

# **ANALYSIS OF THE EFFECT OF OPERATING COST ON FINANCIAL PERFORMANCE OF OCCUPATIONAL PENSION SCHEMES IN KENYA**

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## **Abstract**

*The costs of running pension schemes are believed to be significant and have the potential to take resources away from scheme members' pensions. This paper explores the effect of operating costs on pension schemes which consist of administrative and investment costs which can substantially increase the cost of retirement security. The study mainly used secondary data from 164 pension schemes from the audited financial statements from year 2007 to 2009. The population of interest was the value of assets, investment returns, investment costs, administrative costs and other costs as indicated. Stratified sampling technique was used to group the target population of 329 pension schemes into three groups (small, medium and large) which were drawn from the Kenyan Retirement Benefits Authority register. Data on pension schemes for the past 3 years financial statements was analyzed using Return on Assets as the key performance indicator to ascertain the change in financial performance as a result of operating costs. Data was presented using tables for each ratio computed showing the annual average of the three financial years. Tabular presentation was used in trends analysis of each ratios and the year. The study finding on regression analysis shows that there was a strong inverse relationship between financial performance and investment management costs as well as administrative cost. The study recommends that trustees/authorities should monitor and regulate the operating costs incurred by the pension schemes.*

**Keywords:** *Operating costs, Administrative costs, financial performance, occupational pension schemes*

## INTRODUCTION

The components determining the costs of pension provisioning are the quality of the pension schemes and the net rate of return on investments. However, operating costs which consist of administrative and investment costs can also substantially increase the cost of retirement security (Batema and Mitchell, 2004). Examples of the operating costs are the costs of policy development especially asset and liability management, data management systems and reporting. Investment costs include the wages of portfolio manager and analysts, brokerage fees and the cost of electronic trading facilities. The expert personnel required are pension administrators, actuaries, accountants, and legal staff and investment managers. Pension funds can outsource fund administration and investment to specialized companies such as insurance companies, thus gaining access to the necessary expertise, particularly for small firms, at relatively low costs (Bikker and De Dreu, 2009).

A study published by the Dutch National Bank (2009) showed that the average cost per head for pension scheme administration went down as the number of members and assets increased. Large pension schemes are failing to take advantage of potential economies of scale to reduce their administration costs, so forcing investment teams to make better returns to fund their inefficiencies. Consolidation amongst smaller schemes would improve their efficiency and lower costs, but for larger schemes, joining with another would only compound the problem (Pfeuti, 2010). The Dutch National Bank report advised larger schemes to look into internal processes to lower costs and improve their service to members. The study also found that costs for administration, including audit fees and legal charges, for state and governmental schemes were up to 80% higher than the average. The study indicated that the administration costs of pension funds are very important in financial performance as they may erode the wealth accrued for retirement (Pfeuti, 2010).

Financial Performance is a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues that can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation. Financial performance measures should be taken in aggregation (Avkiran, 1995). Line items such as revenue from operations, operating income or cash flow from operations can be used, as well as total unit sales. Pension scheme performance like other firms may at various times be reflected by financial outcomes, sales or market growth, client satisfaction or establishing a foundation upon which future growth may take place. Previous research shows that growth and profitability are contemporaneous and substitutable (Qian and Li, 2003) and they are positively related due to optimal size and efficient scale (Gupta, 1981; Mansfield, 1979). The direct data of

profitability and costs of the pension scheme agents determines business performance (Dvir, Segev&Shenhar, 1993).

Pension funds perform a useful role in providing collective pensions for individuals. Therefore, the asset allocation of pension funds should be realigned with the risks of the liability structure. Furthermore, the valuation of the pension liabilities should be reconsidered in order to make sure that the assumptions made in valuing the future cash flows are matched with the reality of investment markets. Moreover, performance measurement systems of pension funds focus on investment managers as the primary objective of pension funds (Mansfield, 1979).

### **Pension Schemes in Kenya**

According to Odundo (2003) Kenya has several types of schemes which offer social security which can be divided into three broad categories. These are public schemes, occupational schemes and individual schemes. The public schemes are established by Act of Parliament. The Occupational schemes are run by employers for their employees and are underwritten by insurance companies. The individual schemes are private schemes designed for the employed, self-employed and/or for those in non-pensionable employment. The public schemes, occupational and individual schemes cover workers mainly in the formal sector. The pension schemes form the first pillar where membership is not optional but compulsory. The Occupational schemes form the second pillar where membership is either voluntary or mandatory and are privately managed. The voluntary schemes form the third pillar where membership is voluntary. The pillars are the basis of contribution and the distribution of benefits to the retirement benefit schemes (Chitembwe, 2007). According to the Central Bank of Kenya the pool of Kenya Pension savings has grown from Kshs. 176 billion in 2005 to Kshs. 313 billion in 2009 feeding the equities and bond market where pension managers have become some of the single largest investors. Old Mutual Kenya (2007) also reported that pension schemes sector in Kenya amounted to approximately Kshs. 212 billion, or the equivalent of 23% of Gross Domestic Product (GDP). Savings for retirement in Kenya are currently operated by statutory contributions under NSSF, sponsor-led schemes and formal retirement benefit sector which covers approximately 11% of the labour force (Kareithi, 2009). The Government of Kenya has recognised the importance of the retirement funds industry in boosting economic growth and in accelerating domestic savings which currently stands at a rate of approximately 13%. The legal framework of the industry is governed by the Retirement Benefits Act 1997. The Retirement Benefits Authority is the regulator for the industry. The RBA objectives include rising of retirement coverage and to boost domestic savings to 25% (RBA, 2007).

