%	0.8	0.10%	51	6.60%	0.9	0.13%
9	8	0.80%	0.8	0.10%	7	0.90%	1	0.14%
4	13	1.37%	0.7	0.08%	12	1.60%	0.8	0.11%
3	4	0.46%	0.6	0.07%	3	0.40%	0.8	0.11%
17	9	0.92%	0.5	0.06%	8	1.00%	0.8	0.11%
27	94	9.62%	0.3	0.04%	77	9.90%	0.3	0.04%
19	23	2.41%	0.2	0.02%	20	2.60%	0	0.00%
7	2	0.23%	0.2	0.02%	2	0.30%	0.1	0.01%
13	100	10.31%	0	0.00%	0	0.00%	0	0.00%
29	4	0.46%	0	0.00%	4	0.50%	4.8	0.67%
34	0	0.00%	0	0.00%	7	0.90%	0	0.00%
<b>Total</b>	<b>973</b>	<b>100%</b>	<b>824.3</b>	<b>100%</b>	<b>774</b>	<b>100%</b>	<b>718.6</b>	<b>100%</b>

Further analysis in table 69 shows that the average investment management cost per RBS increased from Ksh. 0.85M in 2014 to Ksh. 0.93M in 2015. The average percentage cost of assets under management reduced from 0.133% in 2014 to 0.116% in 2015.

Table 69: Average Cost per RBS and Value of Assets under Management – 2014 and 2015

Fund manager	2014			2015		
	Cost Per RBS	Value of Assets under Management	% Cost of Assets under Management	Cost Per RBS	Value of Assets under Management	% Cost of Assets under Management
16	5.561	153,798	0.173%	6.584	158,498	0.154%
12	2.745	63,188	0.179%	1.989	62,867	0.057%
15	2.272	59,723	0.182%	2.953	61,109	0.208%
3	1.211	53,899	0.193%	1.178	8,905	0.860%
11	3.140	52,489	0.173%	3.388	183,118	0.044%
18	0.180	46,778	0.094%	0.237	37,279	0.115%
8	0.508	46,626	0.057%	0.733	59,703	0.053%
27	0.877	34,117	0.074%	1.193	41,354	0.078%
5	0.715	33,184	0.074%	0.572	41,759	0.044%
13	2.108	21,788	0.043%	4.267	0	0.000%
1	1.480	18,656	0.018%	2.350	24,278	0.019%
21	0.159	14,466	0.016%	0.092	14,332	0.008%
22	0.449	6,007	0.017%	0.600	7,151	0.017%
19	0.010	4,184	0.019%	0.018	5,293	0.017%
17	0.103	3,249	0.025%	0.143	3,151	0.032%
14	0.052	1,849	0.038%	0.067	1,835	0.044%
9	0.135	1,666	0.036%	0.267	685	0.117%
4	0.056	1,662	0.030%	0.100	1,848	0.043%
31	0.003	1,591	0.019%	0.004	1,669	0.018%
20	0.009	305	0.065%	0.000	370	0.000%
7	0.090	82	0.243%	0.050	97	0.103%
3	0.000	49	0.000%	0.000	34	0.000%
29	0.000	0	0.000%	1.200	2,276	0.211%
34	0.000	0	0.000%	0.000	899	0.000%
<b>Total</b>	<b>0.847</b>	<b>619,356</b>	<b>0.133%</b>	<b>0.928</b>	<b>718513</b>	<b>0.116%</b>

#### 4.9.4 Effect of Choice of Service Providers on Cost Efficiency – Results of the Primary Study.

Discussions with service providers, disclosed the components that make up the custodial, administration and investment management fees. The components are included in table 70.