In 1997, the Government of Kenya embarked on an overhaul of the retirement funds industry, previously plagued with the mismanagement and misappropriation of pension scheme assets. The Retirement Benefits Act was introduced in 1997 aimed specifically at regulating a market which had therefore lacked a harmonised legal framework. Under the RBA Act, the authority was formed with the objectives of regulating and supervising the establishment and management of retirement benefit schemes and protects the interest of members and sponsors of retirement benefits schemes. RBA also promotes the development of the retirement benefit sector and seeks to advise the Minister of Finance on national policy to be followed with regard to the retirement benefits sector (RBA, 2007). Under the Act, registered pension schemes are obliged to appoint a board of trustees, one third of whom must be elected by the scheme members, professional managers to manage the scheme assets and a custodian to hold the assets in safe-keeping. Additionally, schemes are obliged to produce audited accounts on an annual basis. Direct benefit schemes are further obliged to undergo actuarial review every 3 years. The Retirement Benefit Authority (RBA) has set guideline limits on the amount that can be invested in any particular asset class (RBA Act). The RBA provides trustee training workshops geared at educating trustees on their roles and responsibilities. The RBA has a dedicated website, containing important information on service providers, legislation and general information

A report by Mutuku (2007) on the trends and challenges of pension schemes indicated that among the problems faced by pension industry in Kenya is high service providers' expenses, inadequate returns, ability to meet pension promise requirements, and the need for credible fund manager performance. The problem facing Kenya's pension scheme that will be focused on will be the fees paid to the service providers. This is because the efficacy of pension schemes depends in part on its operating costs that are charged by the service providers. High costs of administration may lead to less income on retirement and a low annual rate of return since the expenses are paid from the pension funds; especially on defined contribution schemes (Mutuku, 2007).

In Kenya, scheme trustees are required to appoint administrators who are not associated in any way with the contracted fund manager and vice versa (RBA, 2010). By this the operating costs are expected to rise further as there is no standard rate of charges recommended by the authorities. Such operating costs including trustees' fees, administration costs, custodian's fees, audit fees and investment charges may risk the pension payouts. What guidelines do the service providers such as administrators and investment teams use to charge for the services? Some of the occupational pension schemes transfer their funds to Individual Retirement Benefits Schemes because they cannot manage to pay all the charges to the

service providers. In order to manage the pension funds the schemes trustees need to evaluate how these costs affect its finances and return on investment as liabilities may become higher and the scheme end up liquidating. Research work done previously focused on problems facing Kenya's pension system (Nyakundi, 2008), but there is no research done on the effect of operating costs on financial performance of pension schemes. This study therefore aimed to find out how these operating costs affect the financial performance of the pension schemes in Kenya and to what extent

## **LITERATURE REVIEW**

### **Theory of contribution density**

The theory of contribution density states that the adequacy of contributory pensions depends on the contributions of the scheme (Valdes, 2007). Contribution density is defined as the share (present value of) earnings in the active phase of life on which the individual contributes to some pension scheme for old age (Salvador, 2008). Density can be far below 100% because the state is unable to or unwilling to impose the mandate to contribute on all jobs, especially on poor workers such as many in self-employment and small firms. For any given rate of turnover between covered jobs and other uses of time, average density falls when self-employment expands and when activity outside the labour force rises. The determinants of the effective rate of return offered by the pension plans include the earnings differential. This return is compared with the return offered by pure saving in the financial market, to determine the equilibrium density of contribution which affects the financial health of the pension fund (Valdes, 2007). The operating costs affect the scheme funds by reducing the annual rate of return.

### **Agency theory**

Agency theory models the relationship between the principal and the agent. Jensen and Meckling (1976) defined an agency relationship as a "contract under which one or more person (pension members) engages another person (scheme managers) to perform some services on their behalf which involves delegating some decision making authority to the agent". In the context of the pension scheme, a major issue is the information asymmetry between the fund managers and members of the pension scheme as the fund managers of the scheme have an information advantage. Voluntary or mandatory disclosures present an excellent opportunity to apply agency theory in the sense that fund managers who have better access to the pension schemes' private information can make credible and reliable communication to the market to optimize the value of the pension funds. These disclosures include investment opportunities and the financing policies of the fund.

Pension schemes with very few exceptions are not resourced to manage all their activities in-house. So they employ 'agents' in both advice roles such as investment consulting and delegated roles such as investment managers. This exposes them to the 'agency problem' that agents' interests may not coincide with those of the fund (Fields & Tirtiroglu, 1991). If opportunity allows, one of the most straight forward opportunistic actions agents can take is to secretly shift expenses, which they would normally bear, onto the principal.

The major issue is that pension funds' goals are tied to paying pensions, whereas agents may be more interested in managing their business in line with their own objectives. Furthermore, pension funds tend to use a wide array of professional firms because of the complexity of their activities and the interaction of a number of agents may not make up a cohesive 'team'. The result has been that the costs of employing agents have been high. The share-ownership cost is the second problem of the current investment system. Pension funds have had good reasons to own equities but this view is complicated by what is meant by this 'ownership' (Steward, 1990).

According to Vittas (2003), the operating and investment performance of Mauritius, occupational pension funds varied over time. The data which was derived from the annual reports of self-administered pension funds over the period 1997 to 2001 reported that operating expenses have been on a rising trend, relative to both annual contributions and average assets. Among the operating costs such as professional fees for auditors and actuaries and levies paid to the Authority are met by the employees. Other costs are incurred by the employers who are sponsors. Vittas also reported that pension funds in Mauritius had low operating expenses in comparison to the levels found in Chile and other Latin American countries or to personal pension plans in the United Kingdom (Vittas, 2003).

In Kenya, Kusewa (2007) studied the impact of regulation of the retirement benefits sector on financial performance of occupational schemes. The study was carried out on different pension schemes managed by three different insurance companies. From the study it was found that there is a linear relationship between the regulation of the retirement benefit sector and the financial performance of the occupational pension schemes.

Further, Njuguna (2008) determined the relationship between the agency costs and financial performance of pension schemes in Kenya. The population of the study was the pension registered by RBA where the sample comprised of forty pension schemes. Data for five years was extracted from the audited financial statements of the sampled pension schemes. The conclusion of the research was that there is a linear relationship between the agency costs and financial performance of pension schemes in Kenya.

## RESEARCH METHODOLOGY

### Research Design

The research design employed in this study is a case study. This is considered to be the most suitable method since only one study unit; Pension schemes were studied. This method involved researching on a single unit or a few study units where many populations' elements exist.

### Study population

The population of the study comprised of all 329 pension schemes. The study mainly used secondary data that was obtained from the audited financial statements from year 2007 to 2009. Stratified random technique was used to group the pension schemes into three groups according to the size of the fund of base year 2007. The sample studied was selected from the accessible population.

Table 1. Target population

<b>Size of the fund (Capital in Ksh' million) of year 2007</b>	<b>Number of pension schemes</b>	<b>Percentage (%)</b>
1m to 20m (Small)	155	47
20m to 50m (Medium)	97	30
Over 50m (Large)	77	23
<b>Total</b>	<b>329</b>	<b>100</b>

### Sampling method and data collection procedures

A stratified random technique was used to ensure that different groups of a population are adequately represented in the sample so as to increase the level of accuracy when estimating parameters. Furthermore, all other things being equal, stratified sampling considerably reduces the cost of execution. The underlying idea in stratified sampling was to use available information on the population to divide it into groups such that the elements within each group are more alike than the elements in the population as a whole. Homogeneous groups are created based on variables of interest in studying. A random sample of 10% of the population should be drawn and a stratified sample of 10% of each group would ensure better presentation of these groups (Nachmias, 1996). Where time and resources are available, a researcher should take as big a sample as possible (Mugenda and Mugenda, 2003). Hence the researcher considered 50% of each stratum as the sample size. The sample comprised of 164 pension schemes. Three year

financial statements covering the period 2007 to 2009 financial years for the pension schemes sampled were analysed.

Table 2. Sampling Frame

<b>Size of the fund (Capital in Ksh' million)</b>	<b>Number of pension schemes</b>	<b>Percentage (%)</b>	<b>Sample size</b>
1m to 20m (Small)	155	47	77
20m to 50m (Medium)	97	30	48
Over 50 m (Large)	77	23	39
<b>Total</b>	<b>329</b>	<b>100</b>	<b>164</b>

The study mainly used data from pension schemes for the past three years and categorized them into three (small, medium and large) groups according to the size of the fund for each pension scheme. The data was extracted from the audited financial statements of the sampled pension schemes. The data collected related to operating costs and financial performance of pension schemes, thus, data on profitability pension plan. In this study, R in the audited financial statements for each sampled pension scheme during the three years was analyzed. This period was considered long enough to provide sufficient variables to assist in ascertaining a trend on operating costs and financial performance of pension schemes.

### **Data Analysis and Reporting**

Data on pension schemes for the past 3 years financial statements was analyzed using key performance indicators like financial ratios to ascertain the change in financial performance as a result of change in operating costs. Generally, the financial performance was done using ratios, such as, Return on Asset ratio, Return on Investment ratio and administration cost ratio, auditing cost ratio and trustee cost ratio as computed annually for each scheme category.