Table 70: Components of Costs

Custodial Fees	Investment Management Fees	Administration Fees
Minimum fees	Minimum fees	Minimum fees
Safekeeping fees	Performance fees	Record keeping
Transaction fees	Administration charges for instance	Reimbursable costs
Ledger fees	record keeping	Training
Foreign exchange commissions	Online service fee	Exit fees
Reimbursable costs	Research costs	
	Entry fees	
	Exit fees	
	Transaction costs	
	Advisory fees	
	Stamp duty	
	Reimbursable costs	

The discussion with fund managers disclosed various models of charging the fees that are prevalent in the industry. These models are based on fixed fees or a tiered structure of costs charged as a percentage of assets under management where trustees are asked to choose the option that works better for them. The tiered model is then reclassified to fixed percentage of total assets under management plus an outperformance fee based on an agreed bench mark in addition to charges for complementary services such as training of trustees and search costs.

Further discussions led to the conclusion that reputation of the service provider determines the charges levied. For all the three service providers, those with higher market share charged more than the others as the smaller players charge less to attract more clients and retain existing ones.

A discussion with both the trustees and the service providers did not reveal differentiation of the services offered as a reason for charging different fees. Trustees however observed that efficiency differed significantly amongst the administrators and investment managers.

Asked to state the measures of consumer protection existing with regard to custodial, fund management and administration services, the service providers were unanimous that fees are not published and there is no way of knowing the fees charged by other players hence undercutting and unethical competition was reported. The only protection mechanism provided by the regulators was licensing the service providers so that trustees were

restricted to the services of the licensed service providers. This was hailed as a suitable mechanism to protect against exploitation by quacks.

The trustee survey disclosed that service providers are appointed on competitive bidding, single sourcing, and recommendation by the sponsor or simply, the incoming trustees found the service providers and continued working with them.

#### **4.10 Effect of the Design of RBS on Cost Efficiency**

##### **4.10.1 Effect of DC or DB on Cost Efficiency**

The review indicated that there was no significant difference in cost efficiency between the DC and DB operated RBS regardless of the index used to measure cost efficiency.

##### **4.10.2 Effect of Benefit Payment Structure of RBS on Cost Efficiency**

The review indicated that there was no significant difference in cost efficiency between the RBS on the basis of the payment structure (provident fund or pension scheme) regardless of the index used to measure cost efficiency.

##### **4.10.3 Effect of Design of RBS on Cost Efficiency – Results of the Primary Study**

Discussions with the key informants suggested that this result was not surprising. According to them the designs are fundamentally different however the services offered by the service providers are not differentiated by design. A respondent suggested that we test the difference in one cost separately namely; the actuarial fees. This was done and the data showed that most of the RBS that reported actuarial fees were operated on the DB ideology.

#### **4.11 Cost Management Policies Implemented by Trustees**

Discussion with trustees revealed that it is impossible to know the fees charged by alternative service providers as they are “sealed contracts.” Further discussions disclosed that trustees do not have specific policies to deal with escalating costs of managing their schemes. Two policies noted were competitive appointment of service providers and negotiation on quoted fees for additional services quoted by the service providers such as training.

## **5.0 CONCLUSIONS**

This study has made important findings, which include;

The number of members and asset values in RBS increased significantly between 2002 and 2015. Market fluctuations affected asset values between 2008 and 2011. Although the asset values per RBS increased, the asset values per member reduced as the proportionate increase in membership outweighed the proportionate increase in asset values.

Overall costs incurred by RBS increased significantly over the period but the percentage increase in costs was less than the percentage increase in asset values and contributions, which is an indicator of sustainable model for the RBS.

Most of the costs of RBS were incurred in administration, custodial services and investment management. Cost efficiency indices were 1.32 for the operating cost to investment income ratio, 1.26 for the operating costs to total income (including capital gains and losses), 0.452 for the costs (including benefits) and income (including contributions) ratio and the cost per member amounted to Ksh. 15,197.

The findings of the first objective that sought to determine the influence of size on cost efficiency are summarized in table 70.