Linear regression technique using T-test for the sample means of pension schemes was applied. After collecting the data, analysis was done with help of Statistical Package for Social Scientist, (SPSS). Data was presented by use of tables for each ratio computed showing each financial year, each year of study. Annual averages for each ratio were tabulated for each year. Regression analysis of return on asset ratio against the operating expense ratios (operating expense ratio will be the ratio of investment costs, administrative costs, auditing and trustees costs to gross income) was carried out.



The following model states some expected functional relationship between the dependent variables and independent variables in the following form:

$$Y_i = \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2 + \alpha_3 x_3 + \alpha_4 x_4 + \varepsilon_i$$

Where,

$Y_i$  is the financial performance of pension scheme  $i$  measured by Return on Asset (ROA)

$x_i$  is the core administrative cost, investment cost, levy costs or auditing cost, where  $i=1,2,3,4$

$\varepsilon$  is the error term

## RESULTS AND DISCUSSION

### Descriptive Statistics

This section illustrates the summary of statistics of the schemes involved in the study.

Table 3. Mean and Standard Deviation

Scheme Category	Sample	Mean					Standard deviation				
		ROA	ICR	ACR	AUCR	TCR	ROA	ICR	ACR	AUCR	TCR
Small pension schemes	50	0.07	2.93	0.07	0.07	0.08	0.07	2.93	0.07	0.07	0.08
Medium pension schemes	34	0.08	3.24	0.07	0.03	0.05	0.08	3.24	0.07	0.03	0.05
Large pension schemes	33	0.08	3.05	0.03	0.01	0.02	0.03	0.50	0.01	0.00	0.01
<b>All pension schemes</b>	<b>117</b>	<b>0.10</b>	<b>3.50</b>	<b>0.06</b>	<b>0.01</b>	<b>0.03</b>	<b>0.10</b>	<b>3.50</b>	<b>0.06</b>	<b>0.01</b>	<b>0.03</b>

ICR, ACR, AUCR and TRC represent investment cost, administration cost, auditing cost, and trustee costs respectively. In terms of financial performance focusing on Return on Assets, it was revealed that large and medium pension schemes performed better than the small schemes at 0.08. However, in terms of deviation, medium pension schemes had higher fluctuations at 0.08.

When comparing performance in terms of investment cost, medium pension schemes had a better performance at 3.24, followed by large pension schemes at 3.05. In terms of standard deviation, the study found out that large pension schemes had the lowest fluctuations at 0.50. On administration cost, auditing cost, and trustee cost, small pension schemes used

their income, at a mean of 0.07, 0.07 and 0.08 respectively. Large pension schemes had low deviation on administration cost, auditing cost, and trustee cost.

### Effect of Investment Cost on Financial Performance

Table 4. Regression Analysis of Return on Assets against Investment Cost Ratio

	All schemes	Small schemes	Medium schemes	Large schemes
Multiple R	0.860	0.728 485	0.961	0.865
R Square	0.740	0.531	0.923	0.748
Adjusted R Square	0.735	0.516	0.921	0.740
Standard Error	0.016	0.005	0.004	0.005

The coefficient of determination (R square- $R^2$ ) measures the proportion of variability in a data set that is accounted for by a statistical model. In terms of financial performance with a consideration on investment costs, the study revealed that for all the schemes involved in the study, 74% of the variation in return on asset ratio is explained by variation in the investment cost. For small pension schemes, the ratio is at 53.1% while for large pension schemes the ratio is at 74.8%. A high proportion of 92.3% of the variation in investment cost explained the variation in return on asset obtained for medium schemes.

Table 5. ANOVA for Investment Cost Ratio

Model		Sum of Squares	Degree of freedom	Mean Square	F	Sig.
All Schemes	Regression	0.036	1	0.036	136.83	0.000
	Residual	0.013	115	0.000		
	Total	0.048	116			
Small Schemes	Regression	0.001	1	0.001	36.19	0.000
	Residual	0.000	48	0.000		
	Total	0.002	49			
Medium Schemes	Regression	0.006	1	0.006	373.11	0.000
	Residual	0.000	32	0.000		
	Total	0.006	33			
Large Schemes	Regression	0.002	1	0.002	94.83	0.000
	Residual	0.001	31	0.000		
	Total	0.003	32			

As with investment cost in Table 5, the regression model is higher than the residual model which means that investment cost does account too much of the variability on return on assets. Since sum of squares measures the variability of a data set, medium schemes exhibited the highest variation at 0.006, followed by large schemes at 0.002 and small schemes at 0.001.

### Coefficients of Independent Variables

Table 6. Coefficients of Investment Cost Ratio

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
All Schemes	Constant	0.074	0.004	19.054	.000
	ICR	-0.172	0.015	-11.698	.000
Small Schemes	Constant	0.079	0.002	45.041	.000
	ICR	-0.115	0.019	-6.015	.000
Medium Schemes	Constant	0.135	0.004	35.973	.000
	ICR	-1.644	0.085	-19.316	.000
Large Schemes	Constant	0.078	0.002	45.587	.000
	ICR	-0.158	0.016	-9.738	.000

Table 6 provides the quantification of the relationship between return on assets and investment cost. For small schemes, with every increase in a unit of investment cost, the return on asset decreases by 0.115 units. For medium schemes, with every increase in a unit of investment cost, the return on assets decreases by 1.644 units, while for large schemes, with every increase in a unit of investment cost, the return on assets decreases by 0.158 units. For all the pension schemes, with every increase in a unit of investment cost, the return on assets decreases by 0.172 units. The Constant has no 'practical' meaning as it gives the value of return on assets when investment cost is equal to zero.

The unstandardized coefficients are the coefficients of the estimated regression model. With respect to the return on assets, the following equations can be derived:

$$\begin{aligned} \text{ROA} &= 0.074 - 0.172 (\text{ICR}) + 0.015 (e) && \text{All pension schemes} \\ \text{ROA} &= 0.079 - 0.115 (\text{ICR}) + 0.019 (e) && \text{Small pension schemes} \\ \text{ROA} &= 0.135 - 1.644 (\text{ICR}) + 0.085 (e) && \text{Medium pension schemes} \\ \text{ROA} &= 0.078 - 0.158 (\text{ICR}) + 0.016 (e) && \text{Large pension schemes} \end{aligned}$$

Where, e is the error term

The study revealed that there is an inverse relationship between return on asset and investment cost. The t-test shows that medium schemes exhibited the strongest relationship.

### Effect of administrative Cost on Financial Performance

Table 7. Regression Analysis of Return on Assets against Administration Cost Ratio

	All Pension Schemes	Small Pension Schemes	Medium Pension Schemes	Large Pension Schemes
Multiple R	0.888	0.860	0.865	0.820
R Square	0.788	0.740	0.748	0.672
Adjusted R Square	0.786	0.735	0.740	0.662
Standard Error	0.013	0.016	0.005	0.007

From Table 7, for all the 117 pension schemes involved in the study, 78.8% of the variation in return on assets is explained by the variation in administrative cost. For small pension schemes, variation in administrative cost ratio explains 74% of the variation in return of assets, while for medium pension schemes; this ratio is at 74.8%. On the other hand, for large pension schemes, variation in administrative cost to assets ratio explains 67.2% of the variation in return on asset.

Table 8. ANOVA for Administration Cost Ratio

Model		Sum of Squares	df	Mean Square	F	Sig.
All Schemes	Regression	0.069	1	.010	427.55	.002
	Residual	0.019	115	.001		
	Total	0.088	116			
Small Schemes	Regression	0.036	1	.036	136.83	.001
	Residual	0.013	48	.001		
	Total	0.048	49			
Medium Schemes	Regression	0.002	1	.001	94.83	.000
	Residual	0.001	32	.000		
	Total	0.003	33			
Large Schemes	Regression	0.005	1	.005	373.11	.002
	Residual	0.001	31	.003		
	Total	0.006	32			

For all the schemes, lumped together or broken down to the various categories, except medium schemes, the study revealed that the regression model on the sum of squares, is more than

residual. Thus the conclusion that the model does account for most of the variation on the dependent model, which is Return on Assets. This is confirmed by the level of significance being below our threshold of 0.05.

Sum of squares measures the variability of a data set and from the results on Table 8, small pension schemes exhibited the highest variability at 0.036 followed by large pension schemes at 0.005 and medium pension schemes at 0.002. This can be explained by the big number of schemes (50) of the small pension schemes involved in the study.

Table 9. Coefficients on Administration Cost Ratio

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
All Schemes	Constant	0.186	0.009	20.68	.000
	ACR	-0.077	0.002	-48.99	.002
Small Schemes	Constant	0.172	0.015	11.70	.000
	ACR	-0.072	0.004	-19.190	.001
Medium Schemes	Constant	0.158	0.016	9.74	.000
	ACR	-0.077	0.002	-48.56	.000
Large Schemes	Constant	1.644	0.085	19.32	.000
	ACR	-0.119	0.003	-40.60	.001

Table 9 provides the quantification of the relationship between administration cost and return on assets. For, small schemes, with every increase in a unit of administration cost, the return on asset decreases by 0.072 units. For medium schemes, with every increase in a unit of administration cost, the return on assets decreases by 0.077 units, while for large schemes, with every increase in a unit of administration cost, the return on assets decreases by 0.119 units. For all the pension schemes, with every increase in a unit of administration cost, the return on assets decreases by 0.077 units, The Constant has no 'practical' meaning as it gives the value of return on assets when administration cost is equal to zero.