Table 71: Influence of Size of RBS on Cost Efficiency

Proxy for Size of RBS	OPC/INV	OPC/INC including capital gains and losses	OPC/INC including benefits and contributions	Cost Per Member	Cost per RBS
<b>Number of members</b>	Statistically significant  RBS with less than 2090 members are more efficient	Not significant	Statistically significant  RBS with less than 2090 members are more efficient.	Not Significant	Statistically significant  RBS with less than 2090 members more efficient.
<b>Value of assets</b>	Statistically significant  RBS with asset values between Ksh. 360M – Ksh. 7.2B most efficient, followed by those with less than Ksh. 360M. RBS with assets exceeding Ksh. 7.2B are the most inefficient	Statistically significant  RBS with asset values less than Ksh. 360M were the most efficient, followed by those with asset values in the range of Ksh. 360M – Ksh. 7.2B. RBS with assets exceeding Ksh. 7.2B are the most inefficient	Statistically significant  RBS with asset values between Ksh. 360M – Ksh. 7.2B most efficient, followed by those with less than Ksh. 360M. RBS with assets exceeding Ksh. 7.2B are the most inefficient	Statistically significant  RBS with asset values less than Ksh. 360M were the most efficient, followed by those with asset values in the range of Ksh. 360M – Ksh. 7.2B. RBS with assets exceeding Ksh. 7.2B are the most inefficient	Statistically significant  RBS with asset values less than Ksh. 360M were the most efficient, followed by those with asset values in the range of Ksh. 360M – Ksh. 7.2B. RBS with assets exceeding Ksh. 7.2B are the most inefficient

The findings of the second objective that sought to determine the influence of investment strategy on cost efficiency are summarized in table 71.

Table 72: Influence of Investment Strategy on Cost Efficiency

Proxy for Size of Investment strategy	OPC/INV	OPC/INC including capital gains and losses	OPC/INC including benefits and contributions	Cost Per Member	Cost per RBS
Guaranteed Aggregate Combined	Statistically significant  RBS that used a combined strategy were most efficient followed by aggregate and lastly guaranteed.	Not significantly different	Statistically significant  RBS that used a guaranteed and aggregate reported almost the same index. RBS that used combined strategy were most inefficient.	Statistically significant  RBS that used a guaranteed strategy were most efficient followed by combined and lastly aggregate.	Statistically significant  RBS that used a guaranteed strategy were most efficient followed by combined and lastly aggregate.

The third objective sought to determine the influence that the choice of the service provider has on cost efficiency. The three main service providers namely custodians, administrators and fund managers were analyzed. Results indicate that the costs of custodial services, administration and fund management differs significantly amongst different service providers. Dominance of key players was observed in all the services offered to RBS.

## 6.0 RECOMMENDATIONS

The main recommendations are summarized in table 72

Table 73: Main Recommendations

	Finding	Recommendation
1	<p>Market fluctuations affected asset values adversely between 2008-2011. RBS that used guaranteed investment strategy fared better. Large RBS in terms of asset values were the hardest hit.</p>	<p>Trustees can review their investment strategies to ensure that they are able to use guaranteed funds to minimize market downturns during periods of market turbulence.</p>
2.	<p>The largest proportion of costs of RBS are custodial, administration and investment management.</p> <p>Choice of the service provider has significant implication on the cost per RBS and cost per member</p>	<p>Trustees should only engage service providers after conducting a stringent value for money evaluation.</p> <p>Trustees should review their contracts with service providers as their RBS grow in both membership and asset values.</p>
3.	<p>RBS with less than 2090 members and asset values less than Ksh. 360M had lower cost per RBS.</p> <p>RBS with asset values less than Ksh. 360M had lower costs per member.</p>	<p>Extremely small RBS in terms of membership and asset values should be avoided by use of umbrella schemes.</p> <p>Similarly, oversized RBS with asset values exceeding Ksh. 7.2B should be avoided. They can be split for effective management. Use of co-fund managers should be encouraged for such schemes with clear objectives for each portion of the fund.</p>

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