The unstandardized coefficients are the coefficients of the estimated regression model. With respect to the return on assets, the following equations can be derived:

$$\begin{aligned} \text{ROA} &= 0.186 - 0.077 (\text{ACR}) + 0.002 (e) && \text{All schemes} \\ \text{ROA} &= 0.172 - 0.072 (\text{ACR}) + 0.004 (e) && \text{Small schemes} \\ \text{ROA} &= 0.158 - 0.077 (\text{ACR}) + 0.002 (e) && \text{Medium schemes} \\ \text{ROA} &= 1.644 - 0.119 (\text{ACR}) + 0.003 (e) && \text{Large schemes} \end{aligned}$$

Where, e is the error term

There is an evidence of a negative relationship between return on asset ratio and administration cost ratio. The t-test determines the strength of the relationship, in which case, medium pension schemes and large schemes exhibited the strongest relationship.

### Effect of Auditing Cost on Financial Performance

Table 10. Regression Analysis of Return on Assets against Auditing Cost Ratio

	All schemes	Small schemes	Medium schemes	Large schemes
Multiple R	.275	.299	.015	.106
R Square	.076	.089	.000	.011
Adjusted R Square	.068	.070	-.031	-.021
Standard Error	.034	.030	.007	.052

In terms of financial performance with a consideration on auditing cost, the study showed that for all the schemes involved in the study, 7.6% of the variation in return on asset ratio is explained by the variation in audit cost to assets ratio. For small pension schemes, the ratio is at 8.9% while for large pension schemes the ratio is just at 1.1%. Interestingly, there was no relationship between auditing cost and return on asset amongst the medium pension schemes.

Table 11. ANOVA for Auditing Cost Ratio

Model		Sum of Squares	df	Mean Square	F	Sig.
All Schemes	Regression	.011	1	.011	9.403	.003
	Residual	.130	115	.001		
	Total	.141	116			
Small Schemes	Regression	.007	2	.004	4.242	.020
	Residual	.039	47	.001		
	Total	.047	49			
Medium Schemes	Regression	.000	1	.000	.007	.932
	Residual	.001	32	.000		
	Total	.001	33	.001	.355	.556
Large Schemes	Regression	.084	31	.003		
	Residual	.085	32			
	Total					

As with auditing cost in Table 11, the regression model is much lower than the residual model, except for large schemes, which means that auditing cost ratio does not account to much of the

variability on return on assets. The bulk of the variations in return on assets are explained by other residual variable not examined in the study. The significance level being above our threshold of 0.05 confirms the significance of auditing cost ratio to return on asset to be low and confirmed by the F test. Since sum of squares measures the variability of a data set, large schemes exhibited the highest variation at 0.084, followed by small schemes at 0.007. There was no variability of a data set for medium schemes.

Table 12. Coefficients on Auditing Cost Ratio

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
All Schemes	Constant	.080	.004	18.768	.000
	AUCR	-.184	.060	-3.066	.003
Small Schemes	Constant	.079	.009	9.327	.000
	AUCR	-.173	.080	-2.171	.035
Medium Schemes	Constant	.071	.002	31.300	.000
	AUCR	.008	.093	.086	.932
Large Schemes	Constant	.090	.015	6.088	.000
	AUCR	-.601	1.009	-.596	.556

With respect to the return on assets, the following equations can be derived:

$$\text{ROA} = 0.080 - 0.184 (\text{AUCR}) + 0.06 (e) \quad \text{All pension schemes}$$

$$\text{ROA} = 0.079 - 0.173 (\text{AUCR}) + 0.80 (e) \quad \text{Small pension schemes}$$

$$\text{ROA} = 0.071 + 0.008 (\text{AUCR}) + 0.093 (e) \quad \text{Medium pension schemes}$$

$$\text{ROA} = 0.090 - 0.601 (\text{AUCR}) + 1.01 (e) \quad \text{Large pension schemes}$$

Where, e is the error term.

From the analysis there is a negative relationship between return on asset with auditing cost to assets ratio, with the exception of the relationship for all medium schemes.

### Effect of Trustee Cost on Financial Performance

Table 13. Regression Analysis of ROA against Trustees' Cost Ratio

	All Schemes	Small Schemes	Medium Schemes	Large Schemes
Multiple R	.317	.378	.423	.138
R Square	.100	.143	.179	.019
Adjusted R Square	.093	.125	.153	-.012
Standard Error	.03318	.02882	.00605	.05184

The financial performance with regards to trustee cost showed that for all the schemes involved in the study, 10% of the variation in return on asset ratio is explained by the variation in trustee cost. For small pension schemes, 14.3% of the variation in return on asset ratio is explained by the variation in trustee cost while for large pension schemes the ratio is at 1.9%. A high proportion of 17.9% of variation in auditing cost determined the variation in return on asset amongst the medium schemes.

Table14. ANOVA for Trustees' Cost Ratio

Model		Sum of Squares	df	Mean Square	F	Sig.
All Schemes	Regression	.014	1	.014	12.848	.000
	Residual	.127	115	.001		
	Total	.141	116			
Small Schemes	Regression	.007	1	.007	8.011	.007
	Residual	.040	48	.001		
	Total	.047	49			
Medium Schemes	Regression	.000	1	.000	6.983	.013
	Residual	.001	32	.000		
	Total	.001	33			
Large Schemes	Regression	.002	1	.002	.606	.442
	Residual	.083	31	.003		
	Total	.085	32			

The findings in Table 14 show that the regression model is much lower than the residual model, which means that trustee cost ratio does not account too much of the variability on return on assets. The bulk of the variations in return on assets are explained by other residual variable that are not examined in this study. Since sum of squares measures the variability of a data set, small schemes exhibited the highest variation at 0.007, followed by large schemes at 0.002. There was no variability of a data set for medium schemes.

Table 15. Coefficients on Trustees' Cost Ratio

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
All Schemes	Constant	.084	.005	18.24	.000
	TCR	-.202	.056	-3.58	.000
Small Schemes	Constant	.083	.008	10.32	.000
	TCR	-.193	.068	-2.83	.007



Medium Schemes	Constant	.077	.002	33.48	.000
	TCR	-.152	.058	-2.64	.013
Large Schemes	Constant	.098	.021	4.61	.000
	TCR	-.655	.841	-.78	.442

Table 15...

With respect to the return on assets, the following equations can be derived:

$$\text{ROA} = 0.084 - 0.202 (\text{TCR}) + 0.056 (e) \quad \text{All pension schemes}$$

$$\text{ROA} = 0.083 - 0.193 (\text{TCR}) + 0.068 (e) \quad \text{Small pension schemes}$$

$$\text{ROA} = 0.077 - 0.152 (\text{TCR}) + 0.058 (e) \quad \text{Medium pension schemes}$$

$$\text{ROA} = 0.098 - 0.655 (\text{TCR}) + 0.841(e) \quad \text{Large pension schemes}$$

Where, e is the error term.

There is a negative relationship between return on asset with trustee cost on all categories of schemes. The t-test determines the strength of the relationship, in which case medium schemes exhibited the strongest relationship.

### Effect of Operating Cost on Financial Performance

Table 16. Regression Analysis of ROA against TCR, ACR, AUCR, ICR

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
All Schemes	0.728	0.531	0.516	0.005

Predictors: (Constant), TCR, ACR, AUCR, ICR

The financial performance with regards to the combination of trustee cost, audit cost, administration cost and cost of investment showed that for all the schemes involved in the study, 53.1% of the variation in return on asset ratio is explained by the variation in operating costs.

Table 17. ANOVA for TCR, ACR, AUCR, ICR

Model		Sum of Squares	df	Mean Square	F	Sig.
All Schemes	Regression	0.00346	4	0.00346	63.59144	5.29E-09
	Residual	0.001687	112	0.0000544		
	Total	0.005146	116			

Predictors: (Constant), TCR, ACR, AUCR, ICR and Dependent Variable: ROA

The findings shows that the regression model is higher than the residual model, which means the combination of trustee cost, audit cost, administration cost and cost of investment ratios does account to much of the variability on return on assets. The rest of the variations in return on assets are explained by other residual variable that are not examined in this study.

Table18. Coefficients on ICR, ACR, AUCR, TCR

Model	Unstandardized Coefficients		t	Sig.	
	B	Std. Error			
All Schemes	(Constant)	.074	.073	45.041	0.000
	ICR	-0.115	.023	-6.015	0.000
	ACR	-.124	.098	-1.264	0.000
	AUCR	-.034	.111	-.311	0.000
	TCR	-.092	.148	-.620	0.000

Dependent Variable: ROA

This table shows the coefficients of the regression line. It states that the expected return on asset is equal to  $-0.115 * ICR + 0.074 + -.124 * ACR + 0.074 + -.034 * AUCR + 0.074 + -.092 * TCR + 0.074$ .

## CONCLUSION AND RECOMMEDATIONS

The objective of the study was to determine how the operating cost affect the financial performance of occupational pension schemes in Kenya. Over the three year period (2007-2009), administrative cost and investment management cost were vital in determining the financial performance of pension schemes, no matter the size of the scheme fund.

Carrying out regressions tests, it was found out that there was a strong relationship between financial performance and investment management cost as well as administrative cost. It was revealed that 78.8% of the variation in administrative cost ratio explained financial performance in terms of return on assets for all the schemes. Still, 74% variation of the return on asset was explained by investment cost. However, there was a weak relationship between financial performance and auditing cost, since only 7.6% of the return on asset ratio was explained by auditing cost. Similarly, there was a weak relationship between financial performance and trustee cost, given that only 10% of the return on asset ratio was explained by trustee cost.

On carrying out an analysis of variance tests (ANOVA) it was confirmed that the regression model could be relied on for administrative cost and investment management cost,

except for auditing and trustee costs given that the residual on the sum of squares was less than the regression model. Therefore the model does account for most of the variation on the dependent variable, which is financial performance.

The analysis of the coefficients of independent Variables revealed that with every increase in a unit of investment cost, the return on asset decreased by a bigger margin amongst the medium schemes by 1.644 units, followed by large schemes by 0.158 units. For large schemes, with every increase in a unit of administration cost, auditing cost, and trustee cost, the return on asset decreased by bigger margins of 0.119 units, 0.601 units and 0.655 units respectively, as opposed to small and medium pension schemes. The t-test determined that large schemes exhibited the strongest direct relationship between return on asset and investment cost ratio. On administration, auditing and trustee cost large schemes exhibited the strongest inverse relationship.

Operating costs are critical for any business organization due to the need of maximizing returns to various organizational components, and also because of the impact such a decision has on a firm's ability to deal with its competitive and volatile environment effectively. Performance of pension schemes in financial terms is normally expressed in net interest earned, return on investment, and return on assets.

The findings indicate that operating cost ratio accounts for a big percentage of financial performance of all types of pension schemes. As such, high costs of administration and investments led to less income on retirement and a low annual rate of return since the expenses are paid from the pension funds. On the other hand, auditing and trustee cost do not account into a large extent the variability of return on asset, indicating a weak relationship between these costs and the financial performance of the pension schemes. The study recommends that trustees/authorities should monitor and regulate the operating cost incurred by the pension schemes.

Annual financial reports for some occupational pension schemes were missing within the three years which was considered as a limitation of the study. Pension schemes financial statement reports are also sensitive and hence the researcher would not use the real names in this the study.

## REFERENCES

- Kemal Avkiran, N. (1994). Developing an instrument to measure customer service quality in branch banking. *International journal of bank marketing*, 12(6), 10-18.
- Avkiran, N.K. (1995). Developing an instrument to measure customer service quality in branch banking", *International Journal of Banks Marketing*, 12(6), 10-18

- Batema, H., & Mitchell, O.S. (2004). New Evidence on Pension Plan Design and Administrative Expenses: Australia Experience. *Journal of Pension Economics and Finance* 3, 63-76
- Bikker, J., Steenbeck, O. & Torrachi, F. (2010). The Impact of scale, complexity and service quality on the administrative costs of pension funds. DNB working paper, no. 258/2010.
- Chitembwe, S. (2007). The Role of NSSF in the Welfare and Development of the Kenyan Society. National Social Security Fund, Kenya, Paper Presented at the 'Mijadala on Social Policy, Governance and Development in Kenya' sponsored by Development Policy Management Forum on 28 April, 2007 at Nairobi Safari Club.
- Dvir, D. E., Segev, E., & Shenhar, A. (1993). Technology's varying impact in the success of strategic business units within the Miles and Snow typology, *Strategic Management Journal*, Vol. 14 No.2, pp.155-62.
- Fields, A. and Tirtiroglu, D. (1991). Agency-Theory Implications for the Insurance Industry: A Review of the Theoretical and Empirical Research. *Joseph Quarterly Journal of Business and Economics*, Vol. 30, 1991
- Gupta, V.K. (1981). Minimum efficient scale as a determinant of concentration, *The Manchester School of Economic & Social Studies*, Vol. 49 No.2, pp.153-64.
- Jensen, M.C. & Meckling, W.H. (1976). Theory of the firm: managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3, 305 - 60.
- Kareithi A. (2009). Storm over control of multibillion pension scheme. *The standard*, January 21, 2009
- Kusewa, L.M. (2007). The Impact of Regulation of the Retirement Benefits Sector on the Financial Performance of Occupational Pension Schemes in Kenya. Unpublished MBA Project, University of Nairobi.
- Mansfield, E. (1979). *Microeconomics*. (3rd ed.). Norton, New York,
- Mugenda O. M. and Mugenda A. G., (2003). *Research Methods Qualitative and Quantitative Approaches*, Acts Press, Nairobi
- Mutuku, N. (2006). The trends and challenges for pension schemes. Research Paper RBA presented at Maseno University, Kenya.
- Njuguna, G. (2009). Agency costs and financial performance in pension schemes in Kenya. Unpublished MBA Project, University of Nairobi.
- Nyakundi, B. (2009). Pension Coverage in Kenya: Legal and Policy Framework required to encourage coverage in Kenya. Retrieved from [www.ssrn.com](http://www.ssrn.com).
- Odundo, E. (2003). Retirement Benefits Authority, Kenya on Pensions Reforms: An Agenda for Sub-Saharan Africa Seminar, World Bank: Washington DC. [Online] Available: [www.worldbank.org](http://www.worldbank.org). (Retrieved 20 October 2010).
- Pfeuti, E. (2010). Administration costs risking pension payouts. *Financial Newspaper*, Netherlands.
- Qian, G., Li, L. (2003). "Profitability of small and medium-sized enterprises in high-tech industries: the case of the biotechnology industry", *Strategic Management Journal*, Vol. 24 No.8, pp.881-7.
- RBA (2007). Case File Interim Administration. RBA News, September 2006 Vol. 6 No. 1, pp. 3
- Salvador V.P. (2008). A Theory of Contribution Density and Implications for Pension Design. The World Bank discussion paper no. 0828.
- Valdes, P. (2007). A theory of contribution density and implication of pension design. Discussion paper no. 0828.
- Vittas, Dimitri. (2003). The role of occupational Pension funds in Mauritius. World Bank Policy Research Working Paper 3